Supplement to the Clinical Practice Guideline for the Prevention of Surgical Site Infection After Major Extremity Trauma

e-Appendix 2

- Quality Evaluation
- Detailed Data Tables
- Excluded Literature

This supplementary material has been provided by the authors to give readers additional information about their work

Contents

Strength of Recommendations

Strength Of Recommendation	Overall Strength Of Evidence	Description Of Evidence Quality
Strong	**Strong**	Evidence from two or more "High" quality studies with consistent findings for recommending for or against the intervention. Also requires no reasons to downgrade from the EtD framework
Moderate	**Moderate or Strong**	Evidence from two or more "Moderate" quality studies with consistent findings, or evidence from a single "High" quality study for recommending for or against the intervention. Also requires no or only minor concerns addressed in the EtD framework.
Limited	**Limited, Moderate or Strong**	Evidence from one or more "Low" quality studies with consistent findings or evidence from a single "Moderate" quality study recommending for or against the intervention. Also, higher strength evidence can be downgraded to limited due to major concerns addressed in the EtD Framework.
Consensus	**No Reliable Evidence**	There is no supporting evidence, or higher quality evidence was downgraded due to major concerns addressed in the EtD framework. In the absence of reliable evidence, the guideline work group is making a recommendation based on their clinical opinion.

Quality Appraisal Tables

QE - Prognostic

Study	Prognostic Study Design	Representative Population	Reason for Follow Up Loss	Prognostic Factor Measured	Outcome Measurement	Confounders	Appropriate Statistical Analysis	Strength
Al-Hourani, K., 2019	●	●	●	●	●	●	○	Moderate Quality
Albright, P. D., 2020	●	●	●	●	●	●	○	Moderate Quality
Avilucea, F. R., 2016	●	●	●	●	●	●	○	Moderate Quality
Backes, M., 2014	●	●	●	●	●	●	○	Moderate Quality
Bai, Y., 2019	●	●	●	●	●	●	○	Moderate Quality
Castillo, R. C., 2005	●	●	●	●	●	●	○	Moderate Quality
Chan, G., 2019	●	●	●	●	●	●	◑	High Quality
Clegg, D. J., 2019	●	●	●	●	●	●	○	Moderate Quality
D'Alleyrand, J. C., 2014	●	●	●	●	●	●	●	High Quality
Driesman, A., 2017	●	●	●	◑	●	●	●	High Quality
Dunkel, N., 2013	●	●	●	●	●	●	○	Moderate Quality
Enninghorst, N., 2011	●	●	●	●	●	●	○	Moderate Quality
Esposito, J. G., 2019	●	●	●	●	●	●	◑	High Quality
Harley, B. J., 2002	●	●	●	●	●	●	○	Moderate Quality
Hendrickson, S. A., 2018	●	●	●	●	●	●	○	Moderate Quality
Hendrickson, S. A., 2020	●	●	●	●	●	●	○	Moderate Quality
Hull, P. D., 2014	●	●	●	●	●	◑	◑	Moderate Quality
Jenkinson, R. J., 2014	●	●	●	●	●	●	●	High Quality
Konbaz, F. M., 2019	●	●	●	●	●	●	◑	High Quality
Lack, W. D., 2015	●	●	●	●	●	●	○	Moderate Quality

Study	Prognostic Study Design	Representative Population	Reason for Follow Up Loss	Prognostic Factor Measured	Outcome Measurement	Confounders	Appropriate Statistical Analysis	Strength
Lewandowski, L. R., 2019	●	●	●	●	●	●	○	Moderate Quality
Li, J., 2020	●	●	◑	●	●	●	○	Moderate Quality
Molina, C. S., 2015	●	●	●	●	●	●	●	High Quality
Morris, B. J., 2013	●	●	●	●	●	●	○	Moderate Quality
Noumi, T., 2005	●	●	●	●	●	●	○	Moderate Quality
Olinger, C. R., 2018	●	●	●	◑	●	●	○	Moderate Quality
Olson, J. J., 2021	●	●	●	●	●	●	○	Moderate Quality
Ovaska, M. T., 2016	●	●	●	●	●	●	○	Moderate Quality
Pollak, A. N., 2010	●	●	●	●	●	○	○	Low Quality
Ren, T., 2015	●	●	◑	●	●	●	○	Moderate Quality
Ricci, W. M., 2014	●	●	○	●	●	●	○	Low Quality
Roddy, E., 2020	●	●	●	●	●	●	○	Moderate Quality
Sagi, H. C., 2017	●	●	●	◑	●	●	○	Moderate Quality
Su, J., 2017	●	●	●	●	●	●	○	Moderate Quality
Urias, D. S., 2018	●	●	●	●	●	○	○	Low Quality
Weber, D., 2014	●	●	●	●	◑	●	◑	Moderate Quality
Westgeest, J., 2016	●	●	●	●	●	●	○	Moderate Quality
Whiting, P. S., 2019	●	●	○	●	●	●	○	Low Quality
Zuelzer, D. A., 2020	●	●	●	●	●	●	○	Moderate Quality

QE - Intervention - Randomized

Study	Random Sequence Generation	Allocation Concealment	Blinding	Incomplete Outcome Data	Selective Reporting	Other Bias	Strength
Anglen, J. O., 2005	●	●	○	●	●	●	High Quality
Antich-Adrover, P., 1997	●	◑	○	◑	●	●	Moderate Quality
Arti, H., 2016	●	◑	○	●	●	●	High Quality
Bach, A. W., 1989	○	◑	○	●	●	◑	Moderate Quality
Bali, K., 2011	○	◑	○	○	●	●	Moderate Quality
Bouachour, G., 1996	◑	◑	○	●	●	●	Moderate Quality
Braun, R., 1987	◑	◑	○	●	●	●	Moderate Quality
Costa, M. L., 2018	●	●	◑	●	●	○	High Quality
Crist, B. D., 2018	◑	●	○	○	●	◑	Moderate Quality
Finkemeier, C. G., 2000	◑	◑	○	●	○	●	Moderate Quality
Flow Investigators, 2015	●	◑	●	●	●	●	High Quality
Galal, S., 2018	●	●	●	●	●	●	High Quality
Gao, X., 2019	◑	◑	◑	●	●	●	High Quality
Garg, S., 2019	●	◑	○	●	●	●	High Quality
Henley, M. B., 1998	○	◑	○	●	●	●	Moderate Quality
Holbrook, J. L., 1989	○	◑	◑	●	●	●	Moderate Quality
Janmohammadi, N., 2011	◑	◑	○	●	●	●	Moderate Quality
Keating, J. F., 1997	●	●	○	●	●	●	High Quality
Ma, S., 2006	◑	◑	○	●	●	●	Moderate Quality
Major Extremity Trauma Research,	●	●	●	●	●	●	High Quality

Study	Random Sequence Generation	Allocation Concealment	Blinding	Incomplete Outcome Data	Selective Reporting	Other Bias	Strength
Consortium, 2021							
Malizos, K., 2017	●	●	◑	●	●	◑	High Quality
Mathur, P., 2013	●	●	●	●	●	○	High Quality
Moehring, H. D., 2000	●	●	○	◑	◑	●	Moderate Quality
Mohseni, M. A., 2011	◑	◑	●	●	●	◑	High Quality
Olufemi, O. T., 2017	◑	◑	○	●	●	●	Moderate Quality
Pal, C. P., 2015	◑	◑	◑	●	●	◑	Moderate Quality
Petrisor, B., 2011	●	●	●	●	●	◑	High Quality
Pinto, D., 2019	○	○	◑	●	●	●	Moderate Quality
Saveli, C. C., 2013	●	●	○	○	●	●	Moderate Quality
Sorger, J. I., 1999	◑	◑	◑	●	●	◑	Moderate Quality
Stall, A., 2013	●	●	●	●	●	●	High Quality
Stannard, J. P., 2006	●	◑	◑	●	●	◑	High Quality
Stannard, J. P., 2009	◑	◑	◑	●	●	◑	Moderate Quality
Stannard, J. P., 2012	◑	◑	◑	●	●	◑	Moderate Quality
Tornetta, P., 3rd, 1994	○	◑	◑	●	●	◑	Moderate Quality
Tu, Y. K., 1995	○	◑	◑	●	●	●	Moderate Quality
Vasenius, J., 1998	◑	◑	●	●	●	●	High Quality
Virani, S. R., 2016	●	◑	◑	●	●	●	High Quality
Waikakul, S., 1998	○	◑	○	●	●	●	Moderate Quality
Williams, M. M., 1995	◑	◑	○	○	○	●	Low Quality

Study	Random Sequence Generation	Allocation Concealment	Blinding	Incomplete Outcome Data	Selective Reporting	Other Bias	Strength
Yuenyongviwat, V., 2011	◑	◑	●	●	●	●	High Quality
Zhang, T., 2016	◑	◑	○	●	●	●	Moderate Quality

QE - Intervention - Observational ROBINS 1

Study	Participant Recruitment	Treatment recording	Confounding Variables	Outcome measurement bias	Incomplete Outcome Data	Adequate Reporting	Strength
Adams, C. I., 2001	●	●	●	●	●	●	Low Quality
Al-Arabi, Y. B., 2007	●	●	○	●	◑	●	Low Quality
Al-Hilli, A. B., 2010	●	●	○	●	●	●	Low Quality
Al-Hourani, K., 2019	●	●	○	●	●	●	Low Quality
Alberts, K. A., 1999	◑	●	○	●	●	●	Low Quality
Arslan, H., 2019	●	●	○	●	◑	●	Low Quality
Arti, H. R., 2012	●	●	●	●	●	●	Low Quality
Bankhead-Kendall, B., 2019	●	●	●	●	●	●	Low Quality
Barton, C. A., 2012	●	●	●	●	●	●	Low Quality
Bergin, P. F., 2012	●	●	○	●	●	●	Low Quality
Blum, M. L., 2012	●	●	◑	●	●	●	Low Quality
Boriani, F., 2017	●	●	○	●	●	●	Low Quality
Burtt, K. E., 2020	●	●	○	◑	●	●	Low Quality
Campbell, S., 2020	●	●	●	●	●	●	Low Quality
Charalambous, C. P., 2005	●	●	●	●	●	●	Low Quality
Chua, W., 2014	●	●	○	●	○	●	Low Quality
Crowe, C. S., 2017	●	●	●	●	●	●	Low Quality
D'Alleyrand, J. C., 2014	●	●	○	◑	●	●	Low Quality
Danoff, J. R., 2015	●	●	◑	●	●	●	Low Quality
Donnally, C. J., 3rd, 2018	●	●	●	●	●	●	Low Quality
Erturk, C., 2013	●	●	○	●	●	●	Low Quality

Study	Participant Recruitment	Treatment recording	Confounding Variables	Outcome measurement bias	Incomplete Outcome Data	Adequate Reporting	Strength
Fernandes Mde, C., 2015	●	●	○	●	●	●	Low Quality
Frantz, T. L., 2020	●	◑	○	●	●	●	Low Quality
Galal, S., 2018							High Quality
Ganji, S. M. S., 2011	●	●	●	●	◑	●	Low Quality
Gupta, Anil, 2015	●	●	◑	◑	●	●	Low Quality
Hendrickson, S. A., 2018	●	●	◑	●	●	●	Low Quality
Hohmann, E., 2007	●	●	○	●	◑	●	Low Quality
Hou, Z., 2011	●	●	○	●	●	●	Low Quality
Hull, P. D., 2014	●	●	●	●	●	●	Low Quality
Inan, M., 2007	●	●	●	●	●	●	Low Quality
Jenkinson, R. J., 2014	●	●	●	●	●	●	Low Quality
Joethy, J., 2013	●	●	●	●	●	●	Low Quality
Joseph, C. M., 2020	●	●	○	●	●	●	Low Quality
Kayali, C., 2009	●	●	●	●	◑	●	Low Quality
Keating, J. F., 1996	●	●	○	●	○	●	Low Quality
Kline, A. J., 2009	●	●	○	●	●	●	Low Quality
Konbaz, F. M., 2019	●	●	○	○	●	●	Low Quality
Labler, L., 2004	●	●	◑	○	●	●	Low Quality
Lachman, J. R., 2018	●	●	○	●	◑	●	Low Quality
Lee, Y. S., 2009	●	●	●	●	●	●	Low Quality
Liu, D. S., 2012	●	●	◑	◑	●	●	Low Quality

Study	Participant Recruitment	Treatment recording	Confounding Variables	Outcome measurement bias	Incomplete Outcome Data	Adequate Reporting	Strength
Lloyd, B. A., 2017	●	●	●	●	●	●	Low Quality
Malhotra, A. K., 2014	●	●	◑	●	●	●	Low Quality
Memon, A., 2014	●	●	◑	●	●	●	Low Quality
Nikolic, D., 1998	●	●	◑	○	●	●	Low Quality
Nobert, N., 2016	●	●	●	●	●	●	Low Quality
Noumi, T., 2005	●	●	◑	○	●	●	Low Quality
Ostermann, P. A. W., 1995	●	○	●	●	●	●	Low Quality
Pannell, W. C., 2016	●	●	●	●	●	●	Low Quality
Patanwala, A. E., 2019	●	●	●	●	●	●	Low Quality
Peterson, D. L., 2020	●	●	◑	●	●	●	Low Quality
Philandrianos, C., 2018	●	●	●	●	●	●	Low Quality
Pollak, A. N., 2000	●	●	○	○	●	●	Low Quality
Qadir, R., 2020	●	●	●	●	●	●	Low Quality
Reuss, B. L., 2007	●	●	◑	●	◑	●	Low Quality
Revak, T., 2021	●	●	●	●	●	●	Low Quality
Ricci, W. M., 2013	●	●	○	●	◑	●	Low Quality
Rinker, B., 2008	●	●	◑	○	◑	●	Low Quality
Rohde, C., 2007	●	●	○	●	●	●	Low Quality
Russell, G. G., 1990	●	●	●	○	●	●	Low Quality
Sagar, J. V., 1987	●	●	○	●	◑	●	Low Quality
Scharfenberger, A. V., 2017	●	●	◑	●	●	●	Low Quality

Study	Participant Recruitment	Treatment recording	Confounding Variables	Outcome measurement bias	Incomplete Outcome Data	Adequate Reporting	Strength
Singh, K., 2015	●	●	●	●	●	◑	Low Quality
Spencer, J., 2004	●	●	○	●	●	●	Low Quality
Srour, M., 2015	●	●	●	●	●	●	Low Quality
Stennett, C. A., 2020	●	●	●	●	●	◑	Low Quality
Stoddart, M. T., 2020	●	●	◑	●	●	●	Low Quality
Sun, D. D., 2021	●	●	◑	○	●	●	Low Quality
Tareen, J., 2019	●	●	●	●	●	●	Low Quality
Thomas, S. H., 2013	●	●	○	●	○	●	Low Quality
Townley, W. A., 2010	●	●	○	◑	●	●	Low Quality
Tripuraneni, K., 2008	●	●	○	●	●	●	Low Quality
Uchiyama, Y., 2016	●	●	○	○	◑	●	Low Quality
Urias, D. S., 2018	●	●	●	●	●	●	Low Quality
Vaida, J., 2020	◑	●	●	●	●	●	Low Quality
Vandenberg, J., 2017	●	●	●	●	●	●	Low Quality
Wei, S. J., 2014	●	●	○	●	●	●	Low Quality
Yazar, S., 2006	●	●	◑	○	●	●	Low Quality
Yokoyama, K., 1995	●	●	○	●	●	●	Low Quality
Yokoyama, K., 1999	◑	●	●	●	●	●	Low Quality
Zhao, W., 2019	●	●	○	●	●	●	Low Quality
Ziran, B. H., 2004	●	●	●	◑	●	●	Low Quality

Data Tables

PICO 1: Time to Antibiotics

Table 1: PICO 1a- 1: Early ABX vs. 1: Delayed ABX- Adverse Events

Study	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Westgeest, 2016	Moderate	Nonunion	1 yrs	Time to Abx (Hours)(>3L irrigation; Fixation at surgeons discretions)	continuous	Odds Ratio	1.01 (0.97-1.04)	none

Table 2: PICO 1a- 1: Early ABX vs. 1: Delayed ABX- SSI

Study	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Weber, 2014	Moderate	Deep Infection	1 yrs	Time to Abx (Hours)(>3L irrigation; Fixation at surgeons discretions)	continuous	Odds Ratio	1.0 (0.95-1.05)	none
Hendrickson, 2020	Moderate	Deep Infection	1 yrs	Time to Abx	continuous	Coefficient	-0.003 (-0.0010-0.0004)	none
Al-Arabi, 2007	Low	Deep Infection	Postop .	Abx <2 hrs	Abx <4 hrs	RR	4.15(0.52,33.34)	NS
Hendrickson, 2018	Low	Deep Infection	postop 19.7 mos	Abx in 2.5 hrs	Abx in 3 hrs	Author Reported - Logistic Regression, p=0.004	N/A	**Early Abx**
Lack, 2015	Moderate	Deep Infection	Postop 90 days	Abx in <66mins	Abx in >66mins	Author Reported - 0.016; Logistic Regression	3.78(1.26,14.11)	**Time to ABX <66mins**
Roddy, 2020	Moderate	Deep Infection	Postop 90 days	Abx in <120mins	Abx in >120mins	Author Reported - 0.048; Cox regresson	2.40(1.10,5.70)	**Abx adminstration <120mins**
Zuelzer, 2020	Moderate	Deep Infection	postop 6 wks	Abx in <150mins	Abx in >150mins	Author Reported - 0.01; Logistic Regression	5.60(1.00,22.00)	**Time to Abx <150 mins**
Hendrickson, 2020	Moderate	Deep Infection	Postop 1 yrs	Abx <1hr since injury	Abx >1hr since injury	Author Reported	0.19(-0.04,0.42)	NS
Hendrickson, 2020	Moderate	Deep Infection	Postop 1 yrs	Abx <3hr since injury	Abx >3hr since injury	Author Reported	-0.01(-0.12,0.10)	NS

Table 3: PICO 1a- 1: Early ABX vs. 1: Delayed ABX- Wound Healing

Study	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Westgeest, 2016	Moderate	Delayed Healing	1 yrs	Time to Abx (Hours)(>3L irrigation; Fixation at surgeons discretions)	continuous	Odds Ratio	0.97 (0.92-1.02)	none

Table 4: PICO 1b- 1: Pre-hospital Abx vs.1: No Pre-hospital Abx- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Hendrickson, 2020	Moderate	Open Tibial Fx	Deep Infection	Postop 1yrs	Abx prior to arrival at hospital	No pre-hospital Abx	AuthorReported	-0.00(-0.15,0.15)	NS

Table 5: PICO 1b- 1: Pre-hospital Abx vs.1: No Pre-hospital Abx- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Thomas, 2013	Low	Open Extremity Fx	Infection and/or Nonunion	Postop 6mos	Abx delivered in helicopter	Abx delivered at hospital	RR	0.60(0.08,4.33)	NS

PICO 2: Initial Antibiotic Choice

Table 6: PICO 2b- 2: Cloxacillin vs. 2: Placebo- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Braun, 1987	Moderate	Open Extremity Fx	Superficial Infection	Postop .	IV and Oral Cloxacillin: 4 x1g IV for 4 days then 4x1.5g oral for 6 days	Placebo: Placebo	RR	0.17(0.02,1.36)	NS
Braun, 1987	Moderate	Open Extremity Fx	Deep Infection	Postop .	IV and Oral Cloxacillin: 4 x1g IV for 4 days then 4x1.5g oral for 6 days	Placebo: Placebo	RR	0.17(0.02,1.36)	NS

PICO 3: Time to Operating Room

Table 7: PICO 3b- 3: Early Transfer to Trauma Center vs. 3: Delayed Transfer to Trauma Center- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Infection (infection requiring in or outpatient tx)	Postop 3mos	Transferred w/in 1-3hrs	Transferred w/in 4-10hrs	AuthorReported	1.50(0.60,3.60)	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Major Infection	Postop 3mos	Transferred w/in 1-3hrs	Transferred w/in 11-24hrs	AuthorReported	0.90(0.30,3.10)	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Infection (infection requiring in or outpatient tx)	Postop 3mos	Transferred w/in 1-3hrs	Transferred w/in 4-10hrs	AuthorReported	1.90(0.90,4.30)	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Major Infection	Postop 3mos	Transferred w/in 1-3hrs	Transferred w/in 11-24hrs	AuthorReported - <0.01;LogisticRegression	2.60(1.10,6.20)	1 to 3hrs

Table 8: PICO 3b- 3: Early time to Trauma Center vs. 3: Delayed time to Trauma Center- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Infection (infection requiring in or outpatient tx)	Postop 3mos	Direct admission to TC in <=2hrs	Direct admission to TC >2hrs	AuthorReported - <0.01;LogisticRegression	5.40(2.50,11.50)	Direct admission to TC <=2hrs
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Major Infection	Postop 3mos	Direct admission to TC in <=2hrs	Direct admission to TC >2hrs	AuthorReported - <0.01;LogisticRegression	3.10(1.40,7.00)	Direct admission to TC <=2hrs

Table 9: PICO 3c- 3: No Transfer for Definitive Tx vs. 3: Transfer for Definitive TX- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Amputation	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	1.00(0.07,14.72)	NS

Table 10: PICO 3c- 3: No Transfer for Definitive Tx vs. 3: Transfer for Definitive TX- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	LoS	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	MeanDifference	-8.6 (-19.00, 1.80)	NS
Townley, 2010	Low	Open Tibial Fx	LoS	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	MeanDifference	-5.1 (-14.77, 4.57)	NS

Table 11: PICO 3c- 3: No Transfer for Definitive Tx vs. 3: Transfer for Definitive TX- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Removal of Hardware	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.30(0.10,0.90)	Patients were directly admitted to orthoplastic center

Table 12: PICO 3c- 3: No Transfer for Definitive Tx vs. 3: Transfer for Definitive Tx- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Superficial Infection	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.80(0.26,2.48)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Deep Infection	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.50(0.15,1.68)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Osteomyelitis	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.33(0.11,1.02)	NS
Olinger, 2018	Moderate	Open Tibial Fx	Deep Infection	Postop .	Not Transferred	Transfer for Tx	AuthorReported	1.05(0.24,4.49)	NS

Table 13: PICO 3c- 3: No Transfer for Definitive Tx vs. 3: Transfer for Definitive Tx- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Malunion	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	3.00(0.35,26.04)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Delayed Union	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.80(0.42,1.52)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Nonunion	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.20(0.03,1.54)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Partial Flap Loss	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	4.00(0.50,32.20)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Complete Flap Loss	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	0.50(0.05,5.01)	NS
Crowe, 2017	Low	Open Tibial Fx; 94.1%/88.2% 3B	Bleeding/Hematoma	Postop .	Patients were directly admitted to orthoplastic center	Patients were transferred to orthoplastic for definitive care	RR	1.00(0.07,14.72)	NS

Table 14: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Westgeest,2016	Moderate	Nonunion	Postop 1yrs	>3L irrigation; Fixation at surgeons discretions	Continuous	AuthorReported	N/A	NS
Enninghost,2011	Moderate	Nonunion	Postop 1yrs	79% IMN; 14% ExFix	Continuous	AuthorReported	N/A	NS
Harley, 2002	Moderate	Nonunion	Postop	IMN in LE; Majority plating in UE	Continuous	AuthorReported	N/A	NS
Campbell, 2020	Low	Sepsis	Postop .	I&D up to 8hrs Post-Injury	I&D over 8hrs Post-Injury	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop 1yrs	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	Death	Postop 1yrs	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop 1yrs	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	Death	Postop 1yrs	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop 1yrs	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	Death	Postop 1yrs	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop 1yrs	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	Death	Postop 1yrs	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop 1yrs	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	Death	Postop 1yrs	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	DVT	Postop 1yrs	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	Death	Postop 1yrs	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS

Table 15: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- Amputation

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Wei, 2014	Low	Amputation	Postop .yrs	debridement in <=6hrs	debridement >6hrs	AuthorReported	.(.,.)	NS

Table 16: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- Other

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Campbell, 2020	Low	LoS	Postop .	I&D up to 8hrs Post-Injury	I&D over 8hrs Post-Injury	AuthorReported	.(.,.)	Delayed I&D
Nobert, 2016	Low	LoS	Postop30 days	debridement in <=6hrs	debridement in >6hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	ICU LoS	Postop .	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	ICU LoS	Postop .	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	ICU LoS	Postop .	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	ICU LoS	Postop .	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	ICU LoS	Postop .	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS
Srour, 2015	Low	LoS	Postop .	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(.,.)	NS

Table 17: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- Revision

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Charalambous,2005	Low	Seconday Procedurefor Bone Union	Postop .	Time to OR <6hrs	Time to OR >6hrs	AuthorReported	.(.,.)	NS
Albright, 2020	Moderate	Reoperation	Postop 1yrs	Delay to OR <24hrs	Delay to OR >24hrs	AuthorReported -0.002;LogisticRegression	7.7(2.1,27.8)	Delay to OR<24hrs

Table 18: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Weber, 2014	Moderate	Deep Infection	Postop 1yrs	>3L irrigation; Fixation at surgeons discretions	Continuous	AuthorReported	N/A	NS
Enninghost,2011	Moderate	Deep Infection	Postop 1yrs	79% IMN; 14% ExFix	Continuous	AuthorReported	N/A	NS
Harley, 2002	Moderate	Deep Infection	Postop	IMN in LE; Majority plating in UE	Continuous	AuthorReported	N/A	NS
Whiting, 2019	Low	Overall Infection (Didnot differentiatebetween superficialor dep)	Postop	IMN	Continuous	AuthorReported	N/A	Earlier timeto OR
Hull, 2014	Moderate	Deep Infection	Postop	Timing of closure and fixation left to surgeon	Continuous	AuthorReported	N/A	Earlier Timeto OR
Konbaz, 2019	High	Infection	Postop 1yrs	External and internal fixation	Continuous	AuthorReported	N/A	NS
Hendrickson,2020	Moderate	Deep Infection	Postop 1yrs	Time to Debrdiment	Continuous	AuthorReported	N/A	NS
Al-Hilli, 2010	Low	Deep Infection	Postop .	Time to OR <6hrs	Time to OR >6hrs	AuthorReported	.(,,)	NS
Charalambous,2005	Low	Overall Infection	Postop .	Time to OR <6hrs	Time to OR >6hrs	AuthorReported	.(,,)	NS
Charalambous,2005	Low	Deep Infection	Postop .	Time to OR <6hrs	Time to OR >6hrs	AuthorReported	.(,,)	NS
Sagar, 1987	Low	Infection	Postop .	OR in <18hrs	OR in >18hrs	AuthorReported -<0.05;Chi-squared	.(,,)	NS
Al-Arabi, 2007	Low	Deep Infection	Postop .	debridement in <6hrs	debridement in >6hrs	AuthorReported -Fishers Exact	.(,,)	NS
Hendrickson,2018	Low	Deep Infection	postop19.7mos	debridement in <12hrs	debridement in >12hrs	AuthorReported - LogisticRegression,p>0.05	.(,,)	NS
Reuss, 2007	Low	Osteomyelitis orDeep Infection	Postop .mos	<8hrs to debridement	>8hrs to debridement	AuthorReported	.(,,)	NS
Campbell, 2020	Low	Superficial Infection	Postop .	I&D up to 8hrs Post-Injury	I&D over 8hrs Post-Injury	AuthorReported	.(,,)	NS
Campbell, 2020	Low	Deep Infection	Postop .	I&D up to 8hrs Post-Injury	I&D over 8hrs Post-Injury	AuthorReported	.(,,)	NS
Malhotra, 2014	Low	Deep Infection	Postop 6mos	Time to D&I <8hrs	Time to D&I >8hrs	AuthorReported	3.006(1.28,7.059)	<8hrs
Nobert, 2016	Low	Deep Infection	Postop30 days	debridement in <=6hrs	debridement in >6hrs	AuthorReported	.(,,)	NS
Spencer, 2004	Low	Deep Infection	Postop .	debridement <6hrs	debridement >=6hrs	AuthorReported	.(,,)	NS
Srour, 2015	Low	Infection	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,)	NS
Srour, 2015	Low	Deep Infection	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,)	NS
Srour, 2015	Low	Infection	Postop 1yrs	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop 1yrs	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,)	NS

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Srour, 2015	Low	Deep Infection	Postop 1yrs	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop 1yrs	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop 1yrs	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop 1yrs	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop 1yrs	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop 1yrs	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop 1yrs	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop 1yrs	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop 1yrs	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop 1yrs	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop 1yrs	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop 1yrs	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop 1yrs	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Infection	Postop 1yrs	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Superficial WoundInfection	Postop 1yrs	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Deep Infection	Postop 1yrs	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Tripuraneni,2008	Low	Wound Infection	Postop 2yrs	debridement 0-6hrs	debridement 6-12hrs	AuthorReported	.(,,.)	NS

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tripuraneni,2008	Low	Wound Infection	Postop 2yrs	debridement 0-6hrs	debridement 12-24hrs	AuthorReported	.(.,.)	NS
Tripuraneni,2008	Low	Wound Infection	Postop 2yrs	debridement 0-6hrs	debridement >24hrs	AuthorReported	.(.,.)	NS
Tripuraneni,2008	Low	Wound Infection	Postop 2yrs	debridement 6-12hrs	debridement 12-24hrs	AuthorReported	.(.,.)	NS
Tripuraneni,2008	Low	Wound Infection	Postop 2yrs	debridement 6-12hrs	debridement >24hrs	AuthorReported	.(.,.)	NS
Tripuraneni,2008	Low	Wound Infection	Postop 2yrs	debridement 12-24hrs	debridement >24hrs	AuthorReported	.(.,.)	NS
Wei, 2014	Low	Deep Infection	Postop 1yrs	debridement in <=6hrs	debridement >6hrs	AuthorReported	.(.,.)	NS
Wei, 2014	Low	Osteomyelitis	Postop .yrs	debridement in <=6hrs	debridement >6hrs	AuthorReported	.(.,.)	NS
Noumi, 2005	Moderate	Deep Infection	Postop .	Debridement <=6hrs	Debridement >6hrs	AuthorReported -P=0.789	.569(.,.)	NS
Arti, 2012	Low	Early Infection	Postop10 days	Debridement <=6hrs	Debridement >6hrs	AuthorReported	.(.,.)	NS
Joseph, 2020	Low	Infection	Postop 1mos	Debridement <=12hrs	Debridement >12hrs	AuthorReported	6.05(2.85,12.82)	Debridement<=12hrs
Fernandes,2015	Low	Infection	Postop 6wks	Debridement <=6hrs	Debridement >6hrs	AuthorReported	.(.,.)	NS

Meta Analysis - Outcome: Deep SSI

Study	RR	[95% Conf.	Interval]	% Weight
Nobert, 2016	0.635	0.165	2.439	49.25
Srour, 2015	0.000	.	.	8.90
Srour, 2015	0.000	.	.	7.36
Srour, 2015	0.000	.	.	8.11
Srour, 2015	1.400	0.089	22.005	7.76
Srour, 2015	1.186	0.076	18.613	8.52
Srour, 2015	0.847	0.054	13.333	10.09
M-H pooled RR	0.608	0.230	1.603	100.00

Heterogeneity chi-squared = 0.64 (d.f. = 6) p = 0.996
I-squared (variation in RR attributable to heterogeneity) = 0.0%

Test of RR=1 : z= 1.01 p = 0.314

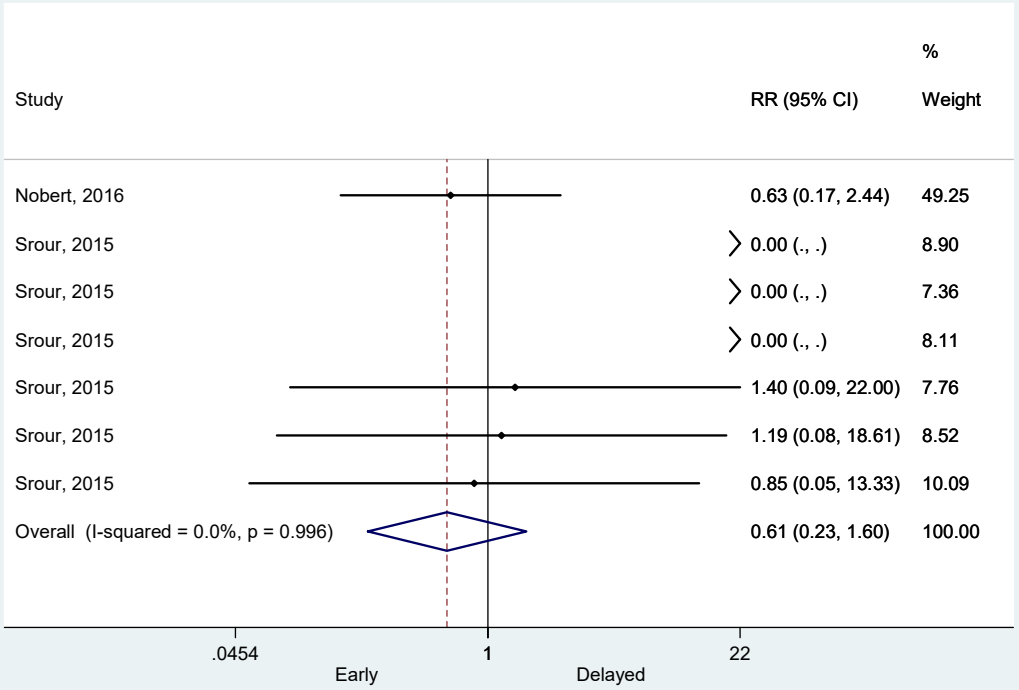


Table 19: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- Wound Complications

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Reuss, 2007	Low	Nonunion	Postop 6mos	<8hrs to debridement	>8hrs to debridement	AuthorReported	.(,,.)	NS
Campbell, 2020	Low	Wound Disruption	Postop .	I&D up to 8hrs Post-Injury	I&D over 8hrs Post-Injury	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Necrosis	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Hardware Failure	Postop30 days	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop 1yrs	I&D in <6hrs	I&D 7-12hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Necrosis	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Hardware Failure	Postop30 days	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop 1yrs	I&D in <6hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Necrosis	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Hardware Failure	Postop30 days	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop 1yrs	I&D in <6hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Necrosis	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Hardware Failure	Postop30 days	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop 1yrs	I&D in 7-12hrs	I&D 13-18hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Necrosis	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Hardware Failure	Postop30 days	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop 1yrs	I&D in 7-12hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Necrosis	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Hardware Failure	Postop30 days	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Srour, 2015	Low	Wound dehiscence	Postop 1yrs	I&D in 13-18hrs	I&D 19-24hrs	AuthorReported	.(,,.)	NS
Wei, 2014	Low	Nonunion	Postop 6mos	debridement in <=6hrs	debridement >6hrs	AuthorReported	.(,,.)	NS
Wei, 2014	Low	Nonunion	Postop 1yrs	debridement in <=6hrs	debridement >6hrs	AuthorReported	.(,,.)	NS
Joseph, 2020	Low	Nonunion	Postop 9mos	Debridement <=12hrs	Debridement >12hrs	AuthorReported	6.5(2.82,14.95)	Debridement<=12hrs

Table 20: PICO 3c- 3: Early Debridement vs. 3: Delayed Debridement- Wound Healing

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Westgeest,2016	Moderate	Delayed Healing	Postop 1yrs	>3L irrigation; Fixation at surgeons discretions	Continuous	AuthorReported	N/A	NS
Joseph, 2020	Low	Complete WoundHealing	Postop 1mos	Debridement <=12hrs	Debridement >12hrs	AuthorReported	.(.,.)	NS

PICO 4: Perioperative and Postoperative Antibiotic Choice

Table 21: PICO 4a- 4: Abx Beads vs. 4: No Abx Beads- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lewandowski,2019	Moderate	Osteomyelitis	Postop .	Use of Abx Beads at Closure	No use of Abx beads	Author Reported	4.35(1.88,10.07)	No Abx Use

Table 22: PICO 4b- 4: IV Abx vs. 4: Oral Abx- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lachman, 2018	Low	Infection requiring return to OR	Postop12 mos	IV Cefazolin or vancomycin: for 24 hrs PO;	Oral cephalexin or clindamycin: for 24hrs PO	RR	1.47(0.33,6.52)	NS
Lachman, 2018	Low	Total Infection Rate	Postop12 mos	IV Cefazolin or vancomycin: for 24 hrs PO;	Oral cephalexin or clindamycin: for 24hrs PO	RR	0.91(0.50,1.65)	NS

Table 23: PICO 4c- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- ABX Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bankhead-Kendall,2019	Low	Acute Kidney Injury	Postop .	Cephalosporin: Mean duration of 66hrs	Cephalosporin + Aminoglycoside:Mean duration of 72hrs	RR	0.47(0.12,1.79)	NS

Table 24: PICO 4c- 4: Peri-op Abx vs. 4:Peri-op Abx Combination- Other

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bankhead-Kendall,2019	Low	LoS	Postop .	Cephalosporin: Mean duration of 66hrs	Cephalosporin + Aminoglycoside:Mean duration of 72hrs	Mean Difference	-5 (-9.35, -0.65)	Cephalosporin

Table 25: PICO 4c- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- Revision

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bankhead-Kendall,2019	Low	Removal of Hardware	Postop .	Cephalosporin: Mean duration of 66hrs	Cephalosporin + Aminoglycoside:Mean duration of 72hrs	RR	0.35(0.10,1.27)	NS

Table 26: PICO 4c- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bankhead-Kendall,2019	Low	Infection	Postop .	Cephalosporin: Mean duration of 66hrs	Cephalosporin + Aminoglycoside:Mean duration of 72hrs	RR	1.25(0.29,5.36)	NS

Table 27: PICO 4d- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Mathur, 2013	High	Wound Infection	Postop .	IV Cefuroxime: 3 doses of 1g spaced 12hr apart; 1st30min before tourniquet inflation	IV Cefuroxime with Amikacin followed by Oral Cefurozime: 1g C twice daily;15mg/kg in 2 doses for A; 500mg2x/day all for 5 days	RR	0.97(0.14,6.75)	NS

Table 28: PICO 4e- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- ABX Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pannell, 2016	Low	Acute Kidney Injury	Postop .	Cefazolin: Avg: 3g/day for 8 days	Cefazolin + Gentamicin: Avg: 3.2g/day for 12 days + 359mg/day for 4.8days	RR	1.10(0.22,5.46)	NS

Table 29: PICO 4e- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- Other

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pannell, 2016	Low	LoS	Postop .	Cefazolin: Avg: 3g/day for 8 days	Cefazolin + Gentamicin: Avg: 3.2g/day for 12 days + 359mg/day for 4.8days	AuthorReported	N/A	Cefazolin

Table 30: PICO 4f- 4: Peri-op Abx vs. 4:Peri-op Abx Combination- ABX Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Patanwala, 2019	Low	Acute Kidney Injury	Postop .	Cefazolin: 3 days	Cefazolin + Aminoglycoside: 3 days;aminoglycoside dosage varied	RD	-0.01(-0.03,0.01)	NS
Frantz, 2020	Low	Acute Nephrotoxicity	Postop .	IV Cefazolin: Median duration of 2 days;	IV Cefazolin + Aminoglycoside:Median duration of 3 days	RR	0.72(0.27,1.92)	NS
Frantz, 2020	Low	Acute Nephrotoxicity	Postop .	IV Cefazolin: Median duration of 2 days;	Piperacillin-tazobactam: Medianduration of 3 days	RR	0.88(0.36,2.15)	NS

Table 31: PICO 4f- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Patanwala, 2019	Low	Superficial Infection	Postop 1mos	Cefazolin: 3 days	Cefazolin + Aminoglycoside: 3 days;aminoglycoside dosage varied	RD	-0.02(-0.05,0.01)	NS
Patanwala, 2019	Low	Deep Infection	Postop 1mos	Cefazolin: 3 days	Cefazolin + Aminoglycoside: 3 days;aminoglycoside dosage varied	RR	1.52(0.53,4.37)	NS
Patanwala, 2019	Low	Osteomyelitis	Postop 1mos	Cefazolin: 3 days	Cefazolin + Aminoglycoside: 3 days;aminoglycoside dosage varied	RR	0.61(0.07,5.28)	NS
Frantz, 2020	Low	Deep Infection	Postop .	IV Cefazolin: Median duration of 2 days;	IV Cefazolin + Aminoglycoside:Median duration of 3 days	RR	2.17(0.85,5.55)	NS
Frantz, 2020	Low	Deep Infection	Postop .	IV Cefazolin: Median duration of 2 days;	Piperacillin-tazobactam: Medianduration of 3 days	RR	1.73(0.87,3.45)	NS
Saveli, 2013	Moderate	Infection	Postop 3mos	IV Cefazolin: 1g or 2 g every 8 hrs	IV vancomycin + IV cefazolin: Basedon pts glmerular filtration rate	RR	0.89(0.37,2.16)	NS

Table 32: PICO 4f- 4: Peri-op Abx vs. 4: Peri-op Abx Combination- Wound Complications

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Frantz, 2020	Low	Superficial Wound Complications	Postop .	IV Cefazolin: Median duration of 2 days;	IV Cefazolin + Aminoglycoside:Median duration of 3 days	RR	1.11(0.62,2.00)	NS
Frantz, 2020	Low	Superficial Wound Complications	Postop .	IV Cefazolin: Median duration of 2 days;	Piperacillin-tazobactam: Medianduration of 3 days	RR	1.73(0.97,3.08)	NS

Table 33: PICO 4g- 4: Peri-op Abx vs. 4: Control- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
O'Toole, 2021	High	Deep Infection	Postop182 days	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.64(0.41,1.00)	Vancomycin Powder
O'Toole, 2021	High	Deep Infection	Postop 6mos	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.65(0.42,1.01)	NS
O'Toole, 2021	High	Gram-Positive Deep Infection	Postop182 days	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.48(0.27,0.85)	Vancomycin Powder
O'Toole, 2021	High	Gram-Positive Deep Infection	Postop 6mos	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.49(0.28,0.86)	Vancomycin Powder
O'Toole, 2021	High	Gram-Negative-Only Deep Infection	Postop182 days	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	1.08(0.46,2.51)	NS
O'Toole, 2021	High	Gram-Negative-Only Deep Infection	Postop 6mos	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	1.14(0.49,2.66)	NS
O'Toole, 2021	High	Deep Infection	Postop182 days	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.64(0.32,1.27)	NS
O'Toole, 2021	High	Deep Infection	Postop 6mos	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.63(0.32,1.24)	NS
O'Toole, 2021	High	Deep Infection	Postop182 days	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.63(0.35,1.12)	NS
O'Toole, 2021	High	Deep Infection	Postop 6mos	Vancomycin Powder: 1000mg directly over metal implants at time of definitive fixation	Standard Tx	RR	0.61(0.35,1.07)	NS
Qadir, 2020	Low	Deep Infection	Postop 6mos	Vancomycin Powder: 1g topically at time of wound closure	Standard Tx	RD	-0.14(-0.22,-0.06)	Vancomycin Powder
Singh, 2015	Low	Deep Infection	Postop 6mos	Vancomycin Powder: 1g topically at time of wound closure	Standard Tx	RR	0.59(0.09,4.04)	NS
Singh, 2015	Low	Superficial Infection	Postop 6mos	Vancomycin Powder: 1g topically at time of wound closure	Standard Tx	RD	-0.08(-0.14,-0.02)	Vancomycin Powder
Vaida, 2020	Low	Infection (at least two mos)	Postop 2mos	Vancomycin Powder: 1000mg	Control (Usual Care)	RR	0.94(0.35,2.51)	NS

Meta Analysis - Outcome: Mixed Deep Infection

Study	ES	[95% Conf.	Interval]	% Weight
Qadir, 2020	-0.388	-0.651	-0.125	72.33
Singh, 2015	-0.101	-0.527	0.324	27.67
I-V pooled ES	-0.308	-0.532	-0.085	100.00

Heterogeneity calculated by formula
Q = SIGMA_i{ (1/variance_i)*(effect_i - effect_pooled)^2 }
where variance_i = ((upper limit - lower limit)/(2*z))^2

Heterogeneity chi-squared = 1.26 (d.f. = 1) p = 0.262
I-squared (variation in ES attributable to heterogeneity) = 20.5%

Test of ES=0 : z= 2.70 p = 0.007

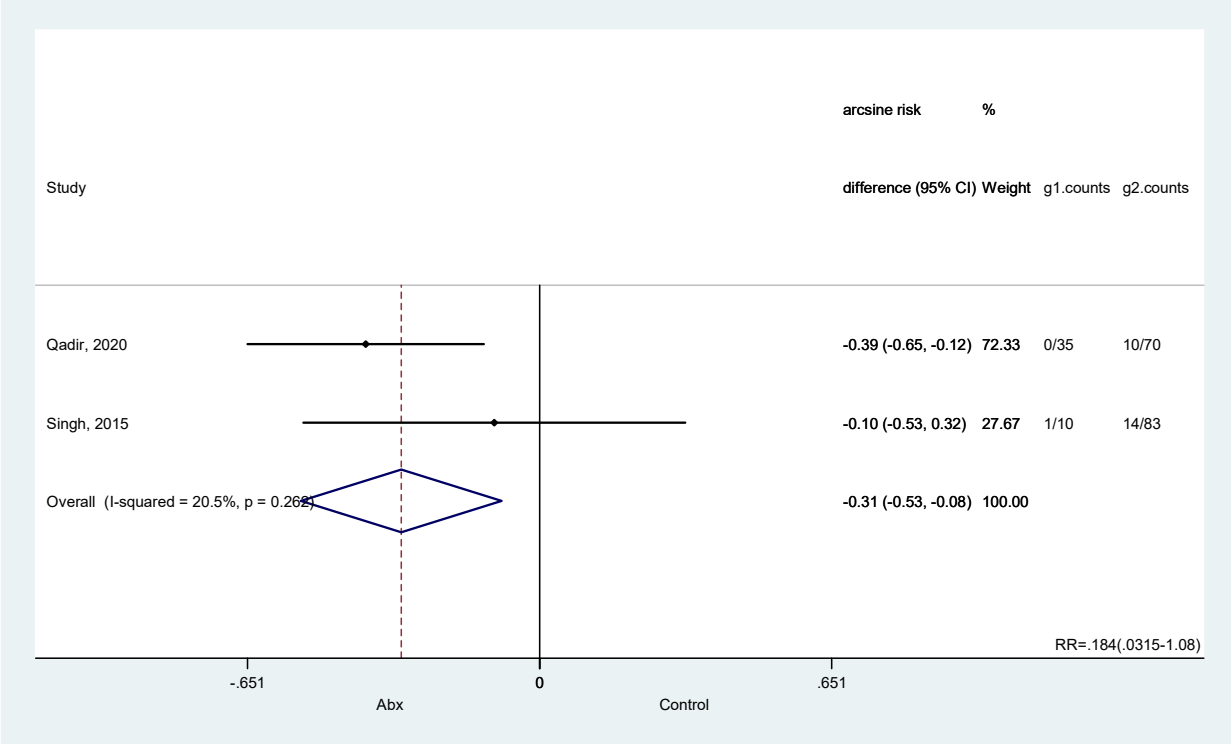


Table 34: PICO 4g- 4: Peri-op Abx vs. 4: Control- Wound Complications

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vaida, 2020	Low	Wound Complications (at least two mos)	Postop 2mos	Vancomycin Powder: 1000mg	Control (Usual Care)	RR	2.36(1.08,5.15)	Control (Usual Care)

Table 35: PICO 4h- 4: Narrow Spectrum vs. 4: Expanded Gram Negative- ABX Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lloyd, 2017	Low	EGN resistant Isolation	Postop 2wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	0.82(0.72,0.94)	Narrow Antibiotic Regimen
Lloyd, 2017	Low	Multi-drug resistant organism isolation	Postop 2wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	1.02(0.85,1.23)	NS
Lloyd, 2017	Low	MRSA Isolation	Postop 2wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	0.92(0.54,1.58)	NS
Lloyd, 2017	Low	Vancomycin-resistant Isolation	Postop 2wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	2.35(0.64,8.65)	NS

Table 36: PICO 4h- 4: Narrow Spectrum vs. 4: Expanded Gram Negative- Other

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lloyd, 2017	Low	C.diff Infection (Initial visit)	Postop .hrs	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	1.57(0.54,4.56)	NS
Lloyd, 2017	Low	Los	Postop .	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	AuthorReported	N/A	NS

Table 37: PICO 4h- 4: Narrow Spectrum vs. 4: Expanded Gram Negative- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lloyd, 2017	Low	Surgical Site Tissue Infection	Postop 2wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	1.37(1.06,1.79)	Expanded Gram-negative Coverage
Lloyd, 2017	Low	Surgical Site Tissue Infection	Postop 4wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	1.37(1.09,1.73)	Expanded Gram-negative Coverage
Lloyd, 2017	Low	Osteomyelitis	Postop 2wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	0.78(0.41,1.52)	NS
Lloyd, 2017	Low	Osteomyelitis	Postop 4wks	Narrow Antibiotic Regimen: IV cefazolin, clindamycin,or amoxicillin-clavulanate	Expanded Gram-negative Coverage:Included fluoroquinolones and/oraminoglycosides	RR	0.98(0.61,1.59)	NS

Table 38: PICO 4k- 4: Peri-op Abx vs. 4: Peri-op Abx- ABX Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vasenius, 1998	High	Allergic Reactions	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	4.62(0.55,38.91)	NS

Table 39: PICO 4k- 4: Peri-op Abx vs. 4: Peri-op Abx- Amputation

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vasenius, 1998	High	Amputation	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	0.92(0.06,14.59)	NS

Table 40: PICO 4k- 4: Peri-op Abx vs. 4: Peri-op Abx- Organism

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vasenius, 1998	High	Staphylococcus Epidermidis	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	1.39(0.49,3.95)	NS
Vasenius, 1998	High	Enterobacteria	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	2.79(0.75,10.37)	NS
Vasenius, 1998	High	Streptococcus Faecalis	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	4.18(0.90,19.46)	NS
Vasenius, 1998	High	Staphylococcus Aureus	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	0.70(0.08,5.96)	NS
Vasenius, 1998	High	Diphtheroid	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	0.70(0.08,5.96)	NS
Vasenius, 1998	High	E.Coli	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	1.05(0.11,10.33)	NS
Vasenius, 1998	High	Klebsiella	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	1.05(0.11,10.33)	NS
Vasenius, 1998	High	Streptococcus, Beta Hemolytic	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	2.09(0.14,30.41)	NS
Vasenius, 1998	High	Staphylococcus Non-Specific	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RD	-0.04(-0.13,0.04)	NS
Vasenius, 1998	High	Clostridium	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RD	0.09(-0.08,0.26)	NS
Vasenius, 1998	High	Bacteroides Fragilis	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RD	0.09(-0.08,0.26)	NS
Vasenius, 1998	High	Peptococcus	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RD	0.09(-0.08,0.26)	NS
Vasenius, 1998	High	Pseudomonas	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RD	-0.04(-0.13,0.04)	NS
Vasenius, 1998	High	Bacterial Growth Resistant to Antibiotic	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	1.05(0.67,1.64)	NS
Vasenius, 1998	High	Diarrhea w/ Positive Clostridium Difficile	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	1.39(0.24,8.14)	NS

Table 41: PICO 4k- 4: Peri-op Abx vs. 4: Peri-op Abx- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vasenius, 1998	High	Deep Infection	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	0.79(0.27,2.28)	NS
Vasenius, 1998	High	Superficial Infection	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	0.31(0.12,0.82)	Clindamycin
Vasenius, 1998	High	Chronic Osteomyelitis	Postop .	Clindamycin: 300-600mg by patient weight every six hours for 72 hours	IV Cloxacillin: 2g IV every six hours for72 hours	RR	1.39(0.24,8.14)	NS

Table 42: PICO 4l- 4: Peri-op Abx Combination vs. 4: Peri-op Abx Combination- ABX Adverse Events

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Frantz, 2020	Low	Acute Nephrotoxicity	Postop .	IV Cefazolin + Aminoglycoside: Median duration of 3days	Piperacillin-tazobactam: Median duration of 3 days	RR	1.22(0.51,2.94)	NS

Table 43: PICO 4l- 4: Peri-op Abx Combination vs. 4: Peri-op Abx Combination- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Frantz, 2020	Low	Deep Infection	Postop .	IV Cefazolin + Aminoglycoside: Median duration of 3days	Piperacillin-tazobactam: Median duration of 3 days	RR	0.80(0.30,2.13)	NS

Table 44: PICO 4l- 4: Peri-op Abx Combination vs. 4: Peri-op Abx Combination- Wound Complications

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Frantz, 2020	Low	Superficial Wound Complications	Postop .	IV Cefazolin + Aminoglycoside: Median duration of 3days	Piperacillin-tazobactam: Median duration of 3 days	RR	1.56(0.82,2.95)	NS

Table 45: PICO 4n- 4: Peri-op Abx Combination vs. 4: Peri-op Abx Combination- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Janmohammadi,2011	Moderate	Deep Infection	Postop 3mos	Gentamicin w/ Cefazolin: Gentamicin (5mg/kg/day),Cefazolin (1g IV) 3 doses for 3 days	Ciprofloxacin w/ Cefazolin:Ciprofloxacin (500mg 3x/day),Cefazolin (1g IV) 3 doses for 3 days	RR	0.83(0.34,2.04)	NS

Table 46: PICO 4o- 4: Post-op Abx vs. 4: Control- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lachman, 2018	Low	Infection requiring return to OR	Postop12 mos	IV Cefazolin or vancomycin: for 24 hrs PO;	No PO Abx: 1 preop dose and no POabx	RR	1.18(0.30,4.71)	NS
Lachman, 2018	Low	Total Infection Rate	Postop12 mos	IV Cefazolin or vancomycin: for 24 hrs PO;	No PO Abx: 1 preop dose and no POabx	RR	0.78(0.44,1.36)	NS
Lachman, 2018	Low	Infection requiring return to OR	Postop12 mos	Oral cephalexin or clindamycin: for 24 hrs PO	No PO Abx: 1 preop dose and no POabx	RR	0.81(0.18,3.59)	NS
Lachman, 2018	Low	Total Infection Rate	Postop12 mos	Oral cephalexin or clindamycin: for 24 hrs PO	No PO Abx: 1 preop dose and no POabx	RR	0.85(0.50,1.46)	NS

Table 47: PICO 4o- 4: Post-op Abx vs. 4: Placebo- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Crist, 2018	Moderate	Total Infections	Postop .	Oral Cefazolin: 1g every 8 hrs for 23 hrs	Placebo: Placebo	RR	0.46(0.17,1.30)	NS
Crist, 2018	Moderate	Superficial Infection	Postop .	Oral Cefazolin: 1g every 8 hrs for 23 hrs	Placebo: Placebo	RR	0.19(0.02,1.55)	NS
Crist, 2018	Moderate	Deep Infection	Postop .	Oral Cefazolin: 1g every 8 hrs for 23 hrs	Placebo: Placebo	RR	0.74(0.21,2.66)	NS

Table 48: PICO 4p- 4: Reduced Postop Abx Duration vs. 4: Extended Postop Abx Duration- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stennett, 2020	Low	Superficial Infection	Postop 3mos	<=72hrs of Abx after Wound Closure	>72hrs of Abx after Wound Closure	RR	0.70(0.51,0.97)	<=72hrs of Abx after Wound Closure
Stennett, 2020	Low	Deep Infection	Postop 3mos	<=72hrs of Abx after Wound Closure	>72hrs of Abx after Wound Closure	RR	1.04(0.77,1.40)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration 2-3 days	AuthorReported	0.60(0.20,2.00)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration 4-5 days	AuthorReported	1.20(0.30,4.90)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration >5 days	AuthorReported	1.40(0.40,4.40)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration 2-3 days	AuthorReported	0.30(0.10,3.30)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration 4-5 days	AuthorReported	0.60(0.20,2.10)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration >5 days	AuthorReported	1.60(0.50,6.10)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration 2-3 days	AuthorReported	1.50(0.10,21.10)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration 4-5 days	AuthorReported	2.20(0.40,12.40)	NS
Dunkel, 2013	Moderate	Infection	Postop35 mos	Abx duration 1 day	Abx duration >5 days	AuthorReported	6.90(0.90,52.00)	NS

Table 49: PICO 4q- 4: Abx Beads vs. 4: IV Abx- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Moehring, 2000	Moderate	Wound Infection	Postop 1yrs	Tobramycin Powder: 2.4g tobramycin and 40g bone cement; replaced every I&D	IV Cephalosporin and Gentamycin: 1gof ceph every 8hrs and 2.5mg/kg often every 12 hrs until wound closure	RR	1.50(0.23,9.87)	NS

Table 50: PICO 4s- 4: Low-dose Abx vs.4: High-dose Abx- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sorger, 1999	Moderate	Infection	Postop .	Multi-Low-Dose Gentamicin w/ Cefazolin Sodium:Gentamicin (5mg/kg body weight divided into two daily doses), Cefazolin (1g/8hrs)	Single-High-Dose Gentamicin w/Cefazolin Sodium: Gentamicin(6mg/kg body weight given once daily), Cefazolin (1g/8hrs)	RR	2.11(0.46,9.79)	NS

Table 51: PICO 4z- 4: Abx Coated Implant vs. 4: Control- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Malizos, 2017	High	Infection	Postop12 mos	Defensive Antibacterial Coating: 300mg sterile DAC powder with 5mL of water and selected abx; directly onto implant surface prior to insertion	Standard Tx	RD	-0.05(-0.08,-0.01)	Defensive Antibacterial Coating
Pinto, 2019	Moderate	Infection	Postop 6mos	Antibiotic Coated IMIL Nail: 100mg (1mg/cm2)Gentamicin w/ Biodegradable Polymeric Carrier Poly(D, L-Lactide)	Control (Regular IMIL Nail)	RD	-0.29(-0.52,-0.05)	Antibiotic Coated IMIL Nail

Table 52: PICO 4z- 4: Abx Coated Implant vs. 4: Control- Wound Complications

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Malizos, 2017	High	Delayed Wound Healing	Postop12 mos	Defensive Antibacterial Coating: 300mg sterile DAC powder with 5mL of water and selected abx; directly onto implant surface prior to insertion	Standard Tx	RR	0.72(0.23,2.21)	NS
Malizos, 2017	High	Delayed Union	Postop 9mos	Defensive Antibacterial Coating: 300mg sterile DAC powder with 5mL of water and selected abx; directly onto implant surface prior to insertion	Standard Tx	RR	0.40(0.08,2.04)	NS

Table 53: PICO 4z- 4: Abx Coated Implant vs. 4: Control- Wound Healing

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Malizos, 2017	High	ASEPSIS	Postop 7days	Defensive Antibacterial Coating: 300mg sterile DAC powder with 5mL of water and selected abx; directly onto implant surface prior to insertion	Standard Tx	MeanDifference	-0.02 (-1.02, 0.98)	NS
Malizos, 2017	High	ASEPSIS	Postop14 days	Defensive Antibacterial Coating: 300mg sterile DAC powder with 5mL of water and selected abx; directly onto implant surface prior to insertion	Standard Tx	MeanDifference	-0.6 (-1.76, 0.56)	NS

PICO 6: Initial Wound Management Strategy for Open Fractures

Table54: PICO 6a - 6: AO External Fixator vs. 6: NA External Fixator - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Memon, 2014	Low	Open Tibial Fx	Infected Entry Point	Postop.	AO Fixator	Naseer Awais Fixator	RD	0.04(-0.04,0.12)	NS
Memon, 2014	Low	Open Tibial Fx	Screw Site Infection	Postop.	AO Fixator	Naseer Awais Fixator	RD	0.12(-0.01,0.25)	NS
Memon, 2014	Low	Open Tibial Fx	Pin Site Infection	Postop.	AO Fixator	Naseer Awais Fixator	RD	-0.20(-0.36,-0.04)	AO Fixator
Memon, 2014	Low	Open Tibial Fx	Pin Site Osteolysis	Postop.	AO Fixator	Naseer Awais Fixator	RD	-0.20(-0.36,-0.04)	AO Fixator
Memon, 2014	Low	Open Tibial Fx	Pin loosening	Postop.	AO Fixator	Naseer Awais Fixator	RD	-0.20(-0.36,-0.04)	AO Fixator

Table55: PICO 6a - 6: AO External Fixator vs. 6: NA External Fixator - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Memon, 2014	Low	Open Tibial Fx	Infected Surgical Wound	Postop.	AO Fixator	Naseer Awais Fixator	RD	0.08(-0.03,0.19)	NS

Table56: PICO 6a - 6: AO External Fixator vs. 6: NA External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Memon, 2014	Low	Open Tibial Fx	Nonunion	Postop.	AO Fixator	Naseer Awais Fixator	RR	1.00(0.07,15.12)	NS
Memon, 2014	Low	Open Tibial Fx	Delayed Union	Postop.	AO Fixator	Naseer Awais Fixator	RD	0.04(-0.04,0.12)	NS

Table57: PICO 6a - 6: AO External Fixator vs. 6: NA External Fixator - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Memon, 2014	Low	Open Tibial Fx	Time to Union	Postop.	AO Fixator	Naseer Awais Fixator	Mean Difference	-4.5 (-7.14, -1.86)	AO Fixator

Table58: PICO 6b - 6: Bacitracin Solution vs. 6: Castile Soap - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Anglen, 2005	High	Open LE Fx	Infection	Postop. 2yrs	Bacitracin and Saline: 100,000 U in 3-L Saline	Castile Soap and Saline: 80mL of soap in 3L of Saline	RR	1.35(0.84,2.15)	NS

Table59: PICO 6b - 6: Bacitracin Solution vs. 6: Castile Soap - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Anglen, 2005	High	Open LE Fx	Delayed Union or Nonunion	Postop. 2yrs	Bacitracin and Saline: 100,000 U in 3-L Saline	Castile Soap and Saline: 80mL of soap in 3L of Saline	RR	1.07(0.75,1.51)	NS
Anglen, 2005	High	Open LE Fx	Failure of Wound-healing	Postop. 2yrs	Bacitracin and Saline: 100,000 U in 3-L Saline	Castile Soap and Saline: 80mL of soap in 3L of Saline	RR	2.38(1.06,5.30)	Castile Soap and Saline

Table60: PICO 6d - 6: Early/Primary Fixation vs. 6: Delayed/Staged Fixation - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tareen, 2019	Low	Open Distal Radius Fx	Fixation Device removal	Postop. 3mos	Definite Fixation at Time of I&D	Return to OR for Fixation	RR	0.75(0.27,2.10)	NS

Table61: PICO 6d - 6: Early/Primary Fixation vs. 6: Delayed/Staged Fixation - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tareen, 2019	Low	Open Distal Radius Fx	Reoperation	Postop. 3mos	Definite Fixation at Time of I&D	Return to OR for Fixation	RR	0.66(0.40,1.08)	NS

Table62: PICO 6d - 6: Early/Primary Fixation vs. 6: Delayed/Staged Fixation - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Konbaz, 2019	High	Open Tibial Fx	Infection	Postop. 1yrs	Ex Fix at 1st surgery	Delayed Ex Fix	Author Reported	3.04(0.66,13.97)	NS
Tareen, 2019	Low	Open Distal Radius Fx	Infection	Postop. 3mos	Definite Fixation at Time of I&D	Return to OR for Fixation	RR	0.47(0.18,1.22)	NS
Gupta, 2015	Low	Open Tibial Fx; IIIb only	Secondary Infection	Postop. 1yrs	Nailing in <12hrs	Nailing in 12-72hrs	RR	0.33(0.14,0.82)	Nailing in <12hrs
Konbaz, 2019	High	Open Tibial Fx	Infection	Postop. 1yrs	Internal fix at 1st surgery	Delayed Internal Fix	Author Reported	0.51(0.08,3.03)	NS
Yokoyama, 1999	Low	Open Femoral Fx	Deep Infection	Postop.	IM Nail after debridement	IM nail after traction/splint: Avg time to nail: 31days	RR	5.20(0.51,53.20)	NS
Noumi, 2005	Moderate	Open Femoral Fx	Deep Infection	Postop.	IMN at time of Debridement	IMN Nail after traction/splint	Author Reported - P=0.412	0.63(.,.)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Superficial Infection (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing	Late Intramedullary Nailing	RR	0.15(0.02,1.26)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Deep Infection (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing	Late Intramedullary Nailing	RD	-0.08(-0.17,0.01)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Infection (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing (GA Grade I)	Late Intramedullary Nailing (GA Grade I)	RD	-0.10(-0.29,0.09)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Infection (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing (GA Grade II)	Late Intramedullary Nailing (GA Grade II)	RD	-0.12(-0.27,0.04)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	No. of Total Infections (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing (GA Grade IIIA)	Late Intramedullary Nailing (GA Grade IIIA)	RR	0.12(0.02,0.87)	Immediate Intramedullary Nailing (GA Grade IIIA)
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Superficial Infection (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing (GA Grade IIIA)	Late Intramedullary Nailing (GA Grade IIIA)	RR	0.29(0.03,2.85)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Deep Infection (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing (GA Grade IIIA)	Late Intramedullary Nailing (GA Grade IIIA)	RD	-0.30(-0.58,-0.02)	Immediate Intramedullary Nailing (GA Grade IIIA)

Table63: PICO 6d - 6: Early/Primary Fixation vs. 6: Delayed/Staged Fixation - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tareen, 2019	Low	Open Distal Radius Fx	Soft-Tissue Complications	Postop. 3mos	Definite Fixation at Time of I&D	Return to OR for Fixation	RR	0.38(0.11,1.30)	NS
Tareen, 2019	Low	Open Distal Radius Fx	Bony Complications	Postop. 3mos	Definite Fixation at Time of I&D	Return to OR for Fixation	RR	0.94(0.18,4.84)	NS
Tareen, 2019	Low	Open Distal Radius Fx	Nonunion	Postop. 3mos	Definite Fixation at Time of I&D	Return to OR for Fixation	RR	0.94(0.09,9.94)	NS
Gupta, 2015	Low	Open Tibial Fx; IIIb only	Implant Failure	Postop. 1yrs	Nailing in <12hrs	Nailing in 12-72hrs	RR	0.27(0.05,1.31)	NS
Williams, 1995	Low	Open Femoral Fx	Nonunion	Postop.	Nailing at Initial debridement	Nailing 2 to 7 days after debridement	RD	-0.07(-0.19,0.06)	NS
Williams, 1995	Low	Open Femoral Fx	Delayed Union	Postop.	Nailing at Initial debridement	Nailing 2 to 7 days after debridement	RD	0.04(-0.03,0.11)	NS
Yokoyama, 1999	Low	Open Femoral Fx	Nonunion	Postop.	IM Nail after debridement	IM nail after traction/splint: Avg time to nail: 31days	RR	3.71(0.95,14.57)	NS
Noumi, 2005	Moderate	Open Femoral Fx	Nonunion	Postop.	IMN at time of Debridement	IMN Nail after traction/splint	Author Reported - P=0.061	0.21(.,.)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Delayed Union (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing	Late Intramedullary Nailing	RR	0.51(0.09,2.92)	NS
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Nonunion (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing	Late Intramedullary Nailing	RR	0.39(0.04,4.09)	NS

Table64: PICO 6d - 6: Early/Primary Fixation vs. 6: Delayed/Staged Fixation - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Williams, 1995	Low	Open Femoral Fx	Time to Union	Postop.	Nailing at Initial debridement	Nailing 2 to 7 days after debridement	Author Reported	N/A	NS
Yokoyama, 1999	Low	Open Femoral Fx	Time to Union	Postop.	IM Nail after debridement	IM nail after traction/splint: Avg time to nail: 31days	Mean Difference	1.9 (0.64, 3.16)	IM nail after traction/splint
Uchiyama, 2016	Low	Open Tibial Shaft Fx	Time to Union (wks) (8-36 mos)	Postop. 8mos	Immediate Intramedullary Nailing	Late Intramedullary Nailing	Mean Difference	1.5 (-4.09, 7.09)	NS

Table65: PICO 6e - 6: External Fixator vs. 6: Cast - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Bone Infection	Postop.	External Fixator	Plaster of Paris Cast	RR	0.60(0.14,2.60)	NS

Table66: PICO 6e - 6: External Fixator vs. 6: Cast - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Healing by Second Intention	Postop.	External Fixator	Plaster of Paris Cast	RR	0.48(0.15,1.51)	NS
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Extremity Shortening	Postop.	External Fixator	Plaster of Paris Cast	RR	0.30(0.03,3.03)	NS
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Fracture Nonunion	Postop.	External Fixator	Plaster of Paris Cast	RD	0.16(0.02,0.30)	Plaster of Paris Cast
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	External Fixator Loosening	Postop.	External Fixator	Plaster of Paris Cast	RD	0.08(-0.03,0.19)	NS
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Refracture	Postop.	External Fixator	Plaster of Paris Cast	RD	0.04(-0.04,0.12)	NS
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Fracture Malunion	Postop.	External Fixator	Plaster of Paris Cast	RR	0.60(0.04,8.90)	NS
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Lethal Outcome	Postop.	External Fixator	Plaster of Paris Cast	RD	0.04(-0.04,0.12)	NS
Nikolic, 1998	Low	Open Subtrochanteric Femoral Fx (Femur)	Total Complications	Postop.	External Fixator	Plaster of Paris Cast	RR	-0.28(-0.46,-0.10)	External Fixator

Table67: PICO 6f - 6: External Fixator vs. 6: Kirschner Wire - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Pin Tract Infection (5-35 mos)	Postop. 14.2mos	External Fixator	Kirschner Wire	RR	0.76(0.11,5.01)	NS

Table68: PICO 6f - 6: External Fixator vs. 6: Kirschner Wire - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Wound Infection (5-35 mos)	Postop. 14.2mos	External Fixator	Kirschner Wire	RR	1.52(0.15,15.79)	NS

Table69: PICO 6f - 6: External Fixator vs. 6: Kirschner Wire - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Delayed Union (5-35 mos)	Postop. 14.2mos	External Fixator	Kirschner Wire	RR	4.55(0.58,35.39)	NS
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Nonunion (5-35 mos)	Postop. 14.2mos	External Fixator	Kirschner Wire	RR	5.30(0.70,40.37)	NS

Table70: PICO 6f - 6: External Fixator vs. 6: Kirschner Wire - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Imageological Healing Time of Fx (mos) (5-35 mos)	Postop. 14.2mos	External Fixator	Kirschner Wire	Mean Difference	1.23 (0.51, 1.95)	Kirschner Wire

Table71: PICO 6g - 6: External Fixator vs. 6: No External Fixation - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
D'Alleyrand, 2014	Low	Open Tibial Fx	Any Complication	Postop. 3mos	Received Ex Fix	Did not Receive Ex Fix	Author Reported	0.27(0.08,0.90)	Ex Fix

Table72: PICO 6g - 6: External Fixator vs. 6: No External Fixation - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
D'Alleyrand, 2014	Low	Open Tibial Fx	Infection	Postop. 3mos	Received Ex Fix	Did not Receive Ex Fix	Author Reported	0.26(0.07,1.06)	NS

Table73: PICO 6h - 6: Ilizarov External Fixator vs. 6: AO External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ganji, 2011	Low	Open Tibial Fx	Nonunion	Postop.	Ilizarov Fixator: After I&D	AO Fixator: After I&D	Author Reported	1.31(0.90,1.92)	NS
Ganji, 2011	Low	Open Tibial Fx	Malunion	Postop.	Ilizarov Fixator: After I&D	AO Fixator: After I&D	RR	0.50(0.20,1.25)	NS
Ganji, 2011	Low	Open Tibial Fx	Refracture	Postop.	Ilizarov Fixator: After I&D	AO Fixator: After I&D	RR	0.50(0.05,5.37)	NS
Ganji, 2011	Low	Open Tibial Fx	Failure Rate	Postop.	Ilizarov Fixator: After I&D	AO Fixator: After I&D	RR	0.52(0.28,0.99)	Ilizarov Fixator

Table74: PICO 6i - 6: IM Nailing vs. 6: External Fixator - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Pin Site Infection	Postop.	Intramedullary Rodding	External Fixator	RD	0.11(-0.03,0.26)	NS
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Any Complication	Postop.	Intramedullary Rodding	External Fixator	RR	0.44(0.17,1.17)	NS
Garg, 2019	High	Open Tibial Fx	Pin Site Infection	Postop.	Unreamed IMN	Half Pin Ex Fix	RD	-0.24(-0.41,-0.07)	Unreamed IMN
Tornetta, 1994	Moderate	Open Tibial Fx	Pin-Track Infection (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	RD	-0.21(-0.43,0.00)	NS

Table75: PICO 6i - 6: IM Nailing vs. 6: External Fixator - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Amputation	Postop.	Unreamed Intramedullary Nailing	External Fixation	RD	0.00(0.00,0.00)	NS
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Amputation (18-24 mos (mean 20.5mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RD	0.00(0.00,0.00)	NS

Table76: PICO 6i - 6: IM Nailing vs. 6: External Fixator - Organism

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Staphylococcus Aureus (18-24 mos (mean 20.5 mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RD	0.10(-0.09,0.29)	NS
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Staphylococcus Aureus Coagulase (-) (18-24 mos (mean 20.5 mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RD	-0.10(-0.29,0.09)	NS

Table77: PICO 6i - 6: IM Nailing vs. 6: External Fixator - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Re-Exploration	Postop.	Intramedullary Rodding	External Fixator	RR	0.37(0.04,3.25)	NS
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Operations per Fx	Postop.	Unreamed Intramedullary Nailing	External Fixation	Mean Difference	-1 (-10.64, 8.64)	NS
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Bone Grafting	Postop.	Unreamed Intramedullary Nailing	External Fixation	RR	0.38(0.21,0.67)	Unreamed Intramedullary Nailing
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Hardware Failure (18-24 mos (mean20.5 mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RD	0.20(-0.05,0.45)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Number of Surgical Procedures (Mean18.5 mos (12-24 mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RR	0.66(0.11,3.84)	NS

Table78: PICO 6i - 6: IM Nailing vs. 6: External Fixator - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Alberts, 1999	Low	Open Tibial Fx	Superficial Infection	Postop.	IM Nail: 8 or 9mm diameter without reaming	External Fixator	RR	1.50(0.27,8.36)	NS
Alberts, 1999	Low	Open Tibial Fx	Deep Infection	Postop.	IM Nail: 8 or 9mm diameter without reaming	External Fixator	RR	0.67(0.12,3.72)	NS
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Wound Infection	Postop.	Intramedullary Rodding	External Fixator	RR	0.22(0.03,1.73)	NS
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Osteomyelitis	Postop.	Intramedullary Rodding	External Fixator	RR	0.44(0.10,2.01)	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Infection (infection requiring in or outpatient Tx)	Postop. 3mos	Received IMN	Received External Fixator or Plating	Author Reported	1.60(1.10,3.00)	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Major Infection	Postop. 3mos	Received IMN	Received External Fixator or Plating	Author Reported	2.00(0.80,4.90)	NS
Garg, 2019	High	Open Tibial Fx	Superficial Wound Infection	Postop.	Unreamed IMN	Half Pin Ex Fix	RD	0.04(-0.04,0.12)	NS
Garg, 2019	High	Open Tibial Fx	Deep Infection	Postop.	Unreamed IMN	Half Pin Ex Fix	RD	0.04(-0.04,0.12)	NS
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Infection	Postop.	Unreamed Intramedullary Nailing	External Fixation	RR	0.58(0.30,1.15)	NS
Tornetta, 1994	Moderate	Open Tibial Fx	Superficial Infection (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	RR	0.93(0.15,5.76)	NS
Tornetta, 1994	Moderate	Open Tibial Fx	Deep (localized) Infection (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	RR	0.93(0.06,13.54)	NS
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Infection (18-24 mos (mean 20.5 mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RR	1.00(0.07,13.87)	NS
Inan, 2007	Low	Open Tibial Fx	Osteomyelitis	Postop.	Unreamed IMN	Ilizarov Ex Fix	RR	1.66(0.30,9.22)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Deep Infection (Mean 18.5 mos (12-24mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RR	0.48(0.10,2.43)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Superficial Infection (Mean 18.5 mos (12-24 mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RD	-0.04(-0.10,0.03)	NS
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Infection	Postop. 1yrs	Unreamed Intramedullary Nailing	External Fixation	RR	0.50(0.17,1.45)	NS
Bali, 2011	Moderate	Open Tibial Fx	Infection Needing Debridement	Postop.	Unreamed Tibial Nail	AO Uni or Biplanar Ex Fix	RR	5.93(1.83,19.23)	AO Uni or Biplanar Ex Fix
Bali, 2011	Moderate	Open Tibial Fx	Osteomyelitis	Postop.	Unreamed Tibial Nail	AO Uni or Biplanar Ex Fix	RD	0.07(0.00,0.14)	AO Uni or Biplanar Ex Fix

Meta Analysis - Outcome: Superficial Infection

Study	ES	[95% Conf.	Interval]	% Weight
Tornetta, 1994	-0.014	-0.486	0.458	33.70
Holbrook, 1989	-0.190	-0.527	0.146	66.30
I-V pooled ES	-0.131	-0.405	0.143	100.00

Heterogeneity calculated by formula
Q = SIGMA_i{ (1/variance_i)*(effect_i - effect_pooled)^2 }
where variance_i = ((upper limit - lower limit)/(2*z))^2

Heterogeneity chi-squared = 0.36 (d.f. = 1) p = 0.551
I-squared (variation in ES attributable to heterogeneity) = 0.0%

Test of ES=0 : z= 0.93 p = 0.350

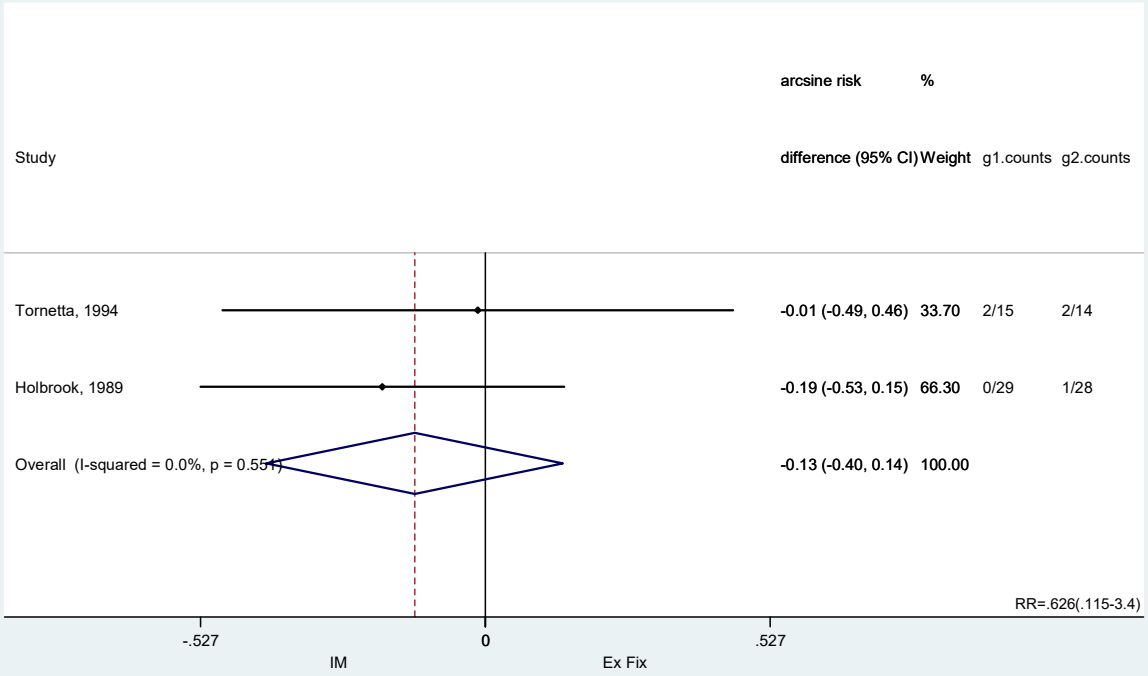


Table79: PICO 6i - 6: IM Nailing vs. 6: External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Alberts, 1999	Low	Open Tibial Fx	Delayed Union	Postop.	IM Nail: 8 or 9mm diameter without reaming	External Fixator	RR	0.47(0.26,0.88)	IM Nail
Alberts, 1999	Low	Open Tibial Fx	Malunion	Postop.	IM Nail: 8 or 9mm diameter without reaming	External Fixator	RR	0.33(0.10,1.12)	NS
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Flap Failure	Postop.	Intramedullary Rodding	External Fixator	RR	1.11(0.07,16.50)	NS
Rohde, 2007	Low	Open Grade IIIb Tibial Fx	Nonunion	Postop.	Intramedullary Rodding	External Fixator	RR	0.42(0.13,1.33)	NS
Garg, 2019	High	Open Tibial Fx	Nonunion	Postop.	Unreamed IMN	Half Pin Ex Fix	RR	0.45(0.18,1.12)	NS
Garg, 2019	High	Open Tibial Fx	Malunion	Postop.	Unreamed IMN	Half Pin Ex Fix	RR	0.20(0.03,1.59)	NS
Garg, 2019	High	Open Tibial Fx	Hardware Failure	Postop.	Unreamed IMN	Half Pin Ex Fix	RD	0.04(-0.04,0.12)	NS
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Failed to Unite	Postop.	Unreamed Intramedullary Nailing	External Fixation	RR	1.68(0.86,3.28)	NS
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Nonunion	Postop.	Unreamed Intramedullary Nailing	External Fixation	RR	2.02(0.57,7.20)	NS
Henley, 1998	Moderate	Open Tibial Shaft Fx (II, IIIA, IIIB)	Refracture	Postop.	Unreamed Intramedullary Nailing	External Fixation	RD	-0.03(-0.07,0.01)	NS
Tornetta, 1994	Moderate	Open Tibial Fx	Malunion (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	RD	-0.14(-0.33,0.04)	NS

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tornetta, 1994	Moderate	Open Tibial Fx	Delayed Union (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	RR	0.93(0.15,5.76)	NS
Tornetta, 1994	Moderate	Open Tibial Fx	Nonunion (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	RD	0.00(0.00,0.00)	NS
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Malrotation (18-24 mos (mean 20.5mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RD	-0.10(-0.29,0.09)	NS
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Malunion (18-24 mos (mean 20.5 mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RD	-0.10(-0.29,0.09)	NS
Tu, 1995	Moderate	Open Tibial Fx (IIIA)	Nonunion (18-24 mos (mean 20.5mos))	Postop. 20.5mos	Immediate Unreamed Interlocking Nails	Hoffmann ESF	RR	0.50(0.05,4.67)	NS
Inan, 2007	Low	Open Tibial Fx	Delayed Union	Postop.	Unreamed IMN	Ilizarov Ex Fix	RR	0.83(0.20,3.39)	NS
Inan, 2007	Low	Open Tibial Fx	Nonunion	Postop.	Unreamed IMN	Ilizarov Ex Fix	RD	0.03(-0.03,0.10)	NS
Inan, 2007	Low	Open Tibial Fx	Refracture	Postop.	Unreamed IMN	Ilizarov Ex Fix	RD	-0.03(-0.09,0.03)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Delayed Union (Mean 18.5 mos (12-24mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RR	0.64(0.20,2.04)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Nonunion (Mean 18.5 mos (12-24mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RR	0.97(0.21,4.39)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Malunion (Mean 18.5 mos (12-24 mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RR	0.58(0.24,1.38)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Loss of Reduction (Mean 18.5 mos (12-24 mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RR	0.32(0.04,2.91)	NS
Holbrook, 1989	Moderate	Open Tibial Shaft Fx	Tendon Tethering (Mean 18.5 mos (12-24 mos))	Postop. 18.5mos	Ender Nailing	External Fixation	RD	-0.07(-0.17,0.02)	NS

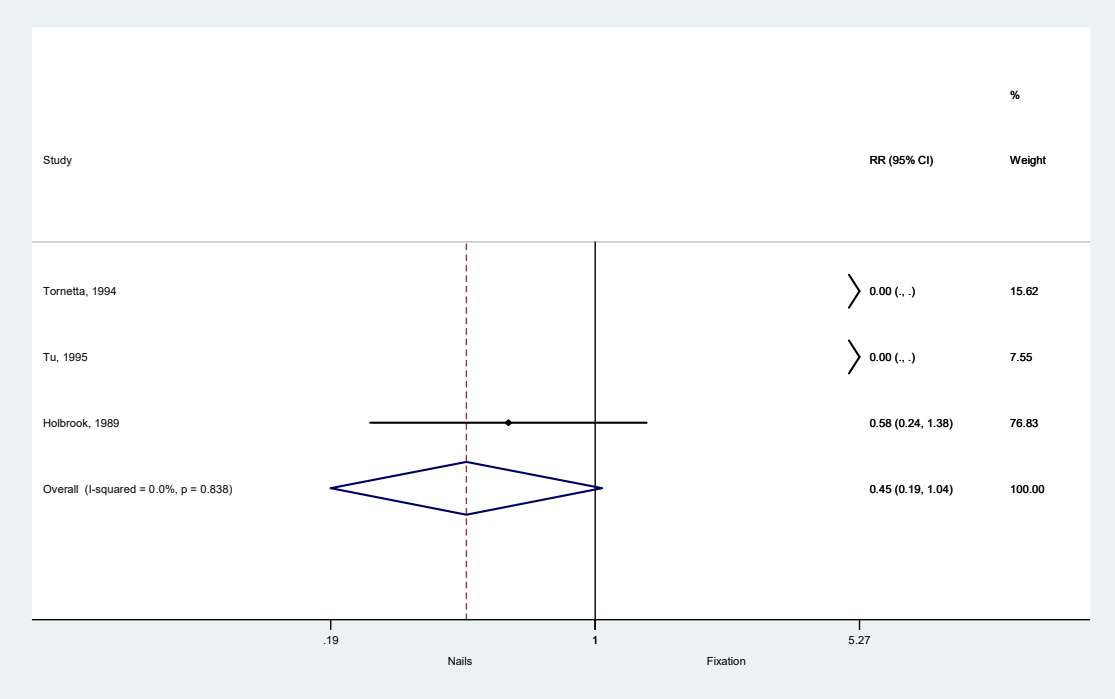
Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Malunion	Postop. 1yrs	Unreamed Intramedullary Nailing	External Fixation	RD	-0.24(-0.41,-0.07)	Unreamed Intramedullary Nailing
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Nonunion	Postop. 1yrs	Unreamed Intramedullary Nailing	External Fixation	RR	0.50(0.05,5.17)	NS
Bali, 2011	Moderate	Open Tibial Fx	Nonunion	Postop.	Unreamed Tibial Nail	AO Uni or Biplanar Ex Fix	RR	0.33(0.13,0.83)	Unreamed Tibial Nail
Bali, 2011	Moderate	Open Tibial Fx	Delayed Union	Postop.	Unreamed Tibial Nail	AO Uni or Biplanar Ex Fix	RR	2.10(1.02,4.31)	AO Uni or Biplanar Ex Fix
Bali, 2011	Moderate	Open Tibial Fx	Malunion	Postop.	Unreamed Tibial Nail	AO Uni or Biplanar Ex Fix	RR	0.44(0.19,1.06)	NS

Meta Analysis - Outcome: Wound Complication - Malunion

Study	RR	[95% Conf.	Interval]	% Weight
Tornetta, 1994	0.000	.	.	15.62
Tu, 1995	0.000	.	.	7.55
Holbrook, 1989	0.579	0.243	1.381	76.83
M-H pooled RR	0.445	0.190	1.044	100.00

Heterogeneity chi-squared = 0.35 (d.f. = 2) p = 0.838
I-squared (variation in RR attributable to heterogeneity) = 0.0%

Test of RR=1 : z= 1.86 p = 0.063



Meta Analysis - Outcome: Wound Complication - Nonunion

Study	ES	[95% Conf.	Interval]	% Weight
Tornetta, 1994	0.000	-0.472	0.472	27.34
Tu, 1995	-0.142	-0.710	0.426	18.88
Holbrook, 1989	-0.006	-0.343	0.331	53.78
I-V pooled ES	-0.030	-0.277	0.217	100.00

Heterogeneity calculated by formula

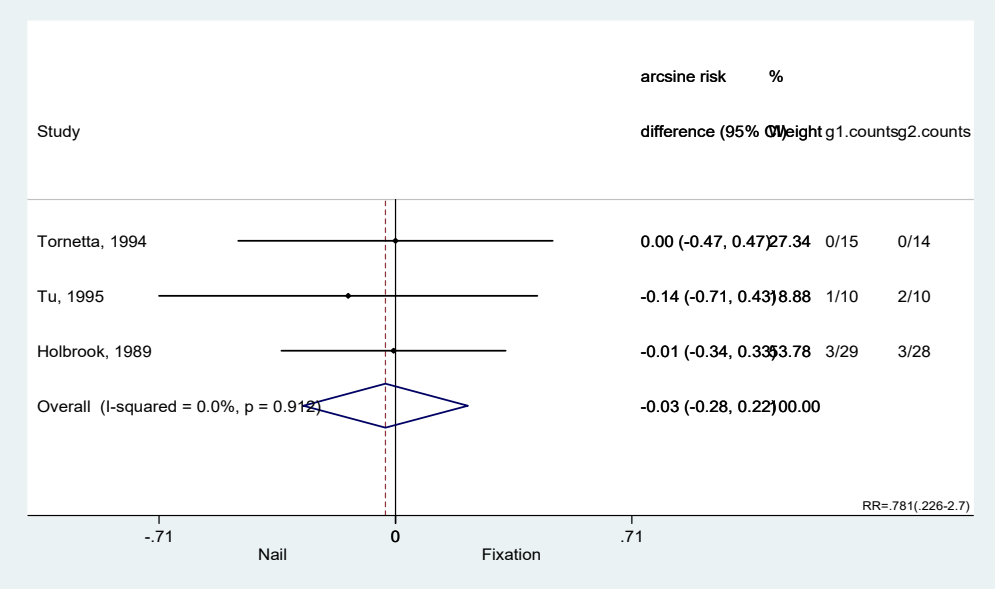
Q = SIGMA_i{ (1/variance_i)*(effect_i - effect_pooled)^2 }

where variance_i = ((upper limit - lower limit)/(2*z))^2

Heterogeneity chi-squared = 0.18 (d.f. = 2) p = 0.912

I-squared (variation in ES attributable to heterogeneity) = 0.0%

Test of ES=0 : z= 0.24 p = 0.812



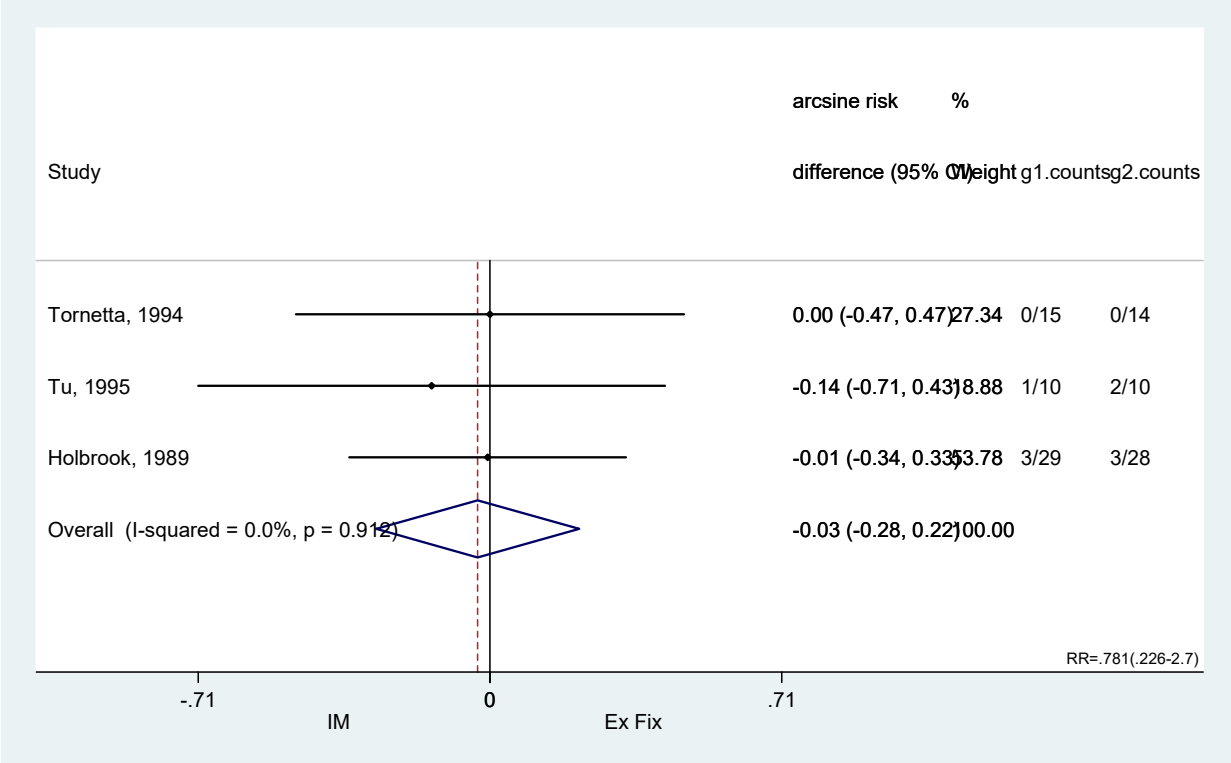
Meta Analysis - Outcome: Nonunion

Study	ES	[95% Conf.	Interval]	% Weight
Tornetta, 1994	0.000	-0.472	0.472	27.34
Tu, 1995	-0.142	-0.710	0.426	18.88
Holbrook, 1989	-0.006	-0.343	0.331	53.78
I-V pooled ES	-0.030	-0.277	0.217	100.00

Heterogeneity calculated by formula
Q = SIGMA_i{ (1/variance_i)*(effect_i - effect_pooled)^2 }
where variance_i = ((upper limit - lower limit)/(2*z))^2

Heterogeneity chi-squared = 0.18 (d.f. = 2) p = 0.912
I-squared (variation in ES attributable to heterogeneity) = 0.0%

Test of ES=0 : z= 0.24 p = 0.812

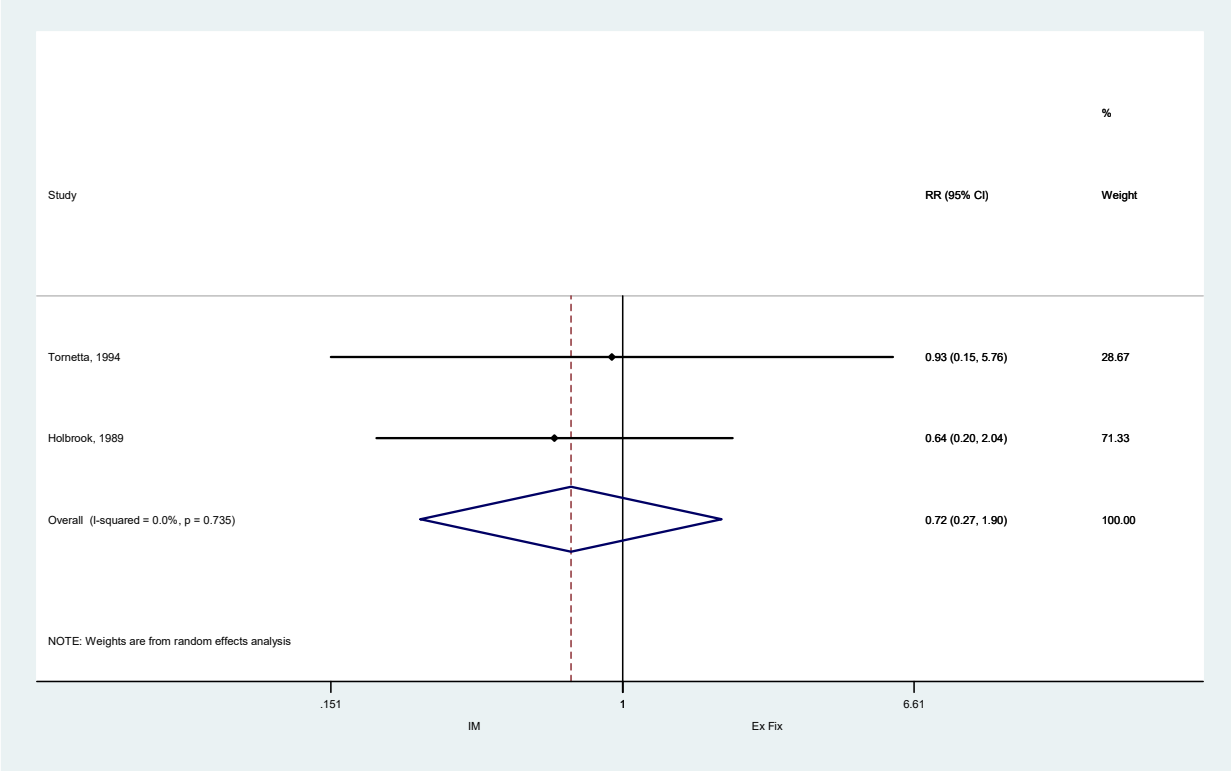


Meta Analysis - Outcome: Delayed Union

Study	RR	[95% Conf.	Interval]	% Weight
Tornetta, 1994	0.933	0.151	5.758	28.67
Holbrook, 1989	0.644	0.203	2.040	71.33
D+L pooled RR	0.716	0.270	1.897	100.00

Heterogeneity chi-squared = 0.11 (d.f. = 1) p = 0.735
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 0.67 p = 0.502



Meta Analysis - Outcome: Malunion

Study	RR	[95% Conf.	Interval]	% Weight
Tornetta, 1994	0.000	.	.	15.62
Tu, 1995	0.000	.	.	7.55
Holbrook, 1989	0.579	0.243	1.381	76.83
M-H pooled RR	0.445	0.190	1.044	100.00

Heterogeneity chi-squared = 0.35 (d.f. = 2) p = 0.838
I-squared (variation in RR attributable to heterogeneity) = 0.0%

Test of RR=1 : z= 1.86 p = 0.063

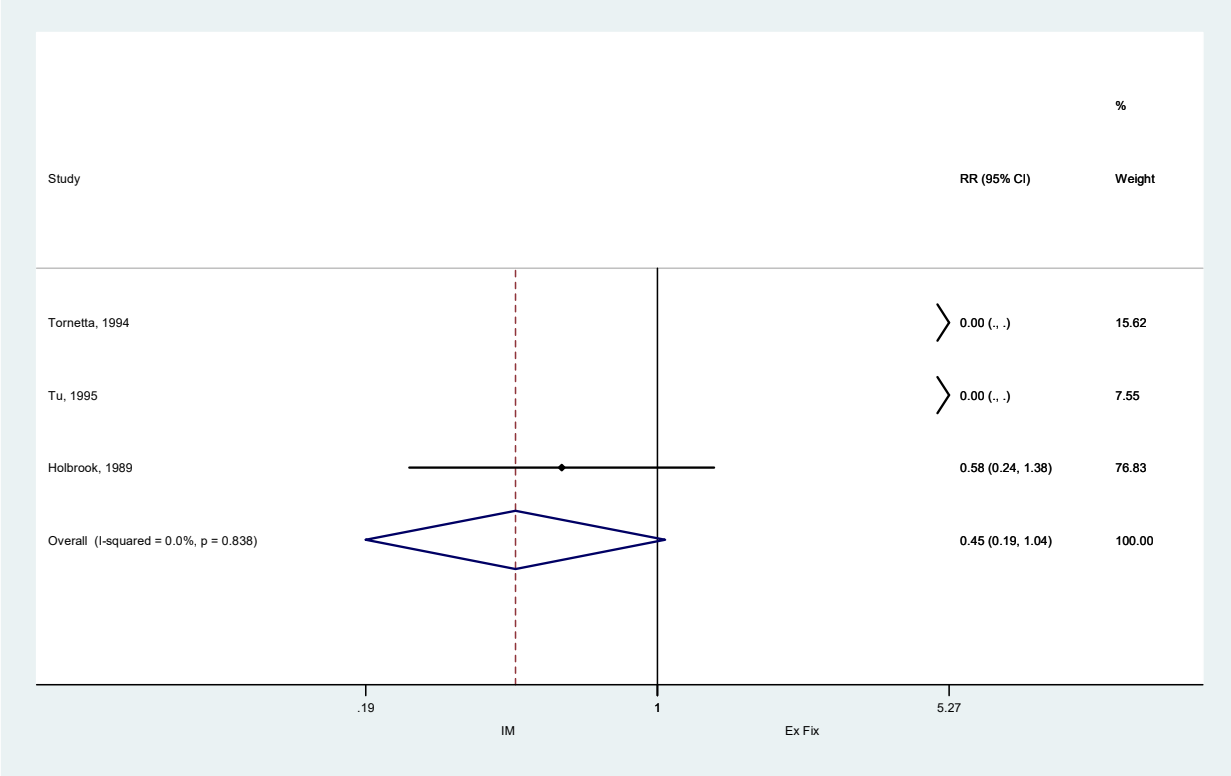


Table80: PICO 6i - 6: IM Nailing vs. 6: External Fixator - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Garg, 2019	High	Open Tibial Fx	Time to Union	Postop.	Unreamed IMN	Half Pin Ex Fix	Mean Difference	-1.76 (-3.01, -0.51)	Unreamed IMN
Tornetta, 1994	Moderate	Open Tibial Fx	Time to Union (wks) (19-36 mos follow-up)	Postop. 21 mos	Statically Locked Non-Reamed Intramedullary Nails:11 Gross-Kempf, 3 Alta, 1 AO	External Fixators: 7 Hoffman Anterior, 7 Ace Multiplane	Mean Difference	23 (-15.64, 61.64)	NS
Inan, 2007	Low	Open Tibial Fx	Time to Union	Postop.	Unreamed IMN	Ilizarov Ex Fix	Author Reported -3.9E-2	N/A	Ex Fix
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Time to Union	Postop. 3wks	Unreamed Intramedullary Nailing	External Fixation	RR	7.00(0.93,52.80)	NS
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Time to Union	Postop. 4wks	Unreamed Intramedullary Nailing	External Fixation	RR	1.00(0.22,4.49)	NS
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Time to Union	Postop. 5wks	Unreamed Intramedullary Nailing	External Fixation	RR	0.67(0.33,1.35)	NS
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Time to Union	Postop. 6wks	Unreamed Intramedullary Nailing	External Fixation	RR	0.78(0.34,1.76)	NS
Mohseni, 2011	High	Open Tibial Shaft Fx (IIIA-IIIB)	Soft-Tissue Injury	Postop.1yrs	Unreamed Intramedullary Nailing	External Fixation	RR	0.67(0.12,3.65)	NS
Bali, 2011	Moderate	Open Tibial Fx	Time to Union	Postop.	Unreamed Tibial Nail	AO Uni or Biplanar Ex Fix	Author Reported	N/A	NS

Table81: PICO 6j - 6: IM Nailing vs. 6: Control - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Erturk, 2013	Low	Open Tibial Fx	Pin Site Infection	Postop.	IM Nail and Ex Fix	Ex Fix Only	RR	0.22(0.07,0.66)	IM Nail and Ex Fix

Table82: PICO 6j - 6: IM Nailing vs. 6: Control - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Erturk, 2013	Low	Open Tibial Fx	Malalignment	Postop.	IM Nail and Ex Fix	Ex Fix Only	RR	0.18(0.02,1.39)	NS
Erturk, 2013	Low	Open Tibial Fx	Nonunion	Postop.	IM Nail and Ex Fix	Ex Fix Only	RD	-0.18(-0.32,-0.04)	IM Nail and Ex Fix

Table83: PICO 6j - 6: IM Nailing vs. 6: Control - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Erturk, 2013	Low	Open Tibial Fx	Time to Union	Postop.	IM Nail and Ex Fix	Ex Fix Only	Mean Difference	-3.17 (-3.88, -2.46)	IM Nail and Ex Fix

Table84: PICO 6k - 6: IM Nailing vs. 6: Cast - Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Antich-Adrover,1997	Moderate	Open Tibial Fx	LoS	Postop.	IMN after Ex Fix	Cast after Ex Fix	Mean Difference	9 (3.75, 14.25)	Cast after Ex Fix

Table85: PICO 6k - 6: IM Nailing vs. 6: Cast - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Antich-Adrover,1997	Moderate	Open Tibial Fx	Deep Infection	Postop.	IMN after Ex Fix	Cast after Ex Fix	RD	0.06(-0.05,0.17)	NS

Table86: PICO 6k - 6: IM Nailing vs. 6: Cast - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Antich-Adrover,1997	Moderate	Open Tibial Fx	Nonunion	Postop.	IMN after Ex Fix	Cast after Ex Fix	RR	0.20(0.03,1.45)	NS

Table87: PICO 6k - 6: IM Nailing vs. 6: Cast - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Antich-Adrover,1997	Moderate	Open Tibial Fx	Time to Union (wks)	Postop.	IMN after Ex Fix	Cast after Ex Fix	Mean Difference	-9 (-10.90, -7.10)	IMN after Ex Fix

Table88: PICO 6l - 6: Irrigation and Debridement vs. 6: No Irrigation and Debridement - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Donnally, 2018	Low	Open Tibial Fx	Superficial Infection	Postop.	Received I&D at Fixation	Did not receive formal I&D	RD	0.26(0.08,0.44)	Did not receive formal I&D
Donnally, 2018	Low	Open Tibial Fx	Deep Infection	Postop.	Received I&D at Fixation	Did not receive formal I&D	RR	2.78(0.34,22.64)	NS

Table89: PICO 6m - 6: Irrigation Solution vs. 6: Control - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation to Manage Infection, Wound Healing, or Nonunion Problems	Postop. 1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	0.98(0.50,1.92)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation for Infection	Postop. 1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	0.98(0.26,3.73)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation for Nonunion	Postop. 1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	0.54(0.21,1.35)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation for Wound Healing Problems	Postop. 1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	0.82(0.27,2.53)	NS

Table90: PICO 6m - 6: Irrigation Solution vs. 6: Control - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Petrisor, 2011	High	Open Fx (I to IIIB)	Infection	Postop. 1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	3.19(1.11,9.19)	Control (Saline)

Table91: PICO 6m - 6: Irrigation Solution vs. 6: Control - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Petrisor, 2011	High	Open Fx (I to IIIB)	Nonunion	Postop. 1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	0.54(0.21,1.35)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Wound Healing Problem	Postop.1yrs	Castile Soap: 80ml, 17% Castile Soap Solution to 3Lbag of saline	Control (Saline): Normal Saline	RR	0.98(0.44,2.17)	NS

Table92: PICO 6n - 6: Irrigation w/Additives vs. 6: Control - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Gao, 2019	High	Open Foot and/or Ankle Fx	Extent of Inflammation (days)	Postop.	Antibiotic-Containing Drainage Fluid: Continuous irrigation was applied during the first 24-48 hrs at a volume of 4000-5000 ml/day at a negative pressure of20 kPa. After 2-3 days irrigation was performed intermittently (3x/day) at 2000-3000 ml/day at a negative pressure of 5 kPA. After 3-5 days the volume was further lowered to 1000-2000 ml/day (2x/day for3-5 days until drained liquid was free of bacteria	Control (No Antibiotic-Containing Drainage Fluid)	Mean Difference	-5 (-6.34, -3.66)	Antibiotic-Containing Drainage Fluid

Table93: PICO 6o - 6: ABX Covered Nail vs. 6: Control - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pinto, 2019	Moderate	Open Tibial Fx (Type I and II)	Infection	Postop. 6mos	Antibiotic Coated IMIL Nail: 100mg (1mg/cm2) Gentamicin w/ Biodegradable Polymeric Carrier Poly (D, L-Lactide)	Control (Regular IMIL Nail)	RD	-0.29(-0.52, -0.05)	Antibiotic Coated IMIL Nail

Table94: PICO 6p - 6: Kirschner Wire vs. 6: Cannulated Screw - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Any Complication	Postop.	4 3.5mm Kirschner Wires	2 6.5mm screws from front to rear	RR	1.54(0.51,4.59)	NS

Table95: PICO 6p - 6: Kirschner Wire vs. 6: Cannulated Screw - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Amputation	Postop.	4 3.5mm Kirschner Wires	2 6.5mm screws from front to rear	RD	0.01(-0.01,0.03)	NS

Table96: PICO 6p - 6: Kirschner Wire vs. 6: Cannulated Screw - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Deep Infection	Postop.	4 3.5mm Kirschner Wires	2 6.5mm screws from front to rear	RD	0.02(-0.01,0.05)	NS

Table97: PICO 6q - 6: Less Aggressive Debridement vs. 6: More Aggressive Debridement - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ricci, 2013	Low	Open Supracondylar Femur Fx	Deep Infection	Postop. 2yrs	Removal of all devitalized bone and use of abx spacers	Removal of grossly contaminated bone and no spacers	RR	1.42(0.34,5.86)	NS

Table98: PICO 6q - 6: Less Aggressive Debridement vs. 6: More Aggressive Debridement - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ricci, 2013	Low	Open Supracondylar Femur Fx	Additional Surgery to Promote Union	Postop. 2yrs	Removal of all devitalized bone and use of abx spacers	Removal of grossly contaminated bone and no spacers	RR	0.13(0.02,0.87)	Removal of all devitalized bone and use of abx spacers

Table99: PICO 6q - 6: Less Aggressive Debridement vs. 6: More Aggressive Debridement- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ricci, 2013	Low	Open Supracondylar Femur Fx	Healing after Index Procedure	Postop. 2yrs	Removal of all devitalized bone and use of abx spacers	Removal of grossly contaminated bone and no spacers	RR	2.60(1.33,5.05)	Removal of all devitalized bone and use of abx spacers

Table100: PICO 6r - 6: Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Drainage of a Hematoma	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RD	0.00(-0.00,0.00)	NS

Table101: PICO 6r - 6: Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Reoperation	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.96(0.75,1.24)	NS
Bhandari, 2015	High	Open Extremity Fx	Revision and Closure for Wound Dehiscence	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.68(0.11,4.06)	NS
Bhandari, 2015	High	Open Extremity Fx	Other Revision	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.85(0.43,1.68)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation to Manage Infection, Wound Healing, or Nonunion Problems	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.66(0.33,1.32)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation for Infection	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.35(0.07,1.67)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation for Nonunion	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.44(0.17,1.17)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Reoperation for Wound Healing Problems	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.88(0.29,2.71)	NS

Table102: PICO 6r - 6: Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	I&D for Wound Infection	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	1.02(0.71,1.46)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound Site Infection (Non-op tx)	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	1.10(0.76,1.61)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Infection	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.44(0.17,1.17)	NS

Table103: PICO 6r - 6: Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Coverage for Infected or Necrotic Wound	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	14.29(3.42,59.81)	>20 PSI Irrigation
Bhandari, 2015	High	Open Extremity Fx	Hardware Failure	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.26(0.05,1.20)	NS
Bhandari, 2015	High	Open Extremity Fx	Bone graft for nonunion	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.73(0.41,1.28)	NS
Bhandari, 2015	High	Open Extremity Fx	Implant exchange for nonunion	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.86(0.49,1.51)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound-healing problems (Non-op tx)	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	1.26(0.76,2.09)	NS
Bhandari, 2015	High	Open Extremity Fx	Nonunion (Non-op tx)	Postop. 12 mos	5-10 PSI Irrigation	>20 PSI Irrigation	RR	0.81(0.47,1.39)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Nonunion	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.62(0.26,1.45)	NS
Petrisor, 2011	High	Open Fx (I to IIIB)	Wound Healing Problem	Postop. 1yrs	Low Pressure Irrigation: 6-10psi	High Pressure Irrigation: 25-30psi	RR	0.45(0.19,1.09)	NS

Table104: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Drainage of a hematoma	Postop. 12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RD	0.00(0.00,0.00)	NS

Table105: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Reoperation	Postop. 12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.04(0.81,1.32)	NS
Bhandari, 2015	High	Open Extremity Fx	Revision and Closure for Wound Dehiscence	Postop. 12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.02(0.21,5.03)	NS
Bhandari, 2015	High	Open Extremity Fx	Other Revision	Postop. 12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	0.90(0.46,1.76)	NS

Table106: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	I&D for Wound Infection	Postop. 12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	0.98(0.68,1.41)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound Site Infection (Non-op tx)	Postop. 12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.43(1.01,2.04)	>20 PSI Irrigation

Table107: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: High-Pressure Irrigation - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Coverage for Infected or Necrotic Wound	Postop12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	15.26(3.66,63.64)	>20 PSI Irrigation
Bhandari, 2015	High	Open Extremity Fx	Hardware Failure	Postop12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.40(0.57,3.46)	NS
Bhandari, 2015	High	Open Extremity Fx	Bone graft for nonunion	Postop12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	0.87(0.51,1.49)	NS
Bhandari, 2015	High	Open Extremity Fx	Implant exchange for nonunion	Postop12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.21(0.73,2.02)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound-healing problems (Non-op tx)	Postop12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.68(1.04,2.71)	>20 PSI Irrigation
Bhandari, 2015	High	Open Extremity Fx	Nonunion (Non-op tx)	Postop12 mos	1-2 PSI Irrigation	>20 PSI Irrigation	RR	1.05(0.64,1.74)	NS

Table108: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: Low-Pressure Irrigation - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Drainage of a hematoma	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RD	-0.00(-0.00,0.00)	NS

Table109: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: Low-Pressure Irrigation - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Reoperation	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.07(0.84,1.38)	NS
Bhandari, 2015	High	Open Extremity Fx	Revision and Closure for Wound Dehiscence	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.49(0.25,8.92)	NS
Bhandari, 2015	High	Open Extremity Fx	Other Revision	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.06(0.53,2.14)	NS

Table110: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: Low-Pressure Irrigation - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	I&D for Wound Infection	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	0.96(0.67,1.38)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound Site Infection (Non-op tx)	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.30(0.92,1.83)	NS

Table111: PICO 6r - 6: Very Low-Pressure Irrigation vs. 6: Low-Pressure Irrigation - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Coverage for Infected or Necrotic Wound	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.07(0.64,1.77)	NS
Bhandari, 2015	High	Open Extremity Fx	Hardware Failure	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	5.48(1.22,24.64)	5-10 PSI Irrigation
Bhandari, 2015	High	Open Extremity Fx	Bone graft for nonunion	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.20(0.67,2.15)	NS
Bhandari, 2015	High	Open Extremity Fx	Implant exchange for nonunion	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.40(0.82,2.40)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound-healing problems (Non-op tx)	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.34(0.86,2.09)	NS
Bhandari, 2015	High	Open Extremity Fx	Nonunion (Non-op tx)	Postop. 12 mos	1-2 PSI Irrigation	5-10 PSI Irrigation	RR	1.30(0.76,2.22)	NS

Table112: PICO 6s - 6: Plating vs. 6: IM Nailing - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Avilucea, 2016	Moderate	Open Tibial Fx	Any Complication	Postop.	Medial Plating	Intermedullary Nailing	Author Reported	2.52(1.05,6.02)	IMN

Table113: PICO 6s - 6: Plating vs. 6: IM Nailing - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Kayali, 2009	Low	Open Tibial Fx	Implant Revision	Postop.	MI Dynamic or Anatomical Plates	Locked IM Nail	RD	-0.05(-0.15,0.05)	NS

Table114: PICO 6s - 6: Plating vs. 6: IM Nailing - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Galal, 2018	High	Open Tibial Shaft Fx	Deep Infection	Postop.	Minimally Invasive Plate Osteosynthesis	Reamed Intramedullary Nails	RR	0.50(0.05,5.22)	NS
Kayali, 2009	Low	Open Tibial Fx	Superficial Infection	Postop.	MI Dynamic or Anatomical Plates	Locked IM Nail	RR	0.40(0.08,1.97)	NS
Kayali, 2009	Low	Open Tibial Fx	Chronic Osteomyelitis	Postop.	MI Dynamic or Anatomical Plates	Locked IM Nail	RR	0.80(0.05,12.01)	NS

Table115: PICO 6s - 6: Plating vs. 6: IM Nailing - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Galal, 2018	High	Open Tibial Shaft Fx	Non-Union or Delayed-Union due to Deep Infection	Postop.	Minimally Invasive Plate Osteosynthesis	Reamed Intramedullary Nails	RR	0.67(0.21,2.13)	NS
Kayali, 2009	Low	Open Tibial Fx	Nonunion	Postop.	MI Dynamic or Anatomical Plates	Locked IM Nail	RR	0.80(0.05,12.01)	NS
Kayali, 2009	Low	Open Tibial Fx	Malunion	Postop.	MI Dynamic or Anatomical Plates	Locked IM Nail	RR	0.80(0.05,12.01)	NS

Table116: PICO 6s - 6: Plating vs. 6: IM Nailing - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Galal, 2018	High	Open Tibial Shaft Fx	Time to Union (wks)	Postop.	Minimally Invasive Plate Osteosynthesis	Reamed Intramedullary Nails	Mean Difference	3 (2.19, 3.81)	Reamed Intramedullary Nails

Table117: PICO 6t - 6: Plating vs. 6: Cannulated Screw - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Any Complication	Postop.	MI Lateral Plating	2 6.5mm screws from front to rear	RR	1.58(0.45,5.52)	NS

Table118: PICO 6t - 6: Plating vs. 6: Cannulated Screw - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Amputation	Postop.	MI Lateral Plating	2 6.5mm screws from front to rear	RD	0.04(-0.04,0.12)	NS

Table119: PICO 6t - 6: Plating vs. 6: Cannulated Screw - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Deep Infection	Postop.	MI Lateral Plating	2 6.5mm screws from front to rear	RD	0.00(0.00,0.00)	NS
Zhang, 2016	Moderate	Open Calcaneal Fx	Chronic Osteomyelitis	Postop.	Plate Internal Fixation	Cannulated Screw Internal Fixation	RD	-0.06(-0.18,0.06)	NS
Zhang, 2016	Moderate	Open Calcaneal Fx	Superficial Infection	Postop.	Plate Internal Fixation	Cannulated Screw Internal Fixation	RD	0.20(-0.00,0.40)	NS

Table120: PICO 6t - 6: Plating vs. 6: Cannulated Screw - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhang, 2016	Moderate	Open Calcaneal Fx	Local Skin Necrosis	Postop.	Plate Internal Fixation	Cannulated Screw Internal Fixation	RR	1.07(0.17,6.64)	NS
Zhang, 2016	Moderate	Open Calcaneal Fx	Large area of skin Necrosis	Postop.	Plate Internal Fixation	Cannulated Screw Internal Fixation	RD	-0.06(-0.18,0.06)	NS

Table121: PICO 6u - 6: ORIF vs. 6: External Fixator - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Wei, 2014	Low	Open Tibial Fx	Amputation	Postop.	Locking Plate or IMN	External Fixator	RR	0.38(0.04,3.47)	NS
Wei, 2014	Low	Open Tibial Fx	Amputation	Postop.	Locking Plate or IMN	External Fixator	RR	1.41(0.31,6.34)	NS

Table122: PICO 6u - 6: ORIF vs. 6: External Fixator - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yokoyama, 1995	Low	Open Tibia FX	Deep Infection	Postop.	Immediate ORIF	External Fixation	RR	6.55(0.85,50.16)	NS
Wei, 2014	Low	Open Tibial Fx	Deep Infection	Postop. 1yrs	Locking Plate or IMN	External Fixator	RR	0.57(0.22,1.47)	NS
Wei, 2014	Low	Open Tibial Fx	Osteomyelitis	Postop.	Locking Plate or IMN	External Fixator	RR	0.49(0.14,1.72)	NS
Wei, 2014	Low	Open Tibial Fx	Deep Infection	Postop. 1yrs	Locking Plate or IMN	External Fixator	RR	0.85(0.36,1.98)	NS
Wei, 2014	Low	Open Tibial Fx	Osteomyelitis	Postop.	Locking Plate or IMN	External Fixator	RR	0.81(0.27,2.42)	NS

Table123: PICO 6u - 6: ORIF vs. 6: External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Wei, 2014	Low	Open Tibial Fx	Nonunion	Postop. 6mos	Locking Plate or IMN	External Fixator	RR	0.60(0.34,1.06)	NS
Wei, 2014	Low	Open Tibial Fx	Nonunion	Postop. 1yrs	Locking Plate or IMN	External Fixator	RR	0.51(0.18,1.47)	NS
Wei, 2014	Low	Open Tibial Fx	Nonunion	Postop. 6mos	Locking Plate or IMN	External Fixator	RR	0.59(0.32,1.10)	NS
Wei, 2014	Low	Open Tibial Fx	Nonunion	Postop. 1yrs	Locking Plate or IMN	External Fixator	RR	0.47(0.14,1.54)	NS

Table124: PICO 6u - 6: ORIF vs. 6: External Fixator - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yokoyama, 1995	Low	Open Tibia FX	Time to Bony Union (mos)	Postop.	Immediate ORIF	External Fixation	Mean Difference	-3.9 (-9.67, 1.87)	NS

Table125: PICO 6v - 6: Rail External Fixator vs. 6: Ring External Fixator - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pal, 2015	Moderate	Open Tibial Fx	Pin Site Infection	Postop. 2yrs	Rail Fixator	Ring Fixator	RR	0.25(0.03,2.00)	NS
Pal, 2015	Moderate	Open Tibial Fx	Loosening of pin	Postop. 2yrs	Rail Fixator	Ring Fixator	RR	0.50(0.05,4.98)	NS
Pal, 2015	Moderate	Open Tibial Fx	Breakage of Pin	Postop. 2yrs	Rail Fixator	Ring Fixator	RD	-0.06(-0.18,0.06)	NS
Pal, 2015	Moderate	Open Tibial Fx	Assembly loosening	Postop. 2yrs	Rail Fixator	Ring Fixator	RD	-0.06(-0.18,0.06)	NS

Table126: PICO 6v - 6: Rail External Fixator vs. 6: Ring External Fixator - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pal, 2015	Moderate	Open Tibial Fx	Chronic Osteomyelitis	Postop. 2yrs	Rail Fixator	Ring Fixator	RR	0.50(0.05,4.98)	NS

Table127: PICO 6v - 6: Rail External Fixator vs. 6: Ring External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pal, 2015	Moderate	Open Tibial Fx	Delayed Union	Postop. 2yrs	Rail Fixator	Ring Fixator	RR	0.67(0.13,3.47)	NS

Table128: PICO 6w - 6: Plating vs. 6: External Fixator - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Pin Tract Infection (5-35 mos)	Postop. 14.2mos	Plate-Screw	External Fixator	RR	1.71(0.31,9.52)	NS
Bach, 1989	Moderate	Open Tibial Fx (Grades II and III only)	Pin Site Infection	Postop. 6mos	Standard 4.5 dynamic compression plate	AO Tubular Frame	RD	-0.10(-0.21,0.01)	NS

Table129: PICO 6w - 6: Plating vs. 6: External Fixator - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Danoff, 2015	Low	Open Pilon Fx	Amputation (minimal one year)	Postop. 1yrs	Plate Fixation	Ilizarov Frame	RD	0.00(0.00,0.00)	NS

Table130: PICO 6w - 6: Plating vs. 6: External Fixator - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Wound Infection (5-35 mos)	Postop. 14.2mos	Plate-Screw	External Fixator	RR	2.28(0.45,11.53)	NS
Bach, 1989	Moderate	Open Tibial Fx; Grade II and III	Wound Infection	Postop. 1yrs	Plate Fixation: 4.5 dynamic compression plates	AO Tubular Frame: 5.0mm on-half pins	RR	2.60(0.90,7.45)	NS
Bach, 1989	Moderate	Open Tibial Fx; Grade II and III	Osteomyelitis	Postop. 1yrs	Plate Fixation: 4.5 dynamic compression plates	AO Tubular Frame: 5.0mm on-half pins	RR	5.77(0.72,46.27)	NS
Danoff, 2015	Low	Open Pilon Fx	Deep Wound Infection (minimal one year)	Postop. 1yrs	Plate Fixation	Ilizarov Frame	RR	1.67(0.20,13.98)	NS
Bach, 1989	Moderate	Open Tibial Fx (Grades II and IIIonly)	Wound Infection	Postop. 6mos	Standard 4.5 dynamic compression plate	AO Tubular Frame	RR	2.60(0.90,7.45)	NS
Bach, 1989	Moderate	Open Tibial Fx (Grades II and IIIonly)	Chronic Osteomyelitis	Postop. 6mos	Standard 4.5 dynamic compression plate	AO Tubular Frame	RR	5.77(0.72,46.27)	NS

Meta Analysis - Outcome: Infection

Study	RR	[95% Conf.	Interval]	% Weight
Sun, 2021	2.276	0.449	11.528	17.43
Bach, 1989	2.596	0.905	7.450	41.28
Bach, 1989	2.596	0.905	7.450	41.28
D+L pooled RR	2.537	1.289	4.995	100.00

Heterogeneity chi-squared = 0.02 (d.f. = 2) p = 0.990
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 2.69 p = 0.007

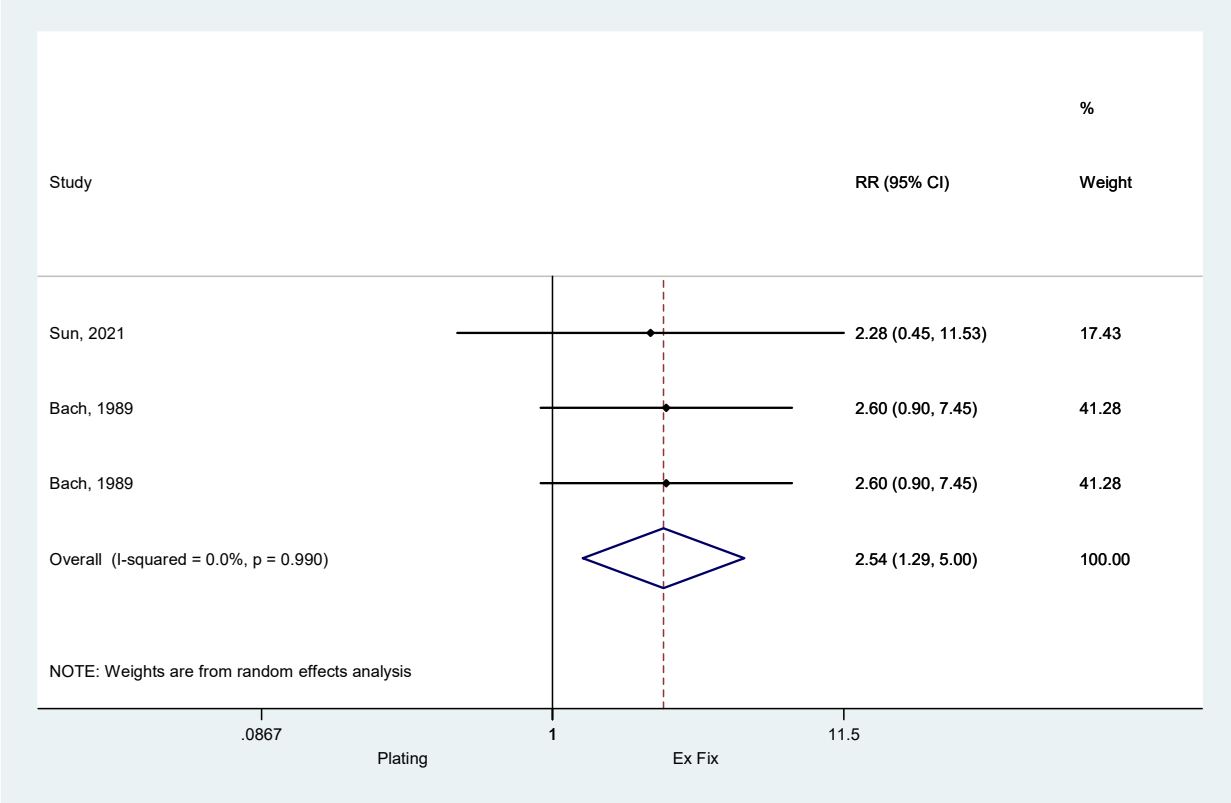


Table131: PICO 6w - 6: Plating vs. 6: External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Delayed Union (5-35 mos)	Postop. 14.2mos	Plate-Screw	External Fixator	RR	1.33(0.50,3.50)	NS
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Nonunion (5-35 mos)	Postop. 14.2mos	Plate-Screw	External Fixator	RR	0.65(0.21,2.00)	NS
Bach, 1989	Moderate	Open Tibial Fx; Grade II and III	Fixation Failure	Postop. 1yrs	Plate Fixation: 4.5 dynamic compression plates	AO Tubular Frame: 5.0mm on-half pins	RR	1.73(0.31,9.57)	NS
Bach, 1989	Moderate	Open Tibial Fx; Grade II and III	Malunion	Postop. 1yrs	Plate Fixation: 4.5 dynamic compression plates	AO Tubular Frame: 5.0mm on-half pins	RR	0.38(0.04,3.48)	NS
Bach, 1989	Moderate	Open Tibial Fx; Grade II and III	Refracture	Postop. 1yrs	Plate Fixation: 4.5 dynamic compression plates	AO Tubular Frame: 5.0mm on-half pins	RR	1.15(0.08,17.54)	NS
Danoff, 2015	Low	Open Pilon Fx	Nonunion (minimal one year)	Postop. 1yrs	Plate Fixation	Ilizarov Frame	RR	0.56(0.04,7.96)	NS
Danoff, 2015	Low	Open Pilon Fx	Arthrodesis (minimal one year)	Postop. 1yrs	Plate Fixation	Ilizarov Frame	RR	0.56(0.04,7.96)	NS
Danoff, 2015	Low	Open Pilon Fx	Malunion (minimal one year)	Postop. 1yrs	Plate Fixation	Ilizarov Frame	RD	0.00(0.00,0.00)	NS
Bach, 1989	Moderate	Open Tibial Fx (Grades II and III only)	Fixation Failure	Postop. 6mos	Standard 4.5 dynamic compression plate	AO Tubular Frame	RR	1.73(0.31,9.57)	NS
Bach, 1989	Moderate	Open Tibial Fx (Grades II and III only)	Refracture	Postop. 6mos	Standard 4.5 dynamic compression plate	AO Tubular Frame	RR	1.15(0.08,17.54)	NS
Bach, 1989	Moderate	Open Tibial Fx (Grades II and III only)	Malunion	Postop. 6mos	Standard 4.5 dynamic compression plate	AO Tubular Frame	RR	0.38(0.04,3.48)	NS

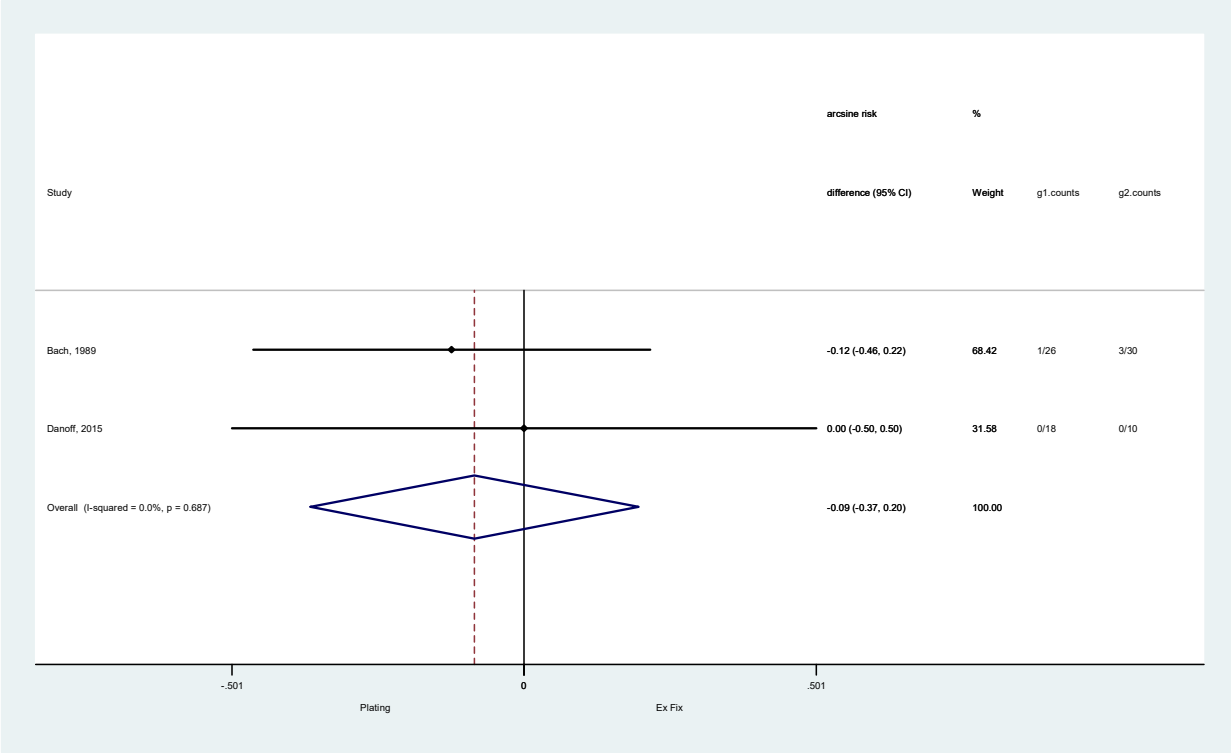
Meta Analysis - Outcome: Malunion

Study	ES	[95% Conf.	Interval]	% Weight
Bach, 1989	-0.124	-0.465	0.216	68.42
Danoff, 2015	0.000	-0.501	0.501	31.58
I-V pooled ES	-0.085	-0.367	0.196	100.00

Heterogeneity calculated by formula
Q = SIGMA_i{ (1/variance_i)*(effect_i - effect_pooled)^2 }
where variance_i = ((upper limit - lower limit)/(2*z))^2

Heterogeneity chi-squared = 0.16 (d.f. = 1) p = 0.687
I-squared (variation in ES attributable to heterogeneity) = 0.0%

Test of ES=0 : z= 0.59 p = 0.554



Meta Analysis - Outcome: Nonunion

Study	RR	[95% Conf.	Interval]	% Weight
Sun, 2021	0.650	0.212	1.998	84.90
Danoff, 2015	0.556	0.039	7.957	15.10
D+L pooled RR	0.635	0.226	1.786	100.00

Heterogeneity chi-squared = 0.01 (d.f. = 1) p = 0.915
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 0.86 p = 0.389

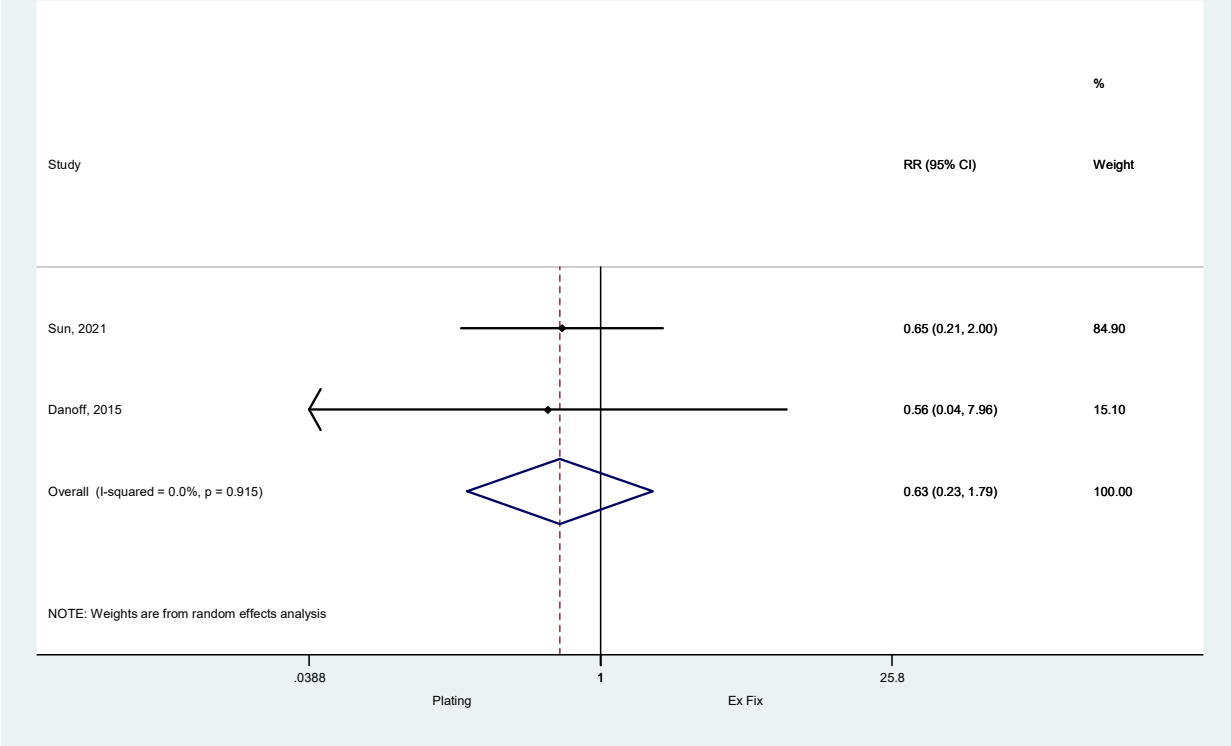


Table132: PICO 6w - 6: Plating vs. 6: External Fixator - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Imageological Healing Time of Fx (mos) (5-35 mos)	Postop. 14.2mos	Plate-Screw	External Fixator	Mean Difference	-0.2 (-0.81, 0.41)	NS

Table133: PICO 6x - 6: Plating vs. 6: Control- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stoddart, 2020	Low	Open Tibial Diaphyseal Fx	All Complications (minimum one year)	Postop. 1yrs	Retained Adjunctive Plate Fixation	Control (No Retained Adjunctive Plate Fixation)	RR	1.23(0.35,4.34)	NS

Table134: PICO 6x - 6: Plating vs. 6: Control - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Revak, 2021	Low	Open Tibial Fx	Infection	Postop. 6mos	Reduction Plating and IMN	IMN	RR	0.53(0.18,1.57)	NS
Stoddart, 2020	Low	Open Tibial Diaphyseal Fx	Deep Infection (minimum one year)	Postop. 1yrs	Retained Adjunctive Plate Fixation	Control (No Retained Adjunctive Plate Fixation)	RR	1.39(0.30,6.49)	NS
Stoddart, 2020	Low	Open Tibial Diaphyseal Fx	Infected Flap Failure (minimum one year)	Postop. 1yrs	Retained Adjunctive Plate Fixation	Control (No Retained Adjunctive Plate Fixation)	RR	1.39(0.15,12.82)	NS

Table135: PICO 6x - 6: Plating vs. 6: Control - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Revak, 2021	Low	Open Tibial Fx	Nonunion	Postop. 6mos	Reduction Plating and IMN	IMN	RR	0.38(0.08,1.73)	NS
Revak, 2021	Low	Open Tibial Fx	Initial Malreduction	Postop. 6mos	Reduction Plating and IMN	IMN	RD	-0.15(-0.25,-0.06)	Reduction Plating and IMN
Revak, 2021	Low	Open Tibial Fx	Final Malunion	Postop. 6mos	Reduction Plating and IMN	IMN	RR	0.22(0.05,0.94)	Reduction Plating and IMN
Stoddart, 2020	Low	Open Tibial Diaphyseal Fx	Nonunion (minimum one year)	Postop. 1yrs	Retained Adjunctive Plate Fixation	Control (No Retained Adjunctive Plate Fixation)	RR	2.31(0.28,18.98)	NS
Stoddart, 2020	Low	Open Tibial Diaphyseal Fx	Isolated Flap Failure (minimum one year)	Postop. 1yrs	Retained Adjunctive Plate Fixation	Control (No Retained Adjunctive Plate Fixation)	RD	0.01(-0.01,0.04)	NS

Meta Analysis - Outcome: Nonunion

Study	RR	[95% Conf.	Interval]	% Weight
Revak, 2021	0.381	0.084	1.734	58.50
Stoddart, 2020	2.313	0.282	18.975	41.50
D+L pooled RR	0.805	0.141	4.610	100.00

Heterogeneity chi-squared = 1.86 (d.f. = 1) p = 0.172
I-squared (variation in RR attributable to heterogeneity) = 46.4%
Estimate of between-study variance Tau-squared = 0.7565

Test of RR=1 : z= 0.24 p = 0.808

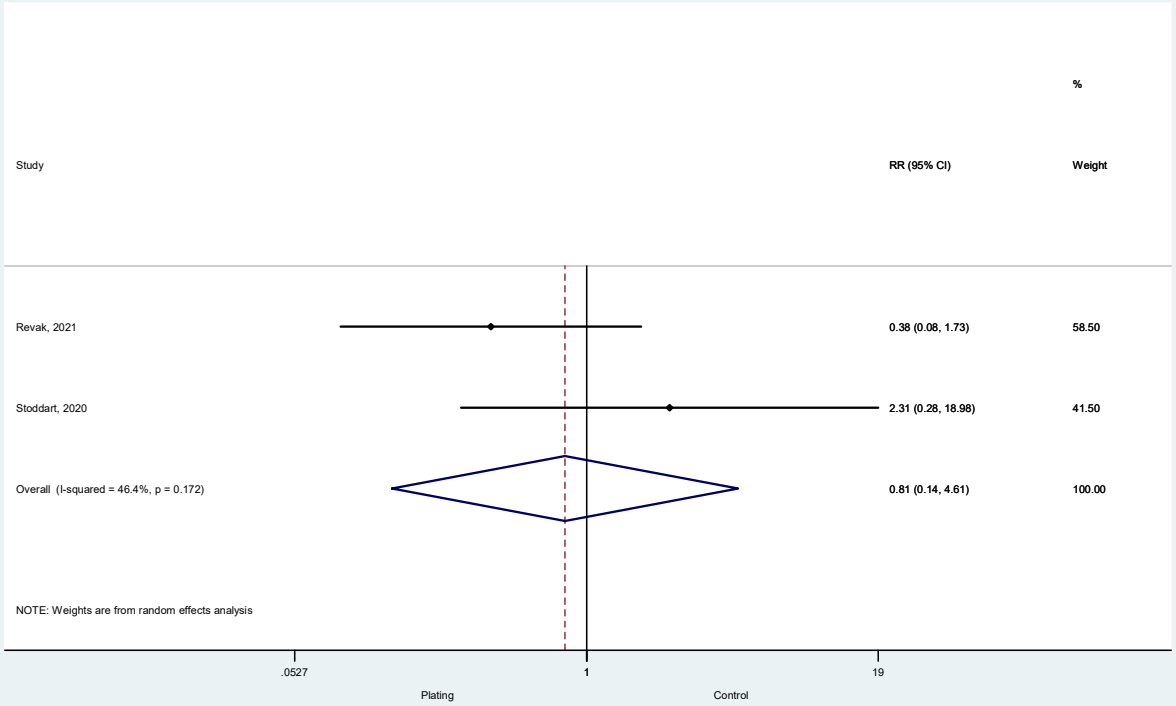


Table136: PICO 6x - 6: Plating vs. 6: Control - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Revak, 2021	Low	Open Tibial Fx	Time to Union	Postop. 6mos	Reduction Plating and IMN	IMN	Author Reported	N/A	NS

Table137: PICO 6y - 6: Plating vs. 6: Kirschner Wire - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Any Complication	Postop.	MI Lateral Plating	4 3.5mm Kirschner Wires	RR	1.03(0.47,2.24)	NS
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Pin Tract Infection (5-35 mos)	Postop14.2mos	Plate-Screw	Kirschner Wire	RR	1.29(0.23,7.13)	NS

Table138: PICO 6y - 6: Plating vs. 6: Kirschner Wire - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Amputation	Postop.	MI Lateral Plating	4 3.5mm Kirschner Wires	RR	4.12(0.27,63.61)	NS

Table139: PICO 6y - 6: Plating vs. 6: Kirschner Wire - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Zhao, 2019	Low	Open Calcaneal Fx	Deep Infection	Postop.	MI Lateral Plating	4 3.5mm Kirschner Wires	RD	-0.02(-0.05,0.01)	NS
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Wound Infection (5-35 mos)	Postop. 14.2mos	Plate-Screw	Kirschner Wire	RR	3.45(0.41,28.87)	NS

Table140: PICO 6y - 6: Plating vs. 6: Kirschner Wire - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Delayed Union (5-35 mos)	Postop. 14.2mos	Plate-Screw	Kirschner Wire	RR	6.03(0.80,45.76)	NS
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Nonunion (5-35 mos)	Postop. 14.2mos	Plate-Screw	Kirschner Wire	RR	3.45(0.41,28.87)	NS

Table141: PICO 6y - 6: Plating vs. 6: Kirschner Wire - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Sun, 2021	Low	Open Distal Tibia/Fibula Fx	Imageological Healing Time of Fx (mos) (5-35 mos)	Postop. 14.2mos	Plate-Screw	Kirschner Wire	Mean Difference	1.03 (0.34, 1.72)	Kirschner Wire

Table142: PICO 6y - 6: Plating vs. 6: Knowles Pin - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lee, 2009	Low	Open Ankle Fx	Superficial Infection	Postop. 7days	Tubular Plate	Knowles Pin: 4mm threaded diameter;	RD	0.09(-0.03,0.21)	NS

Table143: PICO 6y - 6: Plating vs. 6: Knowles Pin - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lee, 2009	Low	Open Ankle Fx	Skin Necrosis	Postop. 14 days	Tubular Plate	Knowles Pin: 4mm threaded diameter;	RD	0.09(-0.03,0.21)	NS

Table144: PICO 6z - 6: Pulse Lavage at Index vs. 6: No Pulse Lavage - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ovaska, 2016	Moderate	Open Ankle Fx	Wound Necrosis	Postop.	Received pulse lavage at index procedure	No Pulse Lavage	Author Reported	3.60(1.10,11.90)	No pulse lavage

Table145: PICO 6za - 6: Reamed Nailing vs. 6: Unreamed Nailing - Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ziran, 2004	Low	Open Tibial Fx	Amputation	Postop24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	1.32(0.09,19.93)	NS

Table146: PICO 6za - 6: Reamed Nailing vs. 6: Unreamed Nailing - Readmission

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ziran, 2004	Low	Open Tibial Fx	Supplemental Procedures	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.52(0.34,0.79)	Reamed IM Nailing
Ziran, 2004	Low	Open Tibial Fx	Dynamizations	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.55(0.23,1.33)	NS
Ziran, 2004	Low	Open Tibial Fx	Bone Grafting	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.48(0.18,1.30)	NS
Ziran, 2004	Low	Open Tibial Fx	Exchange Nailing	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.53(0.11,2.47)	NS
Ziran, 2004	Low	Open Tibial Fx	Electrical Bone Stimulator	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RD	-0.21(-0.35,-0.06)	Reamed IM Nailing
Ziran, 2004	Low	Open Tibial Fx	Second Procedure	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.59(0.34,1.04)	NS
Ziran, 2004	Low	Open Tibial Fx	Third Procedure	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.33(0.08,1.40)	NS
Ziran, 2004	Low	Open Tibial Fx	Fourth/Fifth/Sixth Procedure	Postop. 24 mos	Reamed IM Nailing	Non-eamed IM Nailing	RD	-0.07(-0.16,0.02)	NS

Table147: PICO 6za - 6: Reamed Nailing vs. 6: Unreamed Nailing - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ziran, 2004	Low	Open Tibial Fx	Infection (mean 28 months follow-up (14-67))	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.38(0.09,1.64)	NS
Noumi, 2005	Moderate	Open Femoral Fx	Deep Infection	Postop.	Reamed IMN	Unreamed IMN	Author Reported -P-0.573	2.46(.,.)	NS
Finkemeier, 2000	Moderate	Open Tibial Fx	Wound Infection	Postop19 mos	Reaming IMN	Unreamed IMN	RR	1.37(0.09,20.53)	NS
Keating, 1997	High	Open Tibial FX	Infection	Postop.	Reamed Grosse-Kempf Nail	Unreamed Delta Locking Nail	RR	1.79(0.17,19.07)	NS
Keating, 1997	High	Open Tibial FX	Deep infection	Postop.	Reamed Grosse-Kempf Nail	Unreamed Delta Locking Nail	RD	0.02(-0.02,0.06)	NS
Ma, 2006	Moderate	Open Tibial Fx	Infection	Postop.	Reamed IMN	Unreamed IMN	RR	3.87(0.91,16.47)	NS

Table148: PICO 6za - 6: Reamed Nailing vs. 6: Unreamed Nailing - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Noumi, 2005	Moderate	Open Femoral Fx	Nonunion	Postop.	Reamed IMN	Unreamed IMN	Author Reported - P=0.627	0.63(.,.)	NS
Finkemeier, 2000	Moderate	Open Tibial Fx	Secondary Procedure to Promote Union	Postop. 19 mos	Reaming IMN	Unreamed IMN	RR	0.73(0.39,1.36)	NS
Keating, 1997	High	Open Tibial FX	Implant Failure	Postop.	Reamed Grosse-Kempf Nail	Unreamed Delta Locking Nail	RR	0.30(0.10,0.86)	Reamed Grosse-Kempf Nail
Keating, 1997	High	Open Tibial FX	Malunion	Postop,	Reamed Grosse-Kempf Nail	Unreamed Delta Locking Nail	RR	1.79(0.17,19.07)	NS
Ma, 2006	Moderate	Open Tibial Fx	Delayed Union	Postop.	Reamed IMN	Unreamed IMN	RR	1.88(0.53,6.62)	NS

Table149: PICO 6za - 6: Reamed Nailing vs. 6: Unreamed Nailing - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ziran, 2004	Low	Open Tibial Fx	Bone Union	Postop. 24 mos	Reamed IM Nailing	Non-reamed IM Nailing	RR	0.99(0.88,1.11)	NS

Table150: PICO 6zb - 6: Saline vs. 6: Distilled Water - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Olufemi, 2017	Moderate	Open LE Fx	Wound Infection	Postop.	Isotonic Saline: At least 3 L	Distilled Water: At least 3 L	RR	1.29(0.78,2.14)	NS
Olufemi, 2017	Moderate	Open LE Fx	Osteomyelitis	Postop.	Isotonic Saline: At least 3 L	Distilled Water: At least 3 L	RR	1.69(0.61,4.68)	NS

Table151: PICO 6zb - 6: Saline vs. 6: Distilled Water - Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Olufemi, 2017	Moderate	Open LE Fx	Time to Wound Healing	Postop.	Isotonic Saline: At least 3 L	Distilled Water: At least 3 L	Mean Difference	0.4 (-0.26, 1.06)	NS

Table152: PICO 6zc - 6: Soap vs. 6: Saline - Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Drainage of a hematoma	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RD	0.00(-0.00,0.00)	NS

Table153: PICO 6zc - 6: Soap vs. 6: Saline - Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Reoperation	Postop12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.28(1.04,1.57)	Sterile Saline
Bhandari, 2015	High	Open Extremity Fx	Revision and Closure for Wound Dehiscence	Postop12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RD	0.01(0.00,0.01)	Sterile Saline
Bhandari, 2015	High	Open Extremity Fx	Other Revision	Postop12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.03(0.59,1.80)	NS

Table154: PICO 6zc - 6: Soap vs. 6: Saline - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	I&D for Wound Infection	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.09(0.81,1.46)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound Site Infection (Non-op tx)	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	0.91(0.68,1.22)	NS

Table155: PICO 6zc - 6: Soap vs. 6: Saline - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2015	High	Open Extremity Fx	Coverage for Infected or Necrotic Wound	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.27(0.83,1.97)	NS
Bhandari, 2015	High	Open Extremity Fx	Hardware Failure	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.09(0.46,2.56)	NS
Bhandari, 2015	High	Open Extremity Fx	Bone graft for nonunion	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.17(0.74,1.85)	NS
Bhandari, 2015	High	Open Extremity Fx	Implant exchange for nonunion	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	1.53(0.98,2.39)	NS
Bhandari, 2015	High	Open Extremity Fx	Wound-healing problems (Non-op tx)	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	0.95(0.65,1.39)	NS
Bhandari, 2015	High	Open Extremity Fx	Nonunion (Non-op tx)	Postop. 12 mos	Castile Soap: 0.45% Solution	Sterile Saline	RR	0.99(0.65,1.52)	NS

Table156: PICO 6zd - 6: Temporary Internal Fixation vs. 6: External Fixator - SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Al-Hourani, 2019	Moderate	Open Tibial Fx Type IIIb	Deep Infection	Postop.	Low Contact Dynamic Compression Plate: 3.5mmplate	External Fixator	Author Reported	N/A	NS

Table157: PICO 6zd - 6: Temporary Internal Fixation vs. 6: External Fixator - Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Al-Hourani, 2019	Moderate	Open Tibial Fx Type IIIb	Nonunion	Postop.	Low Contact Dynamic Compression Plate: 3.5mmplate	External Fixator	Author Reported	N/A	NS
Al-Hourani, 2019	Moderate	Open Tibial Fx Type IIIb	Flap Failure	Postop.	Low Contact Dynamic Compression Plate: 3.5mmplate	External Fixator	Author Reported	N/A	NS

PICO 7: Wound Closure Management Strategy for Closed Fractures

Table 158: PICO 7a- 7: Incisional Vac vs. 7: Control- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stannard, 2012	Moderate	Closed Calcaneus, TibialPlateaus, and Pilon Fx	Deep Infection	Postop .	Negative Pressure Wound Therapy	Control (Standard Postoperative Dressings	RR	0.18(0.02,1.50)	NS
Stannard, 2012	Moderate	Closed Calcaneus, TibialPlateaus, and Pilon Fx	Late Deep Infection	Postop .	Negative Pressure Wound Therapy	Control (Standard Postoperative Dressings	RR	0.54(0.27,1.10)	NS
Stannard, 2012	Moderate	Closed Calcaneus, TibialPlateaus, and Pilon Fx	Total Infections	Postop .	Negative Pressure Wound Therapy	Control (Standard Postoperative Dressings	RR	0.46(0.24,0.89)	Negative Pressure Wound Therapy

PICO 8: Wound Closure Management Strategy for Open Fractures

Table 159: PICO 8a- 8: Abx Beads vs. 8: No Abx Beads- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lewandowski,2019	Moderate	Open Femoral Fx	Osteomyelitis	Postop .	Use of Abx Beads at Closure	No use of Abx beads	AuthorReported	4.35(1.88,10.07)	No Abx Use

Table 160: PICO 8b- 8: Abx Beads vs. 8: Dressings- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Keating, 1996	Low	Open Tibial Fx	Infection	Postop .mos	Abx pouch: 2.4g tobramycin following debridement	Cotton Gauze: Soaked in Saline	RR	0.47(0.13,1.73)	NS

Table 161: PICO 8c- 8: Abx Coated Implants vs. 8: Control- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Malizos, 2017	High	Closed Extremity Fx	Infection	Postop12 mos	Defensive Antibacterial Coating: 300mg sterile DACpowder with 5mL of water and selected abx; directlyonto impant surface prior to insertion	Standard Tx	RD	-0.05(-0.08,-0.01)	Defensive Antibacterial Coating

Table 162: PICO 8c- 8: Abx Coated Implants vs. 8: Control- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Malizos, 2017	High	Closed Extremity Fx	Delayed Wound Healing	Postop12 mos	Defensive Antibacterial Coating: 300mg sterile DACpowder with 5mL of water and selected abx; directlyonto impant surface prior to insertion	Standard Tx	RR	0.72(0.23,2.21)	NS
Malizos, 2017	High	Closed Extremity Fx	Delayed Union	Postop 9mos	Defensive Antibacterial Coating: 300mg sterile DACpowder with 5mL of water and selected abx; directlyonto impant surface prior to insertion	Standard Tx	RR	0.40(0.08,2.04)	NS

Table 163: PICO 8c- 8: Abx Coated Implants vs. 8: Control- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Malizos, 2017	High	Closed Extremity Fx	ASEPSIS	Postop 7days	Defensive Antibacterial Coating: 300mg sterile DACpowder with 5mL of water and selected abx; directlyonto impant surface prior to insertion	Standard Tx	MeanDifference	-0.02 (-1.02, 0.98)	NS
Malizos, 2017	High	Closed Extremity Fx	ASEPSIS	Postop14 days	Defensive Antibacterial Coating: 300mg sterile DACpowder with 5mL of water and selected abx; directlyonto impant surface prior to insertion	Standard Tx	MeanDifference	-0.6 (-1.76, 0.56)	NS

Table 164: PICO 8d- 8: Early Time to Wound Coverage vs.8: Delayed Time to Wound Coverage- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vandenberg, 2017	Low	Open Tibial Fx	Any Complication	Postop .mos	Wound Coverage <7 Days from injury	Wound Coverage >=7 Days from injury	RR	0.78(0.40,1.49)	NS
Arslan, 2019	Low	Open LE Fx	Any Complication	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	1.03(0.56,1.91)	NS
Arslan, 2019	Low	Open LE Fx	Pedicle thrombosis	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	1.50(0.32,7.14)	NS
Arslan, 2019	Low	Open LE Fx	Hematoma	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	3.00(0.37,24.17)	NS
D'Alleyrand, 2014	Low	Open Tibial Fx	Any Complication	Postop 3mos	Flap Delay <7 Days	Flap Delay >7 days	AuthorReported	1.11(1.01,1.22)	Early Coverage

Table 165: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage- Amputation

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rinker, 2008	Low	Amputation (follow up 16 most 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	1.15(0.20,6.50)	NS
Rinker, 2008	Low	Amputation (follow up 16 most 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Chronic Period: flap performed >42 days after injury	RR	0.59(0.09,3.88)	NS
Hou, 2011	Low	Amputation (1-6 year follow-up)	Postop2.4 yrs	Definitive Wound Coverage at ?7 days: twentypatients underwent rotational muscle flaps, fourreceived free muscle flaps, three only withsplit-thickness skin grafts	Definitive Wound Coverage at >7 days: twentypatients underwent rotational muscle flaps, fourreceived free muscle flaps, three only withsplit-thickness skin grafts	RR	0.63(0.16,2.50)	NS
Rinker, 2008	Low	Amputation (follow up 16 most 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	RR	0.52(0.09,2.87)	NS
Chua, 2014	Low	Amputation	Postop .	Wound Coverage <=72hrs from injury	Wound Coverage >72hrs from injury	RD	-0.07(-0.13,-0.00)	Wound Coverage<=72hrs from injury
Vandenberg,2017	Low	Amputation	Postop .mos	Wound Coverage <7 Days from injury	Wound Coverage >=7 Days from injury	RD	-0.07(-0.21,0.06)	NS

Table 166: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage- Other

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rinker, 2008	Low	LoS (follow up 16 mos to 15.5yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	MeanDifference	-7.9 (-10.97, -4.83)	Acute Period
Rinker, 2008	Low	LoS (follow up 16 mos to 15.5yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Chronic Period: flap performed >42 days after injury	MeanDifference	-0.4 (-4.55, 3.75)	NS
Liu, 2012	Low	LoS	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	MeanDifference	-3.4 (-14.29, 7.49)	NS
Liu, 2012	Low	LoS	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware >7 days	MeanDifference	-22.4 (-34.32, -10.48)	Duration of Exposed Metal ware <1day
Liu, 2012	Low	LoS	Postop 1yrs	Duration of Exposed Metal ware 2-7 days	Duration of Exposed Metal ware >7 days	MeanDifference	-19 (-33.16, -4.84)	Duration of Exposed Metal ware 2-7days
Liu, 2012	Low	LoS	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	MeanDifference	-4.8 (-9.23, -0.37)	Free-FlapReconstruction?3 days
Liu, 2012	Low	LoS	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	MeanDifference	-16.2 (-22.86, -9.54)	Free-FlapReconstruction?3 days
Liu, 2012	Low	LoS	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	MeanDifference	-11.4 (-18.06, -4.74)	Free-FlapReconstruction4-7 days
Rinker, 2008	Low	LoS (follow up 16 mos to 15.5yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	MeanDifference	7.5 (3.10, 11.90)	Chronic Period
Arslan, 2019	Low	LoS	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	MeanDifference	-18.1 (-22.09, -14.11)	Wound Coverage in 10-29 days from injury

Table 167: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage- Revision

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rinker, 2008	Low	Return to OR for Impending Flap Failure (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.17(0.02,1.28)	NS
Rinker, 2008	Low	Return to OR for Impending Flap Failure (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Chronic Period: flap performed >42 days after injury	RR	0.15(0.02,1.23)	NS
Liu, 2012	Low	Post-Flap Operations	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	MeanDifference	-0.5 (-2.08, 1.08)	NS
Liu, 2012	Low	Post-Flap Operations	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware >7 days	MeanDifference	-1.6 (-2.86, -0.34)	Duration of Exposed Metalware <1day
Liu, 2012	Low	Post-Flap Operations	Postop 1yrs	Duration of Exposed Metal ware 2-7 days	Duration of Exposed Metal ware >7 days	MeanDifference	-1.1 (-2.79, 0.59)	NS
Liu, 2012	Low	Post-Flap Operations	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	MeanDifference	-0.6 (-1.31, 0.11)	NS
Liu, 2012	Low	Post-Flap Operations	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	MeanDifference	-1.1 (-1.81, -0.39)	Free-FlapReconstruction?3 days
Liu, 2012	Low	Post-Flap Operations	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	MeanDifference	-0.5 (-1.33, 0.33)	NS
Rinker, 2008	Low	Return to OR for Impending Flap Failure (follow up 16mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	RR	0.86(0.31,2.43)	NS
Chua, 2014	Low	Secondary Procedure for Bone Union	Postop .	Wound Coverage <=72hrs from injury	Wound Coverage >72hrs from injury	RR	1.10(0.68,1.79)	NS

Table 168: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Lack, 2015	Moderate	Deep Infection	Postop90 days	<5 days to wound coverage from injury	>5 days to wound coverage from injury	AuthorReported - <0.001;LogisticRegression	7.39(2.54,27.04)	Time to coverage<5 days
Rinker, 2008	Low	Cellulitis or Abscess (followup 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.57(0.06,5.28)	NS
Rinker, 2008	Low	Osteomyelitis (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.69(0.14,3.34)	NS
Rinker, 2008	Low	Infectious Complications(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	1.03(0.51,2.08)	NS
Rinker, 2008	Low	Cellulitis or Abscess (followup 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.30(0.03,3.06)	NS
Rinker, 2008	Low	Infectious Complications(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.49(0.25,0.95)	Acute Period
Hou, 2011	Low	Infection (1-6 year follow up)	Postop2.4 yrs	Definitive Wound Coverage at ?7 days: twentypatients underwent rotational muscle flaps, fourreceived free muscle flaps, three only withsplit-thickness skin grafts	Definitive Wound Coverage at >7 days: twentypatients underwent rotational muscle flaps, fourreceived free muscle flaps, three only withsplit-thickness skin grafts	RR	0.22(0.03,1.49)	NS
Liu, 2012	Low	Deep Metal Infection	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.80(0.27,2.37)	NS
Liu, 2012	Low	Osteomyelitis	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.50(0.05,4.90)	NS
Liu, 2012	Low	Deep Metal Infection	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.57(0.21,1.52)	NS
Liu, 2012	Low	Osteomyelitis	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.11(0.02,0.76)	Duration of Exposed Metal ware <1day
Liu, 2012	Low	Deep Metal Infection	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.71(0.30,1.72)	NS
Liu, 2012	Low	Osteomyelitis	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.22(0.06,0.85)	Duration of Exposed Metalware 2-7days
D'Alleyrand,2014	Low	Infection	Postop 3mos	Flap Delay <7 Days	Flap Delay >7 days	AuthorReported	1.16(1.03,1.29)	Early Coverage
Liu, 2012	Low	Deep Metal Infection	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	RR	0.27(0.03,2.11)	NS
Liu, 2012	Low	Osteomyelitis	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	RR	0.54(0.06,4.91)	NS

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Liu, 2012	Low	Deep Metal Infection	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	RR	0.15(0.02,1.05)	NS
Liu, 2012	Low	Osteomyelitis	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	RR	0.19(0.03,1.44)	NS
Liu, 2012	Low	Deep Metal Infection	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	RR	0.54(0.22,1.30)	NS
Liu, 2012	Low	Osteomyelitis	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	RR	0.36(0.10,1.23)	NS
Scharfenberger,2017	Low	Deep Infection (at least oneyear)	Postop 1yrs	Primary Closure	Delayed Closure	RR	0.50(0.13,1.92)	NS
Rinker, 2008	Low	Cellulitis or Abscess (followup 16 mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	RR	0.52(0.09,2.87)	NS
Rinker, 2008	Low	Infectious Complications(follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	RR	0.47(0.26,0.84)	Subacute Period
Chua, 2014	Low	Superficial Infection	Postop .	Wound Coverage <=72hrs from injury	Wound Coverage >72hrs from injury	RR	0.39(0.05,3.22)	NS
Chua, 2014	Low	Deep Infection	Postop .	Wound Coverage <=72hrs from injury	Wound Coverage >72hrs from injury	RR	0.43(0.22,0.86)	Wound Coverage<=72hrs frominjury
Vandenberg,2017	Low	Infection	Postop .mos	Wound Coverage <7 Days from injury	Wound Coverage >=7 Days from injury	RR	1.00(0.24,4.13)	NS
Hohmann, 2007	Low	Wound Infection	Postop .	Wound Coverage at Initial debridement	Wound Coverage >=48hrs	RR	2.13(0.20,22.71)	NS
Arslan, 2019	Low	Serious Infection	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	1.13(0.21,5.91)	NS

Meta Analysis - Outcome: Osteomyelitis

Study	RR	[95% Conf.	Interval]	% Weight
Liu, 2012	0.542	0.060	4.915	8.13
Liu, 2012	0.194	0.026	1.443	9.84
Liu, 2012	0.359	0.105	1.230	26.05
Rinker, 2008	0.688	0.141	3.341	15.81
Liu, 2012	0.500	0.051	4.904	7.58
Liu, 2012	0.111	0.016	0.764	10.63
Liu, 2012	0.222	0.058	0.850	21.97
D+L pooled RR	0.316	0.168	0.592	100.00

Heterogeneity chi-squared = 3.02 (d.f. = 6) p = 0.807
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 3.60 p = 0.000

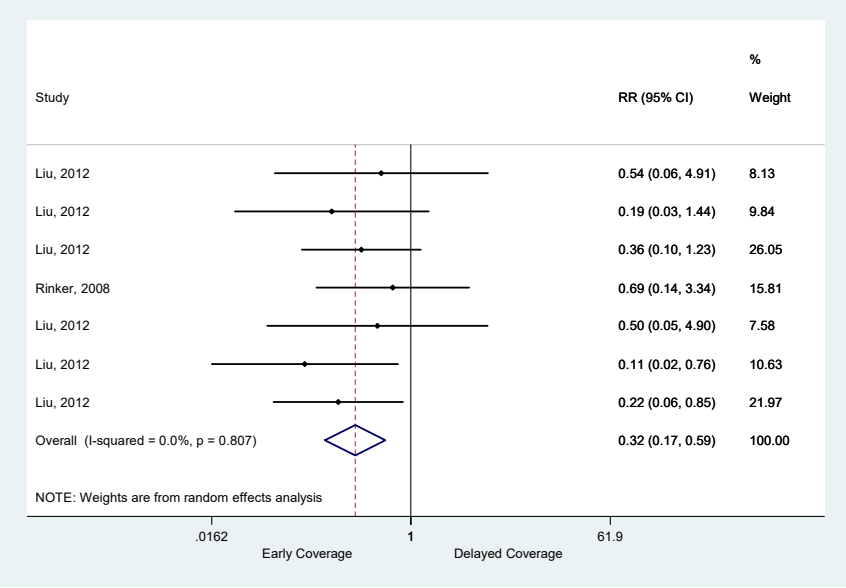


Table 169: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage- Wound Complications

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rinker, 2008	Low	Partial Flap Loss (follow up16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	1.15(0.20,6.50)	NS
Rinker, 2008	Low	Total Flap Loss (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.25(0.03,1.91)	NS
Rinker, 2008	Low	Hematoma (follow up 16 mosto 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.34(0.04,2.81)	NS
Rinker, 2008	Low	Nonunion (follow up 16 mosto 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.86(0.17,4.43)	NS
Rinker, 2008	Low	Overall Complication Rate(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.66(0.37,1.19)	NS
Rinker, 2008	Low	Flap-Related Complications(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.86(0.44,1.68)	NS
Rinker, 2008	Low	Partial Flap Loss (follow up16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RD	0.06(-0.02,0.15)	NS
Rinker, 2008	Low	Total Flap Loss (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.20(0.02,1.77)	NS
Rinker, 2008	Low	Hematoma (follow up 16 mosto 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.30(0.03,3.06)	NS
Rinker, 2008	Low	Nonunion (follow up 16 mosto 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.59(0.09,3.88)	NS
Rinker, 2008	Low	Overall Complication Rate(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.85(0.39,1.85)	NS
Rinker, 2008	Low	Flap-Related Complications(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	RR	0.31(0.18,0.56)	Acute Period
Hou, 2011	Low	Nonunion (1-6 year follow up)	Postop2.4 yrs	Definitive Wound Coverage at ?7 days: twentypatients underwent rotational muscle flaps, fourreceived free muscle flaps, three only withsplit-thickness skin grafts	Definitive Wound Coverage at >7 days: twentypatients underwent rotational muscle flaps, fourreceived free muscle flaps, three only withsplit-thickness skin grafts	RR	1.32(0.39,4.47)	NS
Liu, 2012	Low	Flap Take-Back	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.33(0.08,1.38)	NS
Liu, 2012	Low	Flap Failure (partial and total)	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RD	-0.36(-0.61,-0.11)	Duration ofExposedMetalware <1day
Liu, 2012	Low	Nonunion	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware 2-7 days	RR	0.75(0.20,2.75)	NS

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Liu, 2012	Low	Flap Take-Back	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware >7 days	RR	0.22(0.06,0.85)	Duration ofExposedMetalware <1day
Liu, 2012	Low	Flap Failure (partial and total)	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware >7 days	RD	-0.50(-0.76,-0.24)	Duration ofExposedMetalware <1day
Liu, 2012	Low	Nonunion	Postop 1yrs	Duration of Exposed Metal ware <1 day	Duration of Exposed Metal ware >7 days	RR	1.00(0.24,4.13)	NS
Liu, 2012	Low	Flap Take-Back	Postop 1yrs	Duration of Exposed Metal ware 2-7 days	Duration of Exposed Metal ware >7 days	RR	0.67(0.32,1.37)	NS
Liu, 2012	Low	Flap Failure (partial and total)	Postop 1yrs	Duration of Exposed Metal ware 2-7 days	Duration of Exposed Metal ware >7 days	RR	0.71(0.30,1.72)	NS
Liu, 2012	Low	Nonunion	Postop 1yrs	Duration of Exposed Metal ware 2-7 days	Duration of Exposed Metal ware >7 days	RR	1.33(0.36,4.90)	NS
Liu, 2012	Low	Flap Take-Back	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	RR	0.41(0.13,1.29)	NS
Liu, 2012	Low	Flap Failure (partial and total)	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	RR	0.81(0.22,2.95)	NS
Liu, 2012	Low	Nonunion	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction 4-7 days	RR	0.72(0.25,2.09)	NS
Liu, 2012	Low	Flap Take-Back	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	RR	0.35(0.11,1.09)	NS
Liu, 2012	Low	Flap Failure (partial and total)	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	RR	0.88(0.24,3.19)	NS
Liu, 2012	Low	Nonunion	Postop 1yrs	Free-Flap Reconstruction ?3 days	Free-Flap Reconstruction >7 days	RR	0.58(0.21,1.61)	NS
Liu, 2012	Low	Flap Take-Back	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	RR	0.86(0.46,1.60)	NS
Liu, 2012	Low	Flap Failure (partial and total)	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	RR	1.08(0.38,3.06)	NS
Liu, 2012	Low	Nonunion	Postop 1yrs	Free-Flap Reconstruction 4-7 days	Free-Flap Reconstruction >7 days	RR	0.81(0.38,1.70)	NS
Scharfenberger,2017	Low	Nonunion (at least one year)	Postop 1yrs	Primary Closure	Delayed Closure	RR	0.47(0.23,0.97)	Primary Closure
Pollak, 2000	Low	Wound Complications Resulting in Operative Treatment	Postop 6mos	Soft-Tissue Coverage 0-3 days	Soft-Tissue Coverage 4-7 days	RR	1.36(0.70,2.64)	NS
Pollak, 2000	Low	Wound Complications Resulting in Operative Treatment	Postop 6mos	Soft-Tissue Coverage 0-3 days	Soft-Tissue Coverage ?7 days	RR	0.78(0.42,1.45)	NS

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pollak, 2000	Low	Wound Complications Resulting in Operative Treatment	Postop 6mos	Soft-Tissue Coverage 4-7 days	Soft-Tissue Coverage ?7 days	RR	0.57(0.32,1.02)	NS
Rinker, 2008	Low	Partial Flap Loss (follow up16 mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	RD	0.05(-0.01,0.11)	NS
Rinker, 2008	Low	Total Flap Loss (follow up 16mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Duration of Exposed Metal ware >7 days	RR	0.81(0.23,2.81)	NS
Rinker, 2008	Low	Hematoma (follow up 16 mosto 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Duration of Exposed Metal ware >7 days	RR	0.86(0.18,4.09)	NS
Rinker, 2008	Low	Nonunion (follow up 16 mosto 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Duration of Exposed Metal ware >7 days	RR	0.69(0.14,3.47)	NS
Rinker, 2008	Low	Overall Complication Rate(follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Duration of Exposed Metal ware >7 days	RR	1.28(0.67,2.46)	NS
Rinker, 2008	Low	Flap-Related Complications(follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Duration of Exposed Metal ware >7 days	RR	0.37(0.24,0.55)	Subacute Period
Chua, 2014	Low	Flap Failure	Postop .	Wound Coverage <=72hrs from injury	Wound Coverage >72hrs from injury	RR	2.36(0.78,7.11)	NS
Vandenberg,2017	Low	Nonunion	Postop .mos	Wound Coverage <7 Days from injury	Wound Coverage >=7 Days from injury	RR	1.00(0.43,2.35)	NS
Vandenberg,2017	Low	Flap Failure	Postop .mos	Wound Coverage <7 Days from injury	Wound Coverage >=7 Days from injury	RR	0.25(0.03,1.97)	NS
Vandenberg,2017	Low	Partial Necrosis	Postop .mos	Wound Coverage <7 Days from injury	Wound Coverage >=7 Days from injury	RD	0.00(0.00,0.00)	NS
Arslan, 2019	Low	Flap Failure	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	1.13(0.21,5.91)	NS
Arslan, 2019	Low	Partial Skin Graft Failure	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	1.50(0.32,7.14)	NS
Arslan, 2019	Low	Nonunion	Postop .	Wound Coverage in 10-29 days from injury	Wound Coverage in 32-92 days from injury	RR	0.75(0.05,11.05)	NS

Meta Analysis - Outcome: Nonunion

Study	RR	[95% Conf.	Interval]	% Weight
Liu, 2012	0.722	0.250	2.090	10.66
Liu, 2012	0.583	0.212	1.609	11.70
Liu, 2012	0.808	0.383	1.704	21.61
Rinker, 2008	0.859	0.167	4.432	4.47
Rinker, 2008	0.594	0.091	3.875	3.42
Rinker, 2008	0.691	0.137	3.475	4.61
Scharfenberger, 2017	0.474	0.231	0.972	23.32
Liu, 2012	0.750	0.204	2.754	7.11
Liu, 2012	1.000	0.242	4.131	5.98
Liu, 2012	1.333	0.363	4.896	7.11
D+L pooled RR	0.698	0.493	0.987	100.00

Heterogeneity chi-squared = 2.70 (d.f. = 9) p = 0.975
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 2.03 p = 0.042

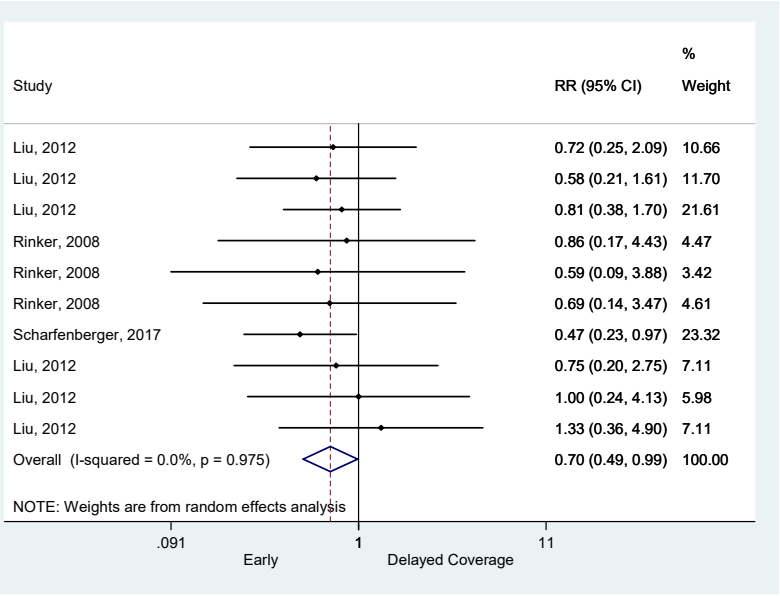


Table 170: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage- Wound Healing

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rinker, 2008	Low	No. of Operative Debridements (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	MeanDifference	-0.9 (-1.57, -0.23)	Acute Period
Rinker, 2008	Low	Time to Bony Union (mos)(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Subacute Period: flap performed 7-42 days after injury	MeanDifference	-2.3 (-3.13, -1.47)	Acute Period
Rinker, 2008	Low	No. of Operative Debridements (follow up 16mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Chronic Period: flap performed >42 days after injury	MeanDifference	-1.2 (-2.15, -0.25)	Acute Period
Rinker, 2008	Low	Time to Bony Union (mos)(follow up 16 mos to 15.5 yrs)	Postop16 mos	Acute Period: flap performed 1-7 days after injury	Chronic Period: flap performed >42 days after injury	MeanDifference	-2 (-3.78, -0.22)	Acute Period
Rinker, 2008	Low	No. of Operative Debridements (follow up 16mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	MeanDifference	-0.3 (-1.30, 0.70)	NS
Rinker, 2008	Low	Time to Bony Union (mos)(follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Period: flap performed 7-42 days after injury	Chronic Period: flap performed >42 days after injury	MeanDifference	0.3 (-1.45, 2.05)	NS

Table 171: PICO 8d- 8: Early Time to Wound Coverage vs. 8: Delayed Time to Wound Coverage-

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Whiting, 2019	Low		0	Time of Injury to Wound Closure(IMN)	continuous	Odds Ratio		none
Olinger, 2018	Moderate		0	Time of Injury to Wound Closure(Mixture of IMN and plating; 30 pts received flaps)	continuous	Odds Ratio		none
D'Alleyrand, 2014	Low		0	Time to Wound Coverage (Days)(Rotational or Free Flap)	continuous	Odds Ratio		**Earlier Time to Coverage**
Clegg, 2019	Moderate		0	Time to Wound Coverage (Days)	continuous	Odds Ratio		none
Clegg, 2019	Moderate		0	Time to Wound Coverage (Days)	continuous	Odds Ratio		none
Clegg, 2019	Moderate		0	Time to Wound Coverage (Days)	continuous	Odds Ratio		none
Hendrickson, 2020	Moderate		0	Time to Wound Coverage	continuous	Coefficient		none

Table 172: PICO 8f- 8: Free Muscle Flap vs. 8: Free Fasciocutaneous Flap- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Secondary Amputation	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	3.22(0.37,28.28)	NS

Table 173: PICO 8f- 8: Free Muscle Flap vs. 8: Free Fasciocutaneous Flap- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Reexploration b/c of Arterial and/orVenous Thrombosis	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	0.46(0.14,1.52)	NS

Table 174: PICO 8f- 8: Free Muscle Flap vs. 8: Free Fasciocutaneous Flap- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Postoperative Infection	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	0.89(0.40,1.98)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Chronic Osteomyelitis	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	0.73(0.31,1.70)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Cellulitis, Infection, Partial WoundDehiscence	Postop 3yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	1.61(0.73,3.57)	NS

Table 175: PICO 8f- 8: Free Muscle Flap vs. 8: Free Fasciocutaneous Flap- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Total Flap Failure	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	1.61(0.15,17.46)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Partial Flap Failure	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	0.67(0.21,2.12)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Partial Skin Graft Failure	Postop 4yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	1.21(0.35,4.14)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Hematoma/Seroma	Postop 5yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	4.84(1.12,20.98)	Free Fasciocutaneous Flap

Table 176: PICO 8f- 8: Free Muscle Flap vs. 8: Free Fasciocutaneous Flap- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Complete Flap Survival	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	1.02(0.93,1.11)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Primary Bone Healing	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	1.05(0.91,1.20)	NS
Yazar, 2006	Low	Open Distal Third, Ankle, TibialFractures	Overall Bone Healing	Postop 2yrs	Free Muscle Flap	Free Fasciocutaneous Flap	RR	0.98(0.94,1.03)	NS

Table 177: PICO 8g- 8: Hyperbaric O2 Tx vs. 8: Placebo- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Thromboembolic Complications	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RD	0.00(0.00,0.00)	NS
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Edema	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RR	0.50(0.15,1.70)	NS

Table 178: PICO 8g- 8: Hyperbaric O2 Tx vs. 8: Placebo- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Amputation	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RD	-0.11(-0.26,0.03)	NS

Table 179: PICO 8g- 8: Hyperbaric O2 Tx vs. 8: Placebo- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	LoS	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	MeanDifference	-0.5 (-9.96, 8.96)	NS

Table 180: PICO 8g- 8: Hyperbaric O2 Tx vs. 8: Placebo- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Severe Infection	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RD	0.00(0.00,0.00)	NS

Table 181: PICO 8g- 8: Hyperbaric O2 Tx vs. 8: Placebo- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Tissue Necrosis	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RR	0.13(0.02,0.90)	Hyperbaric Oxygen Therapy
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	New Surgical Procedures	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RR	0.17(0.02,1.25)	NS
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Skin Flaps and Grafts	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RR	0.17(0.02,1.25)	NS

Table 182: PICO 8g- 8: Hyperbaric O2 Tx vs. 8: Placebo- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Complete Wound Healing	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	RR	1.70(1.11,2.61)	Hyperbaric Oxygen Therapy
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Wound Dressings	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	MeanDifference	-0.5 (-7.58, 6.58)	NS
Bouachour, 1996	Moderate	Open Tibia, Metatarsus, Radius,Ulna, and Metacarpus Fx	Time of Healing (days)	Postop .	Hyperbaric Oxygen Therapy: 90 min 100% oxygenbreathing, 2.5 ata, 2x/day for 6 days	Placebo (Normal Air): 90 min air breathing at 1.1ata, 2x/day for 6 days	MeanDifference	-5.6 (-19.00, 7.80)	NS

Table 183: PICO 8h- 8: Incisional Vac vs. 8: Control- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Costa, 2018	High	Open Lower Limb Fx	Red and Inflamed	Postop30 days	Negative Pressure Wound Therapy	Standard Treatment	RR	0.71(0.36,1.40)	NS
Costa, 2018	High	Open Lower Limb Fx	DVT or PE	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	1.55(0.44,5.43)	NS

Table 184: PICO 8h- 8: Incisional Vac vs. 8: Control- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Costa, 2018	High	Open Lower Limb Fx	Amputation	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	0.69(0.20,2.41)	NS
Rinker, 2008	Low	Open Tibia Fx	Amputation (follow up 16 mos to 15.5yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	0.75(0.08,6.66)	NS

Meta Analysis - Outcome: Amputation

Study	RR	[95% Conf.	Interval]	% Weight
Costa, 2018	0.690	0.197	2.414	75.37
Rinker, 2008	0.745	0.083	6.656	24.63
D+L pooled RR	0.703	0.237	2.085	100.00

Heterogeneity chi-squared = 0.00 (d.f. = 1) p = 0.953
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 0.63 p = 0.526

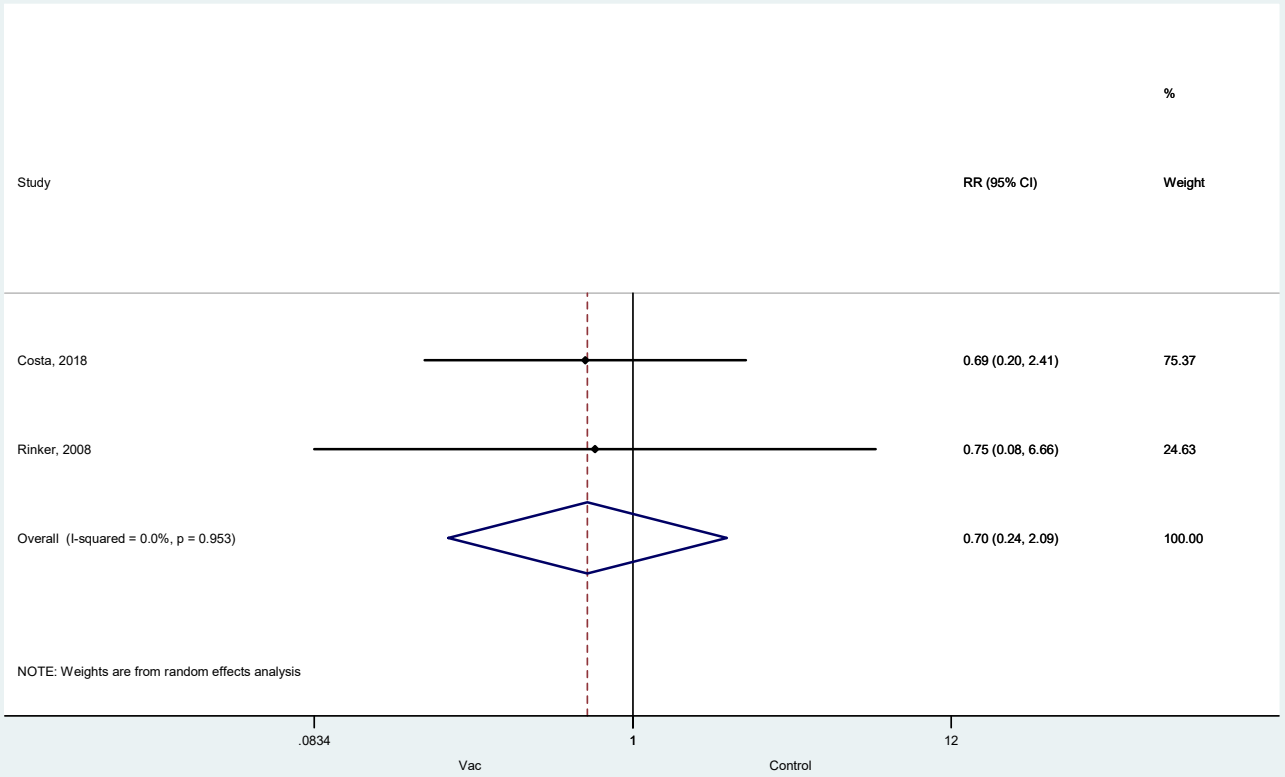


Table 185: PICO 8h- 8: Incisional Vac vs. 8: Control- Organism

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stannard, 2009	Moderate	Open Tibial, Pilon, Femur, Radius,Humerus, Calcaneus, Talus,Ankle, Both Bone Forearm,Olecranon, and Foot Fx	Positive Quantitative Cultures (mean 28months followup (14-67))	Postop28 mos	Negative Pressure Wound Therapy	Control (Saline Wet to Moist Dressings)	RR	0.39(0.10,1.49)	NS

Table 186: PICO 8h- 8: Incisional Vac vs. 8: Control- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Rinker, 2008	Low	Open Tibia Fx	LoS (follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	MeanDifference	0.6 (-5.08, 6.28)	NS

Table 187: PICO 8h- 8: Incisional Vac vs. 8: Control- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tahir, 2020	High	Open Tibial Fx	Secondary Procedure	Postop .	Negative Pressure Wound Therapy	Standard Gauze Dressing	MeanDifference	-1.4 (-1.65, -1.15)	Negative Pressure Wound Therapy
Costa, 2018	High	Open Lower Limb Fx	Revision Fixation	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	1.24(0.64,2.40)	NS
Costa, 2018	High	Open Lower Limb Fx	Wound Management	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	0.94(0.52,1.70)	NS
Costa, 2018	High	Open Lower Limb Fx	Bone Graft	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	0.58(0.27,1.22)	NS
Rinker, 2008	Low	Open Tibia Fx	Return to OR for Impending FlapFailure (follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	0.56(0.13,2.36)	NS

Table 188: PICO 8h- 8: Incisional Vac vs. 8: Control- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tahir, 2020	High	Open Tibial Fx	Deep Infection	Postop30 days	Negative Pressure Wound Therapy	Standard Gauze Dressing	RR	0.74(0.39,1.40)	NS
Costa, 2018	High	Open Lower Limb Fx	Deep Infection	Postop30 days	Negative Pressure Wound Therapy	Standard Treatment	RR	0.87(0.46,1.65)	NS
Rinker, 2008	Low	Open Tibia Fx	Cellulitis or Abscess (follow up 16 mosto 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RD	-0.08(-0.16,0.01)	NS
Rinker, 2008	Low	Open Tibia Fx	Infectious Complications (follow up 16mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	0.32(0.04,2.40)	NS
Stannard, 2009	Moderate	Open Tibial, Pilon, Femur, Radius,Humerus, Calcaneus, Talus,Ankle, Both Bone Forearm,Olecranon, and Foot Fx	Infection (mean 28 months followup(14-67))	Postop28 mos	Negative Pressure Wound Therapy	Control (Saline Wet to Moist Dressings)	RR	0.19(0.04,0.83)	Negative Pressure Wound Therapy
Stannard, 2009	Moderate	Open Tibial, Pilon, Femur, Radius,Humerus, Calcaneus, Talus,Ankle, Both Bone Forearm,Olecranon, and Foot Fx	Acute Infection (mean 28 monthsfollowup (14-67))	Postop28 mos	Negative Pressure Wound Therapy	Control (Saline Wet to Moist Dressings)	RD	-0.09(-0.20,0.03)	NS
Stannard, 2009	Moderate	Open Tibial, Pilon, Femur, Radius,Humerus, Calcaneus, Talus,Ankle, Both Bone Forearm,Olecranon, and Foot Fx	Late Deep Infection (mean 28 monthsfollowup (14-67))	Postop28 mos	Negative Pressure Wound Therapy	Control (Saline Wet to Moist Dressings)	RR	0.26(0.06,1.24)	NS

Meta Analysis - Outcome: Deep Infection

Study	RR	[95% Conf.	Interval]	% Weight
Tahir, 2020	0.742	0.393	1.399	50.40
Costa, 2018	0.872	0.460	1.653	49.60
D+L pooled RR	0.804	0.512	1.261	100.00

Heterogeneity chi-squared = 0.12 (d.f. = 1) p = 0.726
I-squared (variation in RR attributable to heterogeneity) = 0.0%
Estimate of between-study variance Tau-squared = 0.0000

Test of RR=1 : z= 0.95 p = 0.342

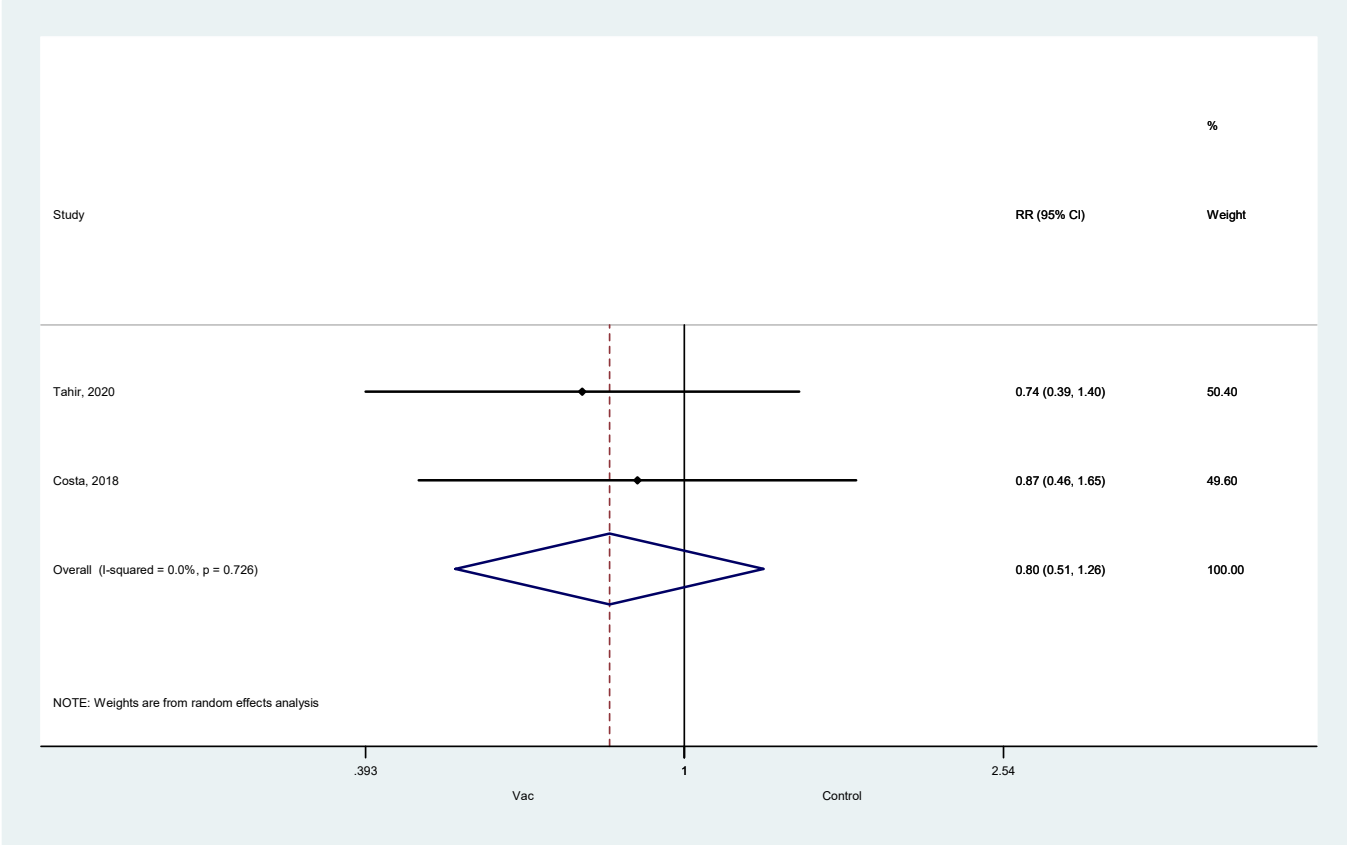


Table 189: PICO 8h- 8: Incisional Vac vs. 8: Control- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tahir, 2020	High	Open Tibial Fx	Nonunion	Postop12 mos	Negative Pressure Wound Therapy	Standard Gauze Dressing	RR	1.17(0.80,1.71)	NS
Costa, 2018	High	Open Lower Limb Fx	Swollen	Postop30 days	Negative Pressure Wound Therapy	Standard Treatment	RR	0.80(0.55,1.18)	NS
Costa, 2018	High	Open Lower Limb Fx	Gaping Open	Postop30 days	Negative Pressure Wound Therapy	Standard Treatment	RR	1.55(0.44,5.43)	NS
Costa, 2018	High	Open Lower Limb Fx	Surgeon Opened	Postop30 days	Negative Pressure Wound Therapy	Standard Treatment	RD	0.01(-0.00,0.02)	NS
Costa, 2018	High	Open Lower Limb Fx	Abscess or Infection	Postop30 days	Negative Pressure Wound Therapy	Standard Treatment	RR	0.62(0.15,2.57)	NS
Costa, 2018	High	Open Lower Limb Fx	Soft Tissue	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	1.22(0.66,2.26)	NS
Rinker, 2008	Low	Open Tibia Fx	Partial Flap Loss (follow up 16 mos to15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	1.12(0.11,11.50)	NS
Rinker, 2008	Low	Open Tibia Fx	Total Flap Loss (follow up 16 mos to15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RD	-0.18(-0.31,-0.06)	Subacute Periods w/ SubatmosphericPressure Dressing
Rinker, 2008	Low	Open Tibia Fx	Hematoma (follow up 16 mos to 15.5yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	0.56(0.07,4.63)	NS
Rinker, 2008	Low	Open Tibia Fx	Nonunion (follow up 16 mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	0.56(0.07,4.63)	NS
Rinker, 2008	Low	Open Tibia Fx	Overall Complication Rate (follow up 16mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	1.12(0.11,11.50)	NS
Rinker, 2008	Low	Open Tibia Fx	Flap-Related Complications (follow up16 mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	RR	0.56(0.13,2.36)	NS

Table 190: PICO 8h- 8: Incisional Vac vs. 8: Control- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Tahir, 2020	High	Open Tibial Fx	Quality of Wound Healing	Postop12 mos	Negative Pressure Wound Therapy	Standard Gauze Dressing	MeanDifference	1.3 (1.03, 1.57)	Negative Pressure Wound Therapy
Costa, 2018	High	Open Lower Limb Fx	Wounds Found to be Fully Healed	Postop 6wks	Negative Pressure Wound Therapy	Standard Treatment	RR	1.01(0.82,1.23)	NS
Costa, 2018	High	Open Lower Limb Fx	Bone Union	Postop12 mos	Negative Pressure Wound Therapy	Standard Treatment	RR	0.97(0.84,1.12)	NS
Rinker, 2008	Low	Open Tibia Fx	No. of Operative Debridements (followup 16 mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	MeanDifference	0.1 (-1.25, 1.45)	NS
Rinker, 2008	Low	Open Tibia Fx	Time to Bony Union (mos) (follow up 16mos to 15.5 yrs)	Postop16 mos	Subacute Periods w/ Subatmospheric PressureDressing	Control (Subacute Period w/o SubatmosphericDressing)	MeanDifference	-2.3 (-3.36, -1.24)	Subacute Periods w/ SubatmosphericPressure Dressing

Table 191: PICO 8i- 8: Incisional Vac vs. 8: Soft Tissue Coverage- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Amputation (minimum follow-up 12mos)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RR	0.46(0.05,4.38)	NS

Table 192: PICO 8i- 8: Incisional Vac vs. 8: Soft Tissue Coverage- Organism

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Staphylococcus Coagulase-Negative(minimum follow-up 12 mos, onadmission)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RR	0.92(0.06,12.95)	NS
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	?-hemolytic Streptococcus group A(minimum follow-up 12 mos, of infectedwounds)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RD	0.08(-0.07,0.24)	NS
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Staphylococcus Aureus (minimumfollow-up 12 mos, of infected wounds)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RD	-0.36(-0.65,-0.08)	Vacuum-Assisted Closure
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Bacillus Cerus (minimum follow-up 12mos, of infected wounds)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RD	-0.09(-0.26,0.08)	NS
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Pseudomonas (minimum follow-up 12mos, of infected wounds)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RD	-0.09(-0.26,0.08)	NS

Table 193: PICO 8i- 8: Incisional Vac vs. 8: Soft Tissue Coverage- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Nonunion (minimum follow-up 12 mos)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RR	0.61(0.12,3.00)	NS

Table 194: PICO 8i- 8: Incisional Vac vs. 8: Soft Tissue Coverage- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Labler, 2004	Low	Open Femur, Knee, Tibia Ankle,Foot Fx	Local Soft Tissue Healing (minimumfollow-up 12 mos)	Postop12 mos	Vacuum-Assisted Closure	Synthetic Membrane	RR	1.69(0.87,3.28)	NS

Table 195: PICO 8j- 8: Incisional Vac vs. 8: Abx Beads- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Amputation (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RD	0.08(-0.03,0.18)	NS

Table 196: PICO 8j- 8: Incisional Vac vs. 8: Abx Beads- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Postcoverage Return to the OR forDebridement (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RR	4.62(0.58,36.73)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Flap Revision (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RD	0.04(-0.04,0.11)	NS

Table 197: PICO 8j- 8: Incisional Vac vs. 8: Abx Beads- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Infection (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RR	7.38(1.00,54.76)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	MRSA (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RR	0.92(0.06,13.95)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Infection (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy (Gustilo IIIB andIIIC)	Antibiotic Beads (Gustilo IIIB and IIIC): 1gVancomycin, 2.4g Tobramycin per packet ofSimplex P Bone Cement polymethylmethacrylate powder	RR	5.85(0.73,46.55)	NS

Table 198: PICO 8j- 8: Incisional Vac vs. 8: Abx Beads- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Overall Complication Rate (within sixweeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RR	9.23(1.28,66.81)	Antibiotic Beads
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Eschar (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RR	1.85(0.18,19.08)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Fat Necrosis (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RD	-0.04(-0.12,0.04)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Wound Dehiscence (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RD	0.12(-0.01,0.24)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Complete Flap Necrosis (within sixweeks)	Postop 6wks	Negative Pressure Wound Therapy	Antibiotic Beads: 1g Vancomycin, 2.4gTobramycin per packet of Simplex P BoneCement polymethyl methacrylate powder	RD	0.08(-0.03,0.18)	NS
Burtt, 2020	Low	Open Tibia, Fibula, Ankle, Foot Fx	Complication (within six weeks)	Postop 6wks	Negative Pressure Wound Therapy (Gustilo IIIB andIIIC)	Antibiotic Beads (Gustilo IIIB and IIIC): 1gVancomycin, 2.4g Tobramycin per packet ofSimplex P Bone Cement polymethylmethacrylate powder	RR	4.38(0.51,37.66)	NS

Table 199: PICO 8k- 8: NPWT vs. 8: Control- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Blum, 2012	Low	Open Tibia FX	Pin Site Infection (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	1.90(0.23,15.93)	NS

Table 200: PICO 8k- 8: NPWT vs. 8: Control- Organism

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Blum, 2012	Low	Open Tibia FX	MRSA (median follow up 410.5/363days (163-673 days and 144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.78(0.44,1.37)	NS
Blum, 2012	Low	Open Tibia FX	MSSA (median follow up 410.5/363days (163-673 days and 144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	1.25(0.27,5.71)	NS
Blum, 2012	Low	Open Tibia FX	Enterobacter (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.33(0.06,1.79)	NS
Blum, 2012	Low	Open Tibia FX	Pseudomonas (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RD	0.13(0.01,0.25)	Control (Conventional Dressing)
Blum, 2012	Low	Open Tibia FX	Polymicrobial Infection (median followup 410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.36(0.14,0.94)	Negative Pressure Wound Therapy
Virani, 2016	High	Open Diaphyseal Tibial Fx	Positive Culture (17-29 wks)	Postop23 wks	VAC Dressing	Control (Irrigation, Cleaning, and Debridement)	RR	0.21(0.06,0.65)	VAC Dressing

Table 201: PICO 8k- 8: NPWT vs. 8: Control- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Blum, 2012	Low	Open Tibia FX	LoS (median follow up 410.5/363 days(163-673 days and 144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	MeanDifference	2.6 (-1.12, 6.32)	NS
Blum, 2012	Low	Open Tibia FX	ICU LoS (median follow up 410.5/363days (163-673 days and 144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	MeanDifference	2.24 (0.72, 3.76)	Control (Conventional Dressing)
Arti, 2016	High	Open Extremity Fx	LoS	Postop 1mos	Negative Pressure Wound Therapy: 10-14 days	Standard Dressings: Changes every 48hrs	MeanDifference	-1.5 (-2.63, -0.37)	Negative Pressure Wound Therapy

Table 202: PICO 8k- 8: NPWT vs. 8: Control- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Blum, 2012	Low	Open Tibia FX	Secondary Procedure (n) (medianfollow up 410.5/363 days (163-673 daysand 144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	MeanDifference	0 (-2.24, 2.24)	NS

Table 203: PICO 8k- 8: NPWT vs. 8: Control- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stannard, 2006	High	Mixed Calcaneus, Pilon, Tibial Fx	Wound Infection (6-20 mos)	Postop9.2 mos	Negative Pressure Wound Therapy	Control (Standard Postoperative Dressings	RR	1.20(0.27,5.30)	NS
Blum, 2012	Low	Open Tibia FX	Superficial Infection (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	4.17(0.55,31.68)	NS
Blum, 2012	Low	Open Tibia FX	Deep Infection (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.41(0.20,0.82)	Negative Pressure Wound Therapy
Arti, 2016	High	Open Extremity Fx	Deep Infection	Postop 1mos	Negative Pressure Wound Therapy: 10-14 days	Standard Dressings: Changes every 48hrs	RR	0.75(0.18,3.16)	NS
Joethy, 2013	Low	Open LE Fx	Infection	Postop .	NPWT: 125mmHg in continuous mode	Wound Dressings: Changed every 3-4 days	RR	0.29(0.10,0.85)	NPWT
Virani, 2016	High	Open Diaphyseal Tibial Fx	Infection (17-29 wks)	Postop23 wks	VAC Dressing	Control (Irrigation, Cleaning, and Debridement)	RR	0.21(0.05,0.90)	VAC Dressing
Virani, 2016	High	Open Diaphyseal Tibial Fx	Acute Wound Infection (17-29 wks)	Postop23 wks	VAC Dressing	Control (Irrigation, Cleaning, and Debridement)	RD	-0.04(-0.09,0.01)	NS
Virani, 2016	High	Open Diaphyseal Tibial Fx	Delayed Deep Infection (osteomyelitis)(17-29 wks)	Postop23 wks	VAC Dressing	Control (Irrigation, Cleaning, and Debridement)	RR	0.26(0.06,1.13)	NS

Table 204: PICO 8k- 8: NPWT vs. 8: Control- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stannard, 2006	High	Mixed Calcaneus, Pilon, Tibial Fx	Wound Dehiscence (6-20 mos)	Postop9.2 mos	Negative Pressure Wound Therapy	Control (Standard Postoperative Dressings	RR	1.20(0.08,17.99)	NS
Blum, 2012	Low	Open Tibia FX	Nonunion (median follow up 410.5/363days (163-673 days and 144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.27(0.09,0.82)	Negative Pressure Wound Therapy
Blum, 2012	Low	Open Tibia FX	Delayed Union (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	2.47(0.57,10.62)	NS
Blum, 2012	Low	Open Tibia FX	Compartment Syndrome (median followup 410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.95(0.62,1.46)	NS
Blum, 2012	Low	Open Tibia FX	Flap Failure (median follow up410.5/363 days (163-673 days and144-683 days))	Postop .	Negative Pressure Wound Therapy	Control (Conventional Dressing)	RR	0.47(0.13,1.71)	NS
Joethy, 2013	Low	Open LE Fx	Flap Failure	Postop .	NPWT: 125mmHg in continuous mode	Wound Dressings: Changed every 3-4 days	RR	0.53(0.10,2.92)	NS

Table 205: PICO 8k- 8: NPWT vs. 8: Control- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stannard, 2006	High	Mixed Calcaneus, Pilon, Tibial Fx	> Grade 3 Drainage (days) (6-20 mos)	Postop9.2 mos	Negative Pressure Wound Therapy	Control (Standard Postoperative Dressings	MeanDifference	-3 (-22.65, 16.65)	NS

Table 206: PICO 8l- 8: Latissimus Dorsi Flap vs. 8: Anterolateral Thigh Flap- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Philandrianos,2018	Low	Open LE Fx	Secondary Amputation	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RR	3.70(0.47,29.29)	NS

Table 207: PICO 8l- 8: Latissimus Dorsi Flap vs. 8: Anterolateral Thigh Flap- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Philandrianos,2018	Low	Open LE Fx	Total Flap Failure	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RR	1.48(0.14,15.22)	NS
Philandrianos,2018	Low	Open LE Fx	Partial Flap Failure	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RD	0.04(-0.03,0.11)	NS
Philandrianos,2018	Low	Open LE Fx	Flap Chronic Ulcer or Fistula	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RR	0.63(0.25,1.60)	NS
Philandrianos,2018	Low	Open LE Fx	Secondary Remodeling	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RR	0.89(0.32,2.51)	NS

Table 208: PICO 8l- 8: Latissimus Dorsi Flap vs. 8: Anterolateral Thigh Flap- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Philandrianos,2018	Low	Open LE Fx	Time for Bone Healing (Months)	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	MeanDifference	-1.8 (-6.24, 2.64)	NS
Philandrianos,2018	Low	Open LE Fx	Bone Healing at 12 mos	Postop12 mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RR	1.14(0.70,1.87)	NS
Philandrianos,2018	Low	Open LE Fx	Bone Healing at End of Follow-up	Postop .mos	Lat Dorsi Flap Transfer	Fasciocuteneous Flap	RR	0.86(0.67,1.11)	NS

Table 209: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vandenberg, 2017	Low	Open Tibial Fx	Any Complication	Postop .mos	Integrated Orthoplastic Team	Separate Ortho and Plastics Managament	RR	1.48(0.77,2.85)	NS
Vandenberg, 2017	Low	Open Tibial Fx	Partial Necrosis	Postop .mos	Integrated Orthoplastic Team	Separate Ortho and Plastics Managament	RD	0.00(0.00,0.00)	NS

Table 210: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vandenberg, 2017	Low	Open Tibial Fx	Amputation	Postop .mos	Integrated Orthoplastic Team	Separate Ortho and Plastics Managament	RD	0.08(-0.07,0.22)	NS

Table 211: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Boriani, 20017	Low	Open Tibial Fx; 79%/75% 3B;11%/16% 3A	LoS	Postop12 mos	Collaboration between ortho trauma and plasticsurgeons	Only ortho trauma	AuthorReported	N/A	Orthoplastic

Table 212: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Boriani, 20017	Low	Open Tibial Fx; 79%/75% 3B;11%/16% 3A	Additional Operations to Bone	Postop12 mos	Collaboration between ortho trauma and plasticsurgeons	Only ortho trauma	AuthorReported	N/A	Orthoplastic

Table 213: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Boriani, 20017	Low	Open Tibial Fx; 79%/75% 3B;11%/16% 3A	Deep Infection	Postop12 mos	Collaboration between ortho trauma and plasticsurgeons	Only ortho trauma	RR	0.36(0.20,0.63)	Collaboration between ortho trauma andplastic surgeons
Vandenberg, 2017	Low	Open Tibial Fx	Infection	Postop .mos	Integrated Orthoplastic Team	Separate Ortho and Plastics Managament	RR	1.15(0.28,4.76)	NS

Table 214: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Vandenberg, 2017	Low	Open Tibial Fx	Nonunion	Postop .mos	Integrated Orthoplastic Team	Separate Ortho and Plastics Managament	RR	1.15(0.49,2.71)	NS
Vandenberg, 2017	Low	Open Tibial Fx	Flap Failure	Postop .mos	Integrated Orthoplastic Team	Separate Ortho and Plastics Managament	RR	1.73(0.34,8.81)	NS

Table 215: PICO 8n- 8: Orthoplastic Team vs. 8: Orthopaedic Only Team- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Boriani, 20017	Low	Open Tibial Fx; 79%/75% 3B;11%/16% 3A	Time to Wound Healing	Postop12 mos	Collaboration between ortho trauma and plasticsurgeons	Only ortho trauma	AuthorReported	N/A	Orthoplastic
Boriani, 20017	Low	Open Tibial Fx; 79%/75% 3B;11%/16% 3A	Time to Union	Postop12 mos	Collaboration between ortho trauma and plasticsurgeons	Only ortho trauma	AuthorReported	N/A	Orthoplastic

Table 216: PICO 8o- 8: Primary Wound Closure vs. 8: Delayed Wound Closure- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Wei, 2014	Low	Open Tibial Fx	Amputation	Postop .yrs	Closure directly after internal fixation	Closure applied 1 week later	RR	0.27(0.03,2.43)	NS

Table 217: PICO 8o- 8: Primary Wound Closure vs. 8: Delayed Wound Closure- Organism

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Jenkinson, 2014	High	Open Extremity Fx	Enterococcus Faecalis	Postop30 days	Closure after initial debridement	Closure at a later time	RR	0.50(0.05,5.39)	NS
Jenkinson, 2014	High	Open Extremity Fx	MRSA	Postop30 days	Closure after initial debridement	Closure at a later time	RR	1.00(0.14,6.91)	NS
Jenkinson, 2014	High	Open Extremity Fx	Staphylococcus aureus	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.04(-0.09,0.00)	NS
Jenkinson, 2014	High	Open Extremity Fx	Coagulase-negative Staphylococcus	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.01(-0.04,0.01)	NS
Jenkinson, 2014	High	Open Extremity Fx	Pseudomonas aeruginosa	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.03(-0.06,0.01)	NS
Jenkinson, 2014	High	Open Extremity Fx	Escherichia coli	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.01(-0.04,0.01)	NS
Jenkinson, 2014	High	Open Extremity Fx	Gram-negative bacilli	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.01(-0.04,0.01)	NS
Jenkinson, 2014	High	Open Extremity Fx	Mixed Aerobic Organisms	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.01(-0.04,0.01)	NS
Jenkinson, 2014	High	Open Extremity Fx	Hafnia alvei	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.01(-0.04,0.01)	NS
Jenkinson, 2014	High	Open Extremity Fx	Candida	Postop30 days	Closure after initial debridement	Closure at a later time	RD	-0.01(-0.04,0.01)	NS

Table 218: PICO 8o- 8: Primary Wound Closure vs. 8: Delayed Wound Closure- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Peterson, 2020	Low	Open Ankle Fx	LoS	Postop 1yrs	Primary fixation & Closure	Delayed fixation & closure	MeanDifference	-4.2 (-6.68, -1.72)	Primary fixation & Closure

Table 219: PICO 8o- 8: Primary Wound Closure vs. 8: Delayed Wound Closure- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Peterson, 2020	Low	Open Ankle Fx	Reoperation (Mean number of)	Postop 1yrs	Primary fixation & Closure	Delayed fixation & closure	MeanDifference	-1.9 (-2.78, -1.02)	Primary fixation & Closure

Table 220: PICO 8o- 8: Primary Wound Closure vs. 8: Delayed Wound Closure- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Peterson, 2020	Low	Open Ankle Fx	Infection (Requiring return to OR)	Postop 1yrs	Primary fixation & Closure	Delayed fixation & closure	RR	0.60(0.12,3.11)	NS
Wei, 2014	Low	Open Tibial Fx	Deep Infection	Postop 1yrs	Closure directly after internal fixation	Closure applied 1 week later	RR	0.68(0.24,1.93)	NS
Wei, 2014	Low	Open Tibial Fx	Osteomyelitis	Postop .yrs	Closure directly after internal fixation	Closure applied 1 week later	RR	0.61(0.15,2.45)	NS
Konbaz, 2019	High	Open Tibial Fx	Infection	Postop 1yrs	Wound closed at 1st surgery	Delayed closure	AuthorReported	8.92(1.53,52.63)	Primary wound closure
Jenkinson, 2014	High	Open Extremity Fx	Deep Infection	Postop30 days	Closure after initial debridement	Closure at a later time	RR	0.23(0.07,0.78)	Closure after initial debridement
Russell, 1990	Low	Open Tibial Fx	Deep Infection (Type I) (minimum 9mos)	Postop 9mos	Primary Closure	Delayed Closure	RD	0.09(-0.03,0.21)	NS
Russell, 1990	Low	Open Tibial Fx	Deep Infection (Type II) (minimum 9mos)	Postop 9mos	Primary Closure	Delayed Closure	RD	0.17(0.02,0.32)	Delayed Closure
Russell, 1990	Low	Open Tibial Fx	Deep Infection (Total) (minimum 9 mos)	Postop 9mos	Primary Closure	Delayed Closure	RR	6.62(0.90,48.62)	NS
Russell, 1990	Low	Open Tibial Fx	Infection (Type I w/ Plaster) (minimum 9mos)	Postop 9mos	Primary Closure	Delayed Closure	RD	0.11(-0.03,0.26)	NS

Table 221: PICO 8o- 8: Primary Wound Closure vs. 8: Delayed Wound Closure- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Wei, 2014	Low	Open Tibial Fx	Nonunion	Postop 6mos	Closure directly after internal fixation	Closure applied 1 week later	RR	1.02(0.49,2.13)	NS
Wei, 2014	Low	Open Tibial Fx	Nonunion	Postop 1yrs	Closure directly after internal fixation	Closure applied 1 week later	RR	1.09(0.27,4.35)	NS
Russell, 1990	Low	Open Tibial Fx	Nonunion (Type I) (minimum 9 mos)	Postop 9mos	Primary Closure	Delayed Closure	RD	0.05(-0.04,0.13)	NS
Russell, 1990	Low	Open Tibial Fx	Nonunion (Type II) (minimum 9 mos)	Postop 9mos	Primary Closure	Delayed Closure	RD	0.13(-0.01,0.26)	NS
Russell, 1990	Low	Open Tibial Fx	Nonunion (Total) (minimum 9 mos)	Postop 9mos	Primary Closure	Delayed Closure	RR	4.41(0.58,33.73)	NS

Table 222: PICO 8p- 8: Rotational Flap vs. 8: Free Flap- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pollak, 2000	Low	Open Tibia, Ankle, Pilon Fx	Wound Infection	Postop 6mos	Rotational Flap	Free Flap	RR	1.22(0.70,2.11)	NS

Table 223: PICO 8p- 8: Rotational Flap vs. 8: Free Flap- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Pollak, 2000	Low	Open Tibia, Ankle, Pilon Fx	Wound Necrosis	Postop 6mos	Rotational Flap	Free Flap	RR	2.84(0.76,10.65)	NS
Pollak, 2000	Low	Open Tibia, Ankle, Pilon Fx	Flap Loss	Postop 6mos	Rotational Flap	Free Flap	RR	0.95(0.37,2.44)	NS
Pollak, 2000	Low	Open Tibia, Ankle, Pilon Fx	Any of the Above	Postop 6mos	Rotational Flap	Free Flap	RR	1.17(0.74,1.85)	NS
Pollak, 2000	Low	Open Tibia, Ankle, Pilon Fx	Any of the Above Requiring OperativeTreatment	Postop 6mos	Rotational Flap	Free Flap	RR	1.33(0.80,2.20)	NS

Table 224: PICO 8r- 8: Silver Coated Dressing vs. 8: Control- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Yuenyongviwat,2011	High	Open Tibial Fx	Pin-Site Infection (mean follow up106.3/108.6 days)	Postop .	Silver Sulfadiazine Dressing: Normal Saline w/ 0.5ml1% Silver Sulfadiazine	Control (Dry Dressing)	RR	1.17(0.51,2.66)	NS

PICO 9: Perioperative Modifiable Risk Factors

Table 225: PICO 9a- 9: Alcohol Use vs. 9: No Alcohol Use- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Chan, 2019	High	Mixed Tibial Plateau Fx	Infection (Deep or Superficial)	Postop27 mos	>14 Units/week	<14 units/week	AuthorReported	0.20(0.04,0.97)	No Alcohol Use

Table 226: PICO 9b- 9: Anti-Inflammatory Use vs. 9: No Anti-Inflammatory Use- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bhandari, 2003	Moderate	Mixed Tibia Fx	Reoperation	Postop 1yrs	Use of NSAID	No use of NSAID	AuthorReported	3.15(0.88,423.00)	NS

Table 227: PICO 9b- 9: Anti-Inflammatory Use vs. 9: No Anti-Inflammatory Use- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Giannoudis, 2000	Moderate	Mixed Femoral Shaft Fx	Nonunion	Postop .	NSAID Use	No NSAID Use	AuthorReported	10.74(3.55,33.23)	No NSAID Use

Table 228: PICO 9c- 9: Diabetes vs. 9: No Diabetes- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Kline, 2009	Low	Mixed Tibial Pilon Fx	Any Complication	Postop 6mos	Diabetic	Non-diabetic	RR	1.96(1.21,3.18)	Non-diabetic

Table 229: PICO 9c- 9: Diabetes vs. 9: No Diabetes- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Clegg, 2019	Moderate	Open Tibial Fx	Secondary Amputation	Postop.	Diabetic	Non-diabetic	AuthorReported	3.74(0.62,22.42)	NS

Table 230: PICO 9c- 9: Diabetes vs. 9: No Diabetes- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Li, 2020	Moderate	Open Tibial Fx	Bone Tissue Infection	Postop10 wks	Diabetic	Non-diabetic	AuthorReported	11.08(1.51,15.36)	Non-diabetic
Bai, 2019	Moderate	Mixed Distal Femur Fx	Deep Infection	Postop 1yrs	Diabetic	Non-diabetic	AuthorReported	2.20(1.30,4.20)	Non-diabetic
Kline, 2009	Low	Mixed Tibial Pilon Fx	Superficial Wound Infection	Postop 6mos	Diabetic	Non-diabetic	RR	2.99(1.02,8.76)	Non-diabetic
Kline, 2009	Low	Mixed Tibial Pilon Fx	Deep Infection	Postop 6mos	Diabetic	Non-diabetic	RR	4.36(1.56,12.18)	Non-diabetic
Kline, 2009	Low	Mixed Tibial Pilon Fx	Overall Infection	Postop 6mos	Diabetic	Non-diabetic	RR	3.62(1.97,6.66)	Non-diabetic
Molina, 2015	High	Mixed Tibial Pilon Fx (40% OpenFx)	Deep Infection	Postop .mos	Diabetic	Non-diabetic	AuthorReported	1.36(0.55,3.30)	NS
Ricci, 2014	Low	Mixed Distal Femur Fx (closed fx cohort and open fx cohort)	Deep Infection	Postop .	Diabetic	Non-diabetic	AuthorReported	2.90(1.00,8.50)	Non-diabetic
Chan, 2019	High	Mixed Tibial Plateau Fx	Infection (Deep or Superficial)	Postop27 mos	Diabetic	Non-diabetic	AuthorReported	0.55(0.05,6.56)	NS
Clegg, 2019	Moderate	Open Tibial Fx	Osteomyelitis	Postop .	Diabetic	Non-diabetic	AuthorReported	3.67(1.01,13.36)	Non-diabetic
Hendrickson, 2020	Moderate	Open Tibial Fx	Deep Infection	Postop 1yrs	Diabetic	Non-diabetic	AuthorReported	0.14(-0.06,3.44)	NS

Table 231: PICO 9c- 9: Diabetes vs. 9: No Diabetes- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Kline, 2009	Low	Mixed Tibial Pilon Fx	Nonunion/Delayed Union	Postop 6mos	Diabetic	Non-diabetic	RR	2.38(0.99,5.70)	NS
Kline, 2009	Low	Mixed Tibial Pilon Fx	Wound Complications	Postop 6mos	Diabetic	Non-diabetic	RR	1.05(0.13,8.24)	NS
Ricci, 2014	Low	Mixed Distal Femur Fx (closed fx cohort and open fx cohort)	Reoperation to Promote Union	Postop .	Diabetic	Non-diabetic	AuthorReported	3.50(1.60,7.80)	Non-diabetic

Table 232: PICO 9d- 9: Elevated Postop Glucose vs. 9: Normal Postop Glucose- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Ren, 2015	Moderate	Mixed Tibial Pilon Fx	Infection	Postop12 mos	>=125 mg/dL	<125 mg/dL	AuthorReported	1.47(1.18,1.84)	<125 mg/dL postop glucose

Table 233: PICO 9e- 9: High Periop O2 vs.9: Low Periop O2- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Stall, 2013	High	Open LE Fx	Infection	Postop12 mos	80% oxygen	30% oxygen	AuthorReported	0.54(0.22,1.29)	NS

Table 234: PICO 9f- 9: Low Albumin Levels. 9: High Albumin Level- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bai, 2019	Moderate	Mixed Distal Femur Fx	Deep Infection	Postop 1yrs	Preop ALB <36g/L	Preop ALB >36g/L	AuthorReported	1.90(1.00,5.80)	High preop Albumin

Table 235: PICO 9g- 9: Obese vs. 9:Non-obese- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bai, 2019	Moderate	Mixed Distal Femur Fx	Deep Infection	Postop 1yrs	BMI >28	BMI <28	AuthorReported	3.20(1.70,7.40)	Non-obese
Chan, 2019	High	Mixed Tibial Plateau Fx	Infection (Deep or Superficial)	Postop27 mos	BMI >=30	BMI <30	AuthorReported	1.03(0.88,1.19)	NS

Table 236: PICO 9i- 9: Smoking vs. 9: No Smoking- Amputation

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Adams, 2001	Low	Open Tibial Fx	Early Amputation	Postop .mos	Smoker	Non-smoker	RR	0.63(0.11,3.73)	NS
Adams, 2001	Low	Open Tibial Fx	Delayed Amputation	Postop .mos	Smoker	Non-smoker	RR	0.95(0.20,4.62)	NS

Table 237: PICO 9i- 9: Smoking vs. 9: No Smoking- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Adams, 2001	Low	Open Tibial Fx	LoS	Postop .mos	Smoker	Non-smoker	AuthorReported	N/A	NS

Table 238: PICO 9i- 9: Smoking vs. 9: No Smoking- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Enninghost, 2011	Moderate	Open Tibial Fx	Deep Infection	Postop 1yrs	Smoker	Non-smoker	AuthorReported -0.08; LogisticRegression	N/A	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Infection (infection requiring in or outpatient tx)	Postop 3mos	Smoker	Non-smoker	AuthorReported	1.70(0.80,3.30)	NS
Pollak, 2010	Low	Open Type III Lower Extremity Fx	Major Infection	Postop 3mos	Smoker	Non-smoker	AuthorReported	1.50(0.60,3.40)	NS
Su, 2017	Moderate	Closed Calcaneal Fx	Wound Infection	Postop .	Smoker	Non-smoker	AuthorReported - <0.05;LogisticRegression	19.50(3.07,143.89)	Non-smoker
Li, 2020	Moderate	Open Tibial Fx	Bone Tissue Infection	Postop10 wks	Smoker	Non-smoker	AuthorReported	3.38(0.81,14.13)	Non-smoker
Olson, 2021	Moderate	Open Tibial Plafond Fx	Deep Infection	Postop .	Smoker	Non-Smoker	AuthorReported	2.40(1.00,5.40)	NS
Adams, 2001	Low	Open Tibial Fx	Soft Tissue Infection	Postop .mos	Smoker	Non-smoker	RR	1.53(0.80,2.94)	NS
Adams, 2001	Low	Open Tibial Fx	Deep Infection	Postop .mos	Smoker	Non-smoker	RR	0.95(0.47,1.92)	NS
Bai, 2019	Moderate	Mixed Distal Femur Fx	Deep Infection	Postop 1yrs	Smoker	Non-smoker	AuthorReported	2.80(1.10,6.50)	Non-smoker
Molina, 2015	High	Mixed Tibial Pilon Fx (40% OpenFx)	Deep Infection	Postop .mos	Active Smoker	Non-smoker	AuthorReported	1.75(0.94,3.26)	NS
Morris, 2013	Moderate	Mixed Bicondylar Tibial Plateu Fx	Deep Infection	Postop .mos	Active Smoker	Non-smoker	AuthorReported	2.40(1.16,4.93)	Non-smoker
Chan, 2019	High	Mixed Tibial Plateau Fx	Infection (Deep or Superficial)	Postop27 mos	Smoker	Non-smoker	AuthorReported	0.51(0.10,2.71)	NS
Clegg, 2019	Moderate	Open Tibial Fx	Osteomyelitis	Postop .	Smoker	Non-smoker	AuthorReported	1.57(0.72,3.45)	NS
Esposito, 2019	High	Mixed Tibial Pilon Fx	Deep Infection	Postop .	Smoker	Non-smoker	AuthorReported -P<0.001	2.10(.,.)	Non-smoker
Sagi, 2017	Moderate	Open Extremity Fx	Infection	Postop .	Smoker	Non-smoker	AuthorReported	0.78(0.61,1.10)	NS
Hendrickson, 2020	Moderate	Open Tibial Fx	Deep Infection	Postop 1yrs	Smoker	Non-smoker	AuthorReported	0.02(-0.10,0.15)	NS
Castillo, 2005	Moderate	Open Tibial Fx	Infection	Postop 2yrs	Current Smoker	Never Smoked	AuthorReported	2.22(1.01,4.91)	Never Smoked
Castillo, 2005	Moderate	Open Tibial Fx	Osteomyelitis	Postop 2yrs	Current Smoker	Never Smoked	AuthorReported	3.72(1.25,11.10)	Never Smoked
Castillo, 2005	Moderate	Open Tibial Fx	Infection	Postop 2yrs	Past Smoker	Never Smoked	AuthorReported	1.00(0.40,2.48)	NS
Castillo, 2005	Moderate	Open Tibial Fx	Osteomyelitis	Postop 2yrs	Past Smoker	Never Smoked	AuthorReported	2.80(0.89,8.83)	NS

Table 239: PICO 9i- 9: Smoking vs. 9: No Smoking- Wound Complications

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Enninghost, 2011	Moderate	Open Tibial Fx	Nonunion	Postop 1yrs	Smoker	Non-smoker	AuthorReported -0.08; LogisticRegression	N/A	NS
Olson, 2021	Moderate	Open Tibial Plafond Fx	Nonunion	Postop .	Smoker	Non-Smoker	AuthorReported	N/A	NS
Adams, 2001	Low	Open Tibial Fx	Soft-Tissue Failure	Postop .mos	Smoker	Non-smoker	RR	1.69(0.77,3.69)	NS
Adams, 2001	Low	Open Tibial Fx	Nonunion	Postop .mos	Smoker	Non-smoker	RR	1.32(0.91,1.93)	NS
Adams, 2001	Low	Open Tibial Fx	Bone graft for nonunion	Postop .mos	Smoker	Non-smoker	RR	1.43(0.90,2.25)	NS
Adams, 2001	Low	Open Tibial Fx	Malunion	Postop .mos	Smoker	Non-smoker	RR	0.98(0.64,1.50)	NS
Ricci, 2014	Low	Mixed Distal Femur Fx (closed fx cohort and open fx cohort)	Implant Failure	Postop .	Active Smoker	Not Active Smoker	AuthorReported	4.20(1.40,12.20)	Non-smoker
Clegg, 2019	Moderate	Open Tibial Fx	Nonunion	Postop .	Smoker	Non-smoker	AuthorReported	1.61(0.73,3.56)	NS
Giannoudis, 2000	Moderate	Mixed Femoral Shaft Fx	Nonunion	Postop .	Smoker	Non-smoker	AuthorReported	2.29(0.85,6.08)	NS

Table 240: PICO 9i- 9: Smoking vs. 9: No Smoking- Wound Healing

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Adams, 2001	Low	Open Tibial Fx	Time to Union	Postop .mos	Smoker	Non-smoker	AuthorReported	N/A	Non-smoker

Table 241: PICO 9j- 9: Transfusion vs. 9: No Transfusion- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Weber, 2014	Moderate	Open Extremity Fx	Deep Infection	Postop 1yrs	Transfusion	No Transfusion	AuthorReported	1.27(0.63,2.54)	NS

Table 242: PICO 9k- 9: Vascular Evaluations vs. 9: No Vascular Evaluation- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Waikakul, 1998	Moderate	Open LE Fx	Chronic Swelling	Postop 2yrs	Exploration and repair of nerve/veins	No exploration/repair	RR	0.25(0.12,0.53)	Exploration and repair of nerve/veins
Waikakul, 1998	Moderate	Open LE Fx	Paranesthesia	Postop 2yrs	Exploration and repair of nerve/veins	No exploration/repair	RR	0.09(0.02,0.39)	Exploration and repair of nerve/veins

Table 243: PICO 9k- 9: Vascular Evaluation vs. 9: No Vascular Evaluation- Revision

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Waikakul, 1998	Moderate	Open LE Fx	Regrafting	Postop 2yrs	Exploration and repair of nerve/veins	No exploration/repair	RR	0.43(0.28,0.65)	Exploration and repair of nerve/veins

Table 244: PICO 9k- 9: Vascular Evaluation vs. 9: No Vascular Evaluation- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Waikakul, 1998	Moderate	Open LE Fx	Early Infection	Postop 2yrs	Exploration and repair of nerve/veins	No exploration/repair	RD	-0.05(-0.10,0.00)	NS
Waikakul, 1998	Moderate	Open LE Fx	Late Infection	Postop 2yrs	Exploration and repair of nerve/veins	No exploration/repair	RR	0.17(0.02,1.50)	NS

Table 245: PICO 9l- 9: MRSA Positive vs.9: MRSA Negative- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Saveli, 2013	Moderate	Open LE Fx	Superficial SSI	Postop 3mos	MRSA Colonization	No MRSA Colonization	RR	0.67(0.08,5.46)	NS
Saveli, 2013	Moderate	Open LE Fx	MSSA Deep Incisional	Postop 3mos	MRSA Colonization	No MRSA Colonization	RR	1.12(0.12,10.25)	NS
Saveli, 2013	Moderate	Open LE Fx	MRSA Deep Incisional	Postop 3mos	MRSA Colonization	No MRSA Colonization	RD	-0.01(-0.04,0.01)	NS
Saveli, 2013	Moderate	Open LE Fx	Any Deep Incisional	Postop 3mos	MRSA Colonization	No MRSA Colonization	RR	0.37(0.05,2.79)	NS

PICO 10: Perioperative Administrative Risk Factors

Table 246: PICO 10a- 10: Discharged Home vs. 10: Discharged Elsewhere- Other

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Driesman, 2017	High	Closed Tibial Plateau Fx	LoS	Postop .	Discharged Home	Discharged Elsewhere	AuthorReported -0.001;LogisticRegression	-2.80(-3.13,-2.47)	Discharge Home

Table 247: PICO 10b- 10: Inpatient Management vs. 10: Outpatient Management- Adverse Events

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Bergin, 2012	Low	Closed Ankle Fx	Any Complication	Postop .	Preop inpatient management	Preop outpatient management	RR	0.41(0.16,1.03)	NS
Bergin, 2012	Low	Closed Ankle Fx	Complication requiring surgery	Postop .	Preop inpatient management	Preop outpatient management	RR	0.16(0.02,1.45)	NS

Table 248: PICO 10b- 10: Inpatient Management vs. 10: Outpatient Management- SSI

Reference Title	Quality	Fx Type	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Backes, 2014	Moderate	Closed Unilateral Ankle Fx	Wound Infection	Postop 1yrs	Inpatient Management	Outpatient Management	AuthorReported	0.80(0.33,1.97)	NS

Table 249: PICO 10z- 10: African American vs. 10: Non-African American- Readmission

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Driesman,2017	High	30-Day readmission	Postop30 days	African American	Non-African American	Author Reported	1.92(1.55,2.30)	Non-African American

Table 250: PICO 10z- 10: Hispanic vs. 10: Non-Hispanic- Readmission

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Driesman,2017	High	30-Day readmission	Postop30 days	Hispanic	Non-Hispanic	Author Reported	1.90(1.44,2.37)	Non Hispanic

Table 251: PICO 10z- 10: Non-White vs. 10: White- SSI

Reference Title	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Morris, 2013	Moderate	Deep Infection	Postop .mos	Non-white	White	AuthorReported	1.09(0.46,1.63)	NS
Molina, 2015	High	Deep Infection	Postop .mos	Non-White	White	AuthorReported	1.09(0.45,2.63)	NS

Table: PICO 10c- 10: Low SES vs High SES- Other

Study	Quality	Outcome Details	Duration	Treatment 1 (Details)	Treatment 2 (Details)	Effect Measure	Result (95% CI)	Favored Treatment
Driesman, 2017	High	LoS	Postop	Estimated Median Family Income(ORIF and external fixation;)	continuous	Log Odds	-0.218 (-0.345--0.09)	**Higher Median Family Income**

Excluded Literature

Article Title	Authors	Year	Reason for Exclusion
Comparison of low-profile locking plate fixation versus antegrade intramedullary nailing for unstable metacarpal shaft fracturesâ€“â€“A prospective comparative study		2019	fixation for closed fx
Dynamic compression locking system versus multiple cannulated compression screw for the treatment of femoral neck fractures: a comparative study		2020	not target population; hip fx
A new minimally invasive spreader combined with less invasive stabilization system for proximal tibial fractures		2020	Article not in english
Computer registration of infections used to measure the effect of prophylactic antibiotics on postoperative infections following osteosynthesis in hip fractures	Aagaard, H.; Noer, H. H.; Scavenius, M.; Jorgensen, P. S.; Torholm, C.	1994	not target population; hip fx
Intramedullary fixation using multiple Kirschner wires for forearm fractures: a developing country perspective	Abalo, A.; Dossim, A.; Assiobo, A.; Walla, A.; Ouderaogo, A.	2007	Not target population; closed fx with internal fixation
Hybrid External Fixation for Arbeitsgemeinschaft für Osteosynthesefragen (AO) 43-C Tibial Plafond Fractures	Abd-Almageed, E.; Marwan, Y.; Esmaeel, A.; Mallur, A.; El-Alfy, B.	2015	case series

Article Title	Authors	Year	Reason for Exclusion
Minimally Invasive Treatment of Ankle Fractures in Patients at High Risk of Soft Tissue Wound Healing Complications	Abdelgaid, S. M.; Moursy, A. F.; Elgebaly, E. A. A.; Aboelenien, A. M.	2018	unclear fx cause
Biomechanical evaluation of three different configurations of external fixators for treating distal third tibia fracture: Finite element analysis in axial, bending and torsion load	Abdul Wahab, A. H.; Wui, N. B.; Abdul Kadir, M. R.; Ramlee, M. H.	2020	irrelevant topic; axial loading
Evaluation of the use of anti-platelet therapy throughout the peri-operative period in patients with femoral neck fracture surgery. A retrospective cohort study	Abdulhamid, A. K.	2020	Not target population; population femoral neck fractures
Are Locked Plates Needed for Split Depression Tibial Plateau Fractures?	Abghari, M.; Marcano, A.; Davidovitch, R.; Konda, S. R.; Egol, K. A.	2016	fixation for closed fx
Outcomes Following Low-Energy Civilian Gunshot Wound Trauma to the Lower Extremities: Results of a Standard Protocol at an Urban Trauma Center	Abghari, M.; Monroy, A.; Schubl, S.; Davidovitch, R.; Egol, K.	2015	case series
Wound-healing risk factors after open reduction and internal fixation of calcaneal fractures	Abidi, N. A.; Dhawan, S.; Gruen, G. S.; Vogt, M. T.; Conti, S. F.	1998	very low quality

Article Title	Authors	Year	Reason for Exclusion
Extensor tendon splitting versus extensor tendon sparing approach for miniplate fixation of extraarticular proximal phalangeal fractures	Abubeih, H. M. A.; Saleh, W. R.; Thabet, M. A.; Ibrahim, A. Kh	2016	not target population; finger fx
Distraction osteogenesis for tibial nonunion with bone loss using combined Ilizarov and Taylor spatial frames versus a conventional circular frame	Abuomira, I. E. A.; Sala, F.; Elbatrawy, Y.; Lovisetti, G.; Alati, S.; Capitani, D.	2016	patient population; closed not high energy
Compartment syndrome in dislocation and non-dislocation type proximal tibia fractures: analysis of 356 consecutive cases	Acklin, Y. P.; Potocnik, P.; Sommer, C.	2012	patient population; closed unclear not high energy
Unexpectedly increased rate of surgical site infections following implant surgery for hip fractures: problem solution with the bundle approach	Acklin, Y. P.; Widmer, A. F.; Renner, R. M.; Frei, R.; Gross, T.	2011	not target population; hip fx
Local perforator flaps for soft tissue defects in lower limb trauma	Adams, S.; Hudson, D. A.	2020	No controlled comparisons; case series
Intramedullary nailing of fractures of the tibia in diabetics	Aderinto, J.; Keating, J. F.	2008	mixed fx; unclear fx cause
Hip fracture surgery in mixed-use emergency theatres: is the infection risk increased? A retrospective matched cohort study	Agarwal, S. K.; Khan, A. A.; Solan, M.; Lemon, M.	2017	not target population; hip fx
Pathogenic bacteria in an orthopaedic hospital in India	Agrawal, A. C.; Jain, S.; Jain, R. K.; Raza, H. K.	2008	mixed population; various ortho procedures

Article Title	Authors	Year	Reason for Exclusion
Primary Nailing in the Open Fractures of the Tibia-Is it worth?	Agrawal, A.; Chauhan, V. D.; Maheshwari, R. K.; Juyal, A. K.	2013	No controlled comparisons; case series
Pin-tract complications in external fixation of fractures of the distal radius	Ahlborg, H. G.; Josefsson, P. O.	1999	no comparison group
Efficacy And Safety Of Interlocked Intramedullary Nailing For Open Fracture Shaft Of Tibia	Ahmad, N.; Khan, M. S.; Afridi, S. A.; Afridi, S. A.; Awan, A. S.; Afridi, S. K.; Sultan, S.; Saifullah, K.; Lodhi, F. S.	2016	case series
The role of cancellous screw with tension band fixation in the treatment of displaced olecranon fractures, a comparative study	Ahmed, A. R.; Sweed, T.; Wanas, A.	2008	mixed population; >20% low-energy
The effectiveness and safety of two prophylactic antibiotic regimes in hip-fracture surgery	Ahmed, I.; Khan, M. A.; Allgar, V.; Mohsen, A.	2016	not target population; hip fx
An Anatomic Intraoperatively Prepared Antibiotic Spacer in Two-Stage Shoulder Reimplantation for Deep Infection: The Potential for Early Rehabilitation	Aibinder, W. R.; Lee, J.; Shukla, D. R.; Cofield, R. H.; Sanchez-Sotelo, J.; Sperling, J. W.	2019	not target population; shoulder surgery
Relationship of Prolonged Operative Time and Comorbidities With Complications After Geriatric Ankle Fractures	Aigner, R.; Salomia, C.; Lechler, P.; Pahl, R.; Frink, M.	2017	patient population; closed unclear not high energy

Article Title	Authors	Year	Reason for Exclusion
Indications and complications of major limb amputations in Kano, Nigeria	Ajibade, A.; Akinniyi, O. T.; Okoye, C. S.	2013	No controlled comparisons; case series
Outcome of limb reconstruction system in open tibial diaphyseal fractures	Ajmera, A.; Verma, A.; Agrawal, M.; Jain, S.; Mukherjee, A.	2015	no comparison group
The impacts of internal versus external fixation for tibial fractures with simultaneous acute compartment syndrome	Akbari Aghdam, H.; Sheikhbahaei, E.; Hajihashemi, H.; Kazemi, D.; Andalib, A.	2019	irrelevant comparison; ORIF vs late internal fixation; closed fx
Efficacy of Pie-Crusting Technique on Soft Tissues in Distal Tibia and Fibula Fractures	Akgun, U.; Canbek, U.; Kilinc, C. Y.; Acan, A. E.; Karalezli, N.; Aydogan, N. H.	2019	patient characteristic
The Role of BMI in Hip Fracture Surgery	Akinleye, S. D.; Garofolo, G.; Culbertson, M. D.; Homel, P.; Erez, O.	2018	not target population; hip fx
Timing of antibiotic prophylaxis in tourniquet surgery	Akinyoola, A. L.; Adegbehingbe, O. O.; Odunsi, A.	2011	mixed population; fx comprises 50% of pts
Use of wound drains following open reduction and internal fixation of femoral shaft fractures	Akinyoola, A. L.; Odunsi, A.; Yusu, M. B.	2012	not target population; non-union tx

Article Title	Authors	Year	Reason for Exclusion
Comparison Between External Fixation and Cast Treatment in the Management of Distal Radius Fractures in Patients Aged 65 Years and Older	Aktekin, C. N.; Altay, M.; Gursoy, Z.; Aktekin, L. A.; Ozturk, A. M.; Tabak, A. Y.	2010	fixation for closed fx
Minimally Invasive Plate Osteosynthesis for Proximal Humerus Fractures: A Retrospective Study Describing Principles and Advantages of the Technique	Alberio, R. L.; Del Re, M.; Grassi, F. A.	2018	patient population; proxiaml humeral fractures
Factors Associated with the Development of Early Infection after Surgical Treatment of Fractures	Alcantara, Je Junior; Aguiar, R. A.; Sampaio, Jgl Neto; Azi, M. L.; Sadigursky, D.; Alencar, D. F.	2018	very low quality
Orthoplastic reconstruction of type IIIB open tibial fractures retaining debrided devitalized cortical segments: the Bristol experience 2014 to 2018	Al-Hourani, K.; Stoddart, M.; Khan, U.; Riddick, A.; Kelly, M.	2019	irrelevant topic; revitalized bone
Outcomes of open bicondylar tibial plateau fractures treated with Ilizarov external fixator with or without minimal internal fixation	Ali, A. M.	2013	case series
Treatment of open upper limb injuries with infection prevention and negative pressure wound therapy: a systematic review	Ali, E.; Raghuvanshi, M.	2017	

Article Title	Authors	Year	Reason for Exclusion
One-stage combined "fix and flap" approach for complex open Gustilo-Anderson IIIB lower limbs fractures: a prospective review of 102 cases	Aljawadi, A.; Islam, A.; Jahangir, N.; Niazi, N.; Elmajee, M.; Reid, A.; Wong, J.; Pillai, A.	2021	No controlled comparisons
A high-dose preparation of lactobacilli and bifidobacteria in the prevention of antibiotic-associated and clostridium difficile diarrhoea in older people admitted to hospital: A multicentre, randomised, double-blind, placebo-controlled, parallel arm trial (PLACIDE)	Allen, S. J.; Wareham, K.; Wang, D.; Bradley, C.; Sewell, B.; Hutchings, H.; Harris, W.; Dhar, A.; Brown, H.; Foden, A.; Gravenor, M. B.; Mack, D.; Phillips, C. J.	2013	mixed population; includes general admission pts
The management of compound leg injuries in the West Midlands (UK): Are we meeting current guidelines?	Allison, K.; Wong, M.; Bolland, B.; Peart, F.; Porter, K.	2005	case series
Risk factors associated with infection in tibial open fractures	Almeida Matos, M.; Castro-Filho, R. N.; Pinto da Silva, B. V.	2013	very low quality
Wound complications following operative fixation of calcaneal fractures	Al-Mudhaffar, M.; Prasad, C. V.; Mofidi, A.	2000	<10 pts per group; for factor of interest
The choice of antibiotic in open fractures in a teaching hospital in a developing country	Alonge, T. O.; Salawu, S. A.; Adebisi, A. T.; Fashina, A. N.	2002	No controlled comparisons; case series

Article Title	Authors	Year	Reason for Exclusion
Cephradine and flucloxacillin in the prophylaxis of infection in patients with open fractures	Alpar, E. K.	1988	Abx not available in US
The prevalence of the gram positive and gram negative bacteria in open fractures and their resistance profiles to antimicrobial agents	Al-Saadi, A. G. M.; Abbas, A. F.; Fazaa, S. A.	2017	no comparisons of interest
Taylor spatial frame in the treatment of neglected fractures	Al-Sayyad, M. J.	2011	patient population; neglected fractures
Ipsilateral talar and calcaneal fractures: A retrospective review of complications and sequelae	Aminian, A.; Howe, C. R.; Sangeorzan, B. J.; Benirschke, S. K.; Nork, S. E.; Barei, D. P.	2009	case series
Hip Fractures: Appropriate Timing to Operative Intervention	Anthony, C. A.; Duchman, K. R.; Bedard, N. A.; Gholson, J. J.; Gao, Y.; Pugely, A. J.; Callaghan, J. J.	2017	not target population; hip fx
Comparative study between coaptive film versus suture for wound closure after long bone fracture fixation	Anuar Ramdhan, I.; Zulmi, W.; Hidayah, A.; Kamel, M.; Fadhil, M.; Anwar Hau, M.	2013	not target population; unknown if high energy
Femur fractures and lung complications: a prospective randomized study of reaming	Anwar, I. A.; Battistella, F. D.; Neiman, R.; Olson, S. A.; Chapman, M. W.; Moehring, H. D.	2004	mixed fx population

Article Title	Authors	Year	Reason for Exclusion
Minimally invasive reduction and fixation of displaced calcaneal fractures: surgical technique and radiographic analysis	Arastu, M.; Sheehan, B.; Buckley, R.	2014	no comparison group
Microbiological and functional outcomes after open extremity fractures sustained overseas: The experience of a UK level I trauma centre	Ardehali, B.; Geoghegan, L.; Khajuria, A.; Reissis, D.; Lawton, G.; Jain, A.; Simmons, J.; Naique, S.; Bhattacharya, R.; Pearse, M.; Nathwani, D.; Hettiaratchy, S.	2018	case series
Modified hybrid fixator for high-energy Schatzker V and VI tibial plateau fractures	Ariffin, H. M.; Mahdi, N. M.; Rhani, S. A.; Baharudin, A.; Shukur, M. H.	2011	no comparison group
Limb and Flap Salvage in Gustilo IIIC Injuries Treated by Vascular Repair and Emergency Free Flap Transfer	Arnež, Z. M.; Papa, G.; Ramella, V.; Novati, F. C.; Ahcan, U.; Stocco, C.	2017	case series
Outcome of Percutaneous Fixation of Calcaneal Fractures: A Prospective Analysis in an Indian Population	Arora, C.; Jain, A. K.; Dhammi, I. K.	2019	<20 total pts
Femoral vessel injuries: analysis of factors predictive of outcomes	Asensio, J. A.; Kuncir, E. J.; Garcia-Nunez, L. M.; Petrone, P.	2006	not target population; vascular surgery

Article Title	Authors	Year	Reason for Exclusion
Should Os calcis fractures in smokers be fixed? A review of 40 patients	Assous, M.; Bhamra, M. S.	2001	unclear fx cause
Treatment of type IIIa open fractures with Ilizarov fixation and delayed primary closure in high-velocity gunshot wounds	Atesalp, A. S.; Yildiz, C.; Basbozkurt, M.; Gur, E.	2002	no comparison group
Precontoured parallel plate fixation of AO/OTA type C distal humerus fractures	Athwal, G. S.; Hoxie, S. C.; Rispoli, D. M.; Steinmann, S. P.	2009	no comparison group
Acute deep infection after surgical fixation of proximal humeral fractures	Athwal, G. S.; Sperling, J. W.; Rispoli, D. M.; Cofield, R. H.	2007	not target population; shoulder surgery
Does surgical approach affect outcome after fixation of intra-articular fractures of distal humerus? Retrospective cohort study from a level-1 trauma centre in a metropolitan city	Atif, M.; Hasan, O.; Mohib, Y.; Rashid, R. H.; Hashmi, P.	2019	irrelevant topic; surgical approach
Management of Femoral Defects Greater Than 5 cm Following Open Femur Fractures: A 12-Year Retrospective Review	Attum, B.; Douleh, D. G.; Whiting, P. S.; Dodd, A. C.; Shen, M. S.; Lakomkin, N.; Obremskey, W. T.; Sethi, M. K.	2018	no comparison group
Low Complication Rates Associated With the Application of Lower Extremity Traction Pins	Austin, D. C.; Donegan, D.; Mehta, S.	2015	no comparison group

Article Title	Authors	Year	Reason for Exclusion
Percutaneous or Open Reduction of Closed Tibial Shaft Fractures During Intramedullary Nailing Does Not Increase Wound Complications, Infection or Nonunion Rates	Auston, D. A.; Meiss, J.; Serrano, R.; Sellers, T.; Carlson, G.; Hoggard, T.; Beebe, M.; Quade, J.; Watson, D.; Simpson, R. B.; Kistler, B.; Shah, A.; Sanders, R.; Mir, H. R.	2017	patient population; closed with internal fixation
Outcome of AO External Fixator for open tibial fractures	Awan, M. M. Y.; Hussain, R.; Ahmed, I.	2015	case series
Hybrid grafting of post-traumatic bone defects using ß-tricalcium phosphate and demineralized bone matrix	Ayoub, M. A.; El-Rosasy, M. A.	2014	irrelevant comparison
Effectiveness of locking versus dynamic compression plates for diaphyseal forearm fractures	Azboy, I.; Demirtas, A.; Uçar, B. Y.; Bulut, M.; Alemdar, C.; Özkul, E.	2013	mixed population; >20% low-energy
Membrane Induced Osteogenesis in the Management of Posttraumatic Bone Defects	Azi, M. L.; Teixeira, A. A.; Cotias, R. B.; Joeris, A.; Kfuri, M., Jr.	2016	no comparison group
The rate of surgical site infection and associated factors in patients undergoing orthopedic surgeries in Babol, Northern	Azizi, H.; Janmohammadi, N.; Bahrami, M.; Rouhi, M.; Falsafi, M.; Bijani, A.; Esmaeilnejad-Ganji, S. M.	2018	mixed population; 24% are listed as non-emergency

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Infirmity and injury complexity are risk factors for surgical-site infection after operative fracture care	Bachoura, A.; Guitton, T. G.; Smith, R. M.; Vrahas, M. S.; Zurakowski, D.; Ring, D.	2011	mixed population; includes non-extremity surgery
The effect of postoperative wound infections on functional outcome following intra-articular calcaneal fractures	Backes, M.; Schep, N. W.; Luitse, J. S.; Goslings, J. C.; Schepers, T.	2015	patient characteristic
Determination of Pathogens in Postoperative Wound Infection After Surgically Reduced Calcaneal Fractures and Implications for Prophylaxis and Treatment	Backes, M.; Spijkerman, I. J.; de Muinck-Keizer, R. O.; Goslings, J. C.; Schepers, T.	2018	irrelevant topic; determining infecting organism
A retrospective analysis of comminuted intra-articular fractures of the tibial plafond: Open reduction and internal fixation versus external Ilizarov fixation	Bacon, S.; Smith, W. R.; Morgan, S. J.; Hasenboehler, E.; Philips, G.; Williams, A.; Ziran, B. H.; Stahel, P. F.	2008	patient characteristic
Effect of Wound Closure Technique in Proximal Femoral Fractures: A Prospective Cohort Study	Badres, I. A.; Suen, K.; Tran, P.	2020	patient population; closed unclear not high energy
Post Gulf war explosive injuries in liberated Kuwait	Bajec, J.; Gang, R. K.; Lari, A. R.	1993	narrative review
Treatment options for unstable trochanteric fractures: Screw or helical proxima femoral nail	Bajpai, J.; Maheshwari, R.; Bajpai, A.; Saini, S.	2015	patient population; closed with internal fixation
Cerclage wire and lag screw fixation of the lateral malleolus in supination and external rotation fractures of the ankle	Bajwa, A. S.; Gantz, D. E.	2005	No controlled comparisons; case series

Article Title	Authors	Year	Reason for Exclusion
A retrospective study of antibiotic prophylaxis value in surgical treatment of lower limb fracture	Bandalovic, A.; Zindovic, A.; Boschi, V.; Bakota, B.; Marinovic, M.; Coklo, M.; Rosin, M.; Parac, Z.; Cukelj, F.	2015	unclear fx cause
Microbiological evaluation of osteomyelitis with a special reference to antibiotic sensitivity pattern of isolates from a tertiary care hospital	Banerjee, B.; Bhat, S. S.; Mukhopadhyay, C.; Bhat, A. K.	2020	No factors of interest;
Home therapy pathway - safe and streamlined method of initial management of ankle fractures	Baraza, N.; Lever, S.; Dhukaram, V.	2013	unclear fx cause
Reducing morbidity in the radial forearm flap donor site	Bardsley, A. F.; Soutar, D. S.; Elliot, D.; Batchelor, A. G.	1990	not target population; unknown if high energy
Complications associated with internal fixation of high-energy bicondylar tibial plateau fractures utilizing a two-incision technique	Barei, D. P.; Nork, S. E.; Mills, W. J.; Henley, M. B.; Benirschke, S. K.	2004	very low quality
Minimally invasive medial plate osteosynthesis in tibial pilon fractures: Longterm functional and radiological outcomes	Baris, A.; Circi, E.; Demirci, Z.; Ozturkmen, Y.	2020	very low quality
A clinical evaluation of alternative fixation techniques for medial malleolus fractures	Barnes, H.; Cannada, L. K.; Watson, J. T.	2014	fixation for closed fx

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Treatment of open fractures of the hand in the emergency department	Basat, N. B.; Allon, R.; Nagmi, A.; Wollstein, R.	2017	mixed population; >20% figer fx
Complications after pinning of supracondylar distal humerus fractures	Bashyal, R. K.; Chu, J. Y.; Schoenecker, P. L.; Dobbs, M. B.; Luhmann, S. J.; Gordon, J. E.	2009	pediatric
Comparison Between Sinus Tarsi Approach and Extensile Lateral Approach for Treatment of Closed Displaced Intra-Articular Calcaneal Fractures: A Multicenter Prospective Study	Basile, A.; Albo, F.; Via, A. G.	2016	patient population; closed with internal fixation
Malunion of Long-Bone Fractures in a Conflict Zone in the Democratic Republic of Congo	Bauhahn, G.; Veen, H.; Hoencamp, R.; Olim, N.; Tan, Ecth	2017	case series
Risk factors for complications after primary intramedullary nailing to treat tibial shaft fractures: A cohort study of 184 consecutive patients	Bauwens, P. H.; Malatray, M.; Fournier, G.; Rongieras, F.; Bertani, A.	2021	mixed population; >60% low-energy
Minimally Invasive Plate Osteosynthesis for Treatment of Ankle Fractures in High-Risk Patients	Bazarov, I.; Kim, J.; Richey, J. M.; Dickinson, J. D.; Hamilton, G. A.	2018	unclear fx cause
Smoking Effects in Foot and Ankle Surgery: An Evidence-Based Review	Beahrs, T. R.; Reagan, J.; Bettin, C. C.; Grear, B. J.; Murphy, G. A.; Richardson, D. R.	2019	

Article Title	Authors	Year	Reason for Exclusion
External fixation of distal femoral fractures in adults' multicentre retrospective study of 43patients	Bedes, L.; Bonnevialle, P.; Ehlinger, M.; Bertin, R.; Vandenbusch, E.; Piétu, G.	2014	not relevant external fixation
Patient-Based and Surgical Risk Factors for 30-Day Postoperative Complications and Mortality After Ankle Fracture Fixation	Belmont, P. J., Jr.; Davey, S.; Rensing, N.; Bader, J. O.; Waterman, B. R.; Orr, J. D.	2015	unclear fx cause; only 2% injuries are open
Outcomes of high-grade open calcaneus fractures managed with open reduction via the medial wound and percutaneous screw fixation	Beltran, M. J.; Collinge, C. A.	2012	no comparison group
The effect of obesity on post-operative complications and functional outcomes after surgical treatment of torsional ankle fracture: A matched cohort study	Benedick, A.; Audet, M. A.; Vallier, H. A.	2020	not a factor of interest; BMI
Effect of Tourniquet Use During Ankle Fracture Fixation on Wound Healing and Infectious Complications	Benedick, A.; Rivera, T.; Vallier, H. A.	2020	patient characteristic ; use of tourniquet no internal fixation
Immediate internal fixation of open, complex tibial plateau fractures: treatment by a standard protocol	Benirschke, S. K.; Agnew, S. G.; Mayo, K. A.; Santoro, V. M.; Henley, M. B.	1992	No controlled comparisons; case series
Salvage of Combat Hindfoot Fractures in 2003-2014 UK Military	Bennett, P. M.; Stevenson, T.; Sargeant, I. D.; Mountain, A.; Penn-Barwell, J. G.	2017	mixed population; includes closed fx and non-operative management

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Maintenance of hardware after early postoperative infection following fracture internal fixation	Berkes, M.; Obremskey, W. T.; Scannell, B.; Ellington, J. K.; Hymes, R. A.; Bosse, M.; Southeast Fracture, Consortium	2010	not target population; already infected
Does Integrated Fixation Provide Benefit in the Reconstruction of Posttraumatic Tibial Bone Defects?	Bernstein, M.; Fragomen, A. T.; Sabharwal, S.; Barclay, J.; Rozbruch, S. R.	2015	patient population; closed not high energy
Open fractures of the calcaneus: a review of treatment and outcome	Berry, G. K.; Stevens, D. G.; Kreder, H. J.; McKee, M.; Schemitsch, E.; Stephen, D. J.	2004	no comparison group
Severe tibial plateau fractures (Schatzker V-VI): open reduction and internal fixation versus hybrid external fixation	Bertrand, M. L.; Pascual-Lopez, F. J.; Guerado, E.	2017	fixation for closed fx
Predictors of reoperation following operative management of fractures of the tibial shaft	Bhandari, M.; Tornetta, P., 3rd; Sprague, S.; Najibi, S.; Petrisor, B.; Griffith, L.; Guyatt, G. H.	2003	Doesn't address question of interest;
Intramedullary nailing following external fixation in femoral and tibial shaft fractures	Bhandari, M.; Zlowodzki, M.; Tornetta, P., 3rd; Schmidt, A.; Templeman, D. C.	2005	Systematic Review

Article Title	Authors	Year	Reason for Exclusion
Evaluation of results of interlocking nail in the treatment of open fracture shaft femur due to high energy trauma	Bhattacharjya, B.; Ghosh, B.; Mukhopadhyay, K.; Hossain, M. E.	2012	case series
Routine use of wound vacuum-assisted closure does not allow coverage delay for open tibia fractures	Bhattacharyya, T.; Mehta, P.; Smith, M.; Pomahac, B.	2008	No Outcomes of Interest
Local flaps vs. free flaps for complex lower limb fractures: Effect of flap choice on patient-reported outcomes	Bhullar, D. S.; Karuppiah, S. V.; Aljawadi, A.; Gillham, T.; Fakih, O.; Khamdan, K.; Pillai, A.	2020	Sample Size too Small (n < 10 per group)
The effect of demineralized bone matrix-calcium sulfate with vancomycin on calcaneal fracture healing and infection rates: a prospective study	Bibbo, C.; Patel, D. V.	2006	unclear fx cause
Analysis of retrograde femoral intramedullary nail placement through traumatic knee arthrotomies	Bible, J. E.; Kadakia, R. J.; Choxi, A. A.; Bauer, J. M.; Mir, H. R.	2013	mixed fx population
Displaced patella fractures: Percutaneous cerclage wiring and second arthroscopic look	Bisaccia, M.; Caraffa, A.; Meccariello, L.; Ripani, U.; Bisaccia, O.; Gómez-Garrido, D.; Carrato-Gomez, M.; Pace, V.; Rollo, G.; Giaracuni, M.; Rinonapoli, G.	2019	case series

Article Title	Authors	Year	Reason for Exclusion
Medium-long-term radiographic and clinical outcomes after surgical treatment of intra-articular tibial pilon fractures by three different techniques	Biz, C.; Angelini, A.; Zamperetti, M.; Marzotto, F.; Sperotto, S. P.; Carniel, D.; Iacobellis, C.; Ruggieri, P.	2018	mixed fracture
Long-term radiographic and clinical-functional outcomes of isolated, displaced, closed talar neck and body fractures treated by ORIF: the timing of surgical management	Biz, C.; Golin, N.; De Cicco, M.; Maschio, N.; Fantoni, I.; Frizziero, A.; Belluzzi, E.; Ruggieri, P.	2019	patient population; closed internal fixation
Surgical options for the treatment of severe tibial pilon fractures: a study of three techniques	Blauth, M.; Bastian, L.; Krettek, C.; Knop, C.; Evans, S.	2001	fixation for closed fx
Single versus Double Skin Preparation for Infection Prevention in Proximal Humeral Fracture Surgery	Blonna, D.; Allizond, V.; Bellato, E.; Banche, G.; Cuffini, A. M.; Castoldi, F.; Rossi, R.	2018	not target population; shoulder surgery
Effect of surgical delay on bacterial colonization in proximal humeral fractures	Blonna, D.; Barbasetti di Prun, N.; Bellato, E.; Manino, L.; Rossi, R.; Banche, G.; Allizond, V.; Cuffini, A. M.; Castoldi, F.	2016	<10 pts per group

Article Title	Authors	Year	Reason for Exclusion
Incidence and risk factors for acute infection after proximal humeral fractures: a multicenter study	Blonna, D.; Barbasetti, N.; Banche, G.; Cuffini, A. M.; Bellato, E.; Masse, A.; Marenco, S.; Battiston, B.; Castoldi, F.	2014	not relevant comparison group
Timing of Early Complications Following Open Reduction and Internal Fixation of Closed Ankle Fractures	Bohl, D. D.; Idarraga, A. J. P.; Lee, S.; Hamid, K. S.; Lin, J.; Holmes, G. B.	2020	no comparison of interest
Validated Risk-Stratification System for Prediction of Early Adverse Events Following Open Reduction and Internal Fixation of Closed Ankle Fractures	Bohl, D. D.; Idarraga, A. J.; Holmes, G. B., Jr.; Hamid, K. S.; Lin, J.; Lee, S.	2019	unclear fx cause
Can surgeons predict what makes a good hemiarthroplasty for fracture?	Boileau, P.; Winter, M.; Cikes, A.; Han, Y.; Carles, M.; Walch, G.; Schwartz, D. G.	2013	not target population; shoulder surgery
Treatment of tibial fractures by reaming and intramedullary nailing	Bone, L. B.; Johnson, K. D.	1986	no comparison group
Early surgical site infection in adult appendicular skeleton trauma surgery: a multicenter prospective series	Bonnevialle, P.; Bonnomet, F.; Philippe, R.; Loubignac, F.; Rubens-Duval, B.; Talbi, A.; Le Gall, C.; Adam, P.; Sofcot,	2012	mixed population; includes hip and shoulder fx

Article Title	Authors	Year	Reason for Exclusion
Outcome following open reduction and internal fixation of open pilon fractures	Boraiah, S.; Kemp, T. J.; Erwteman, A.; Lucas, P. A.; Asprinio, D. E.	2010	no comparison group
Assessment of Severe Extremity Wound Bioburden at the Time of Definitive Wound Closure or Coverage: Correlation With Subsequent Postclosure Deep Wound Infection (Bioburden Study)	Bosse, M. J.; Murray, C. K.; Carlini, A. R.; Firoozabadi, R.; Manson, T.; Scharfstein, D. O.; Wenke, J. C.; Zadnik, M.; Castillo, R. C.; Metrc,	2017	protocol; no data
Host classification predicts infection after open fracture	Bowen, T. R.; Widmaier, J. C.	2005	very low quality
Randomised controlled trial of single-dose antibiotic prophylaxis in surgical treatment of closed fractures: the Dutch Trauma Trial	Boxma, H.; Broekhuizen, T.; Patka, P.; Oosting, H.	1996	mixed population; includes 37% hip fx
Treatment with vacuum-assisted closure and cryo-preserved homologous de-epidermalised dermis of complex traumas to the lower limbs with loss of substance, and bones and tendons exposure	Brandi, C.; Grimaldi, L.; Nisi, G.; Silvestri, A.; Brafa, A.; Calabro, M.; D'Aniello, C.	2008	no comparison group
Early soft tissue coverage after complex foot trauma	Brenner, P.; Rammelt, S.; Gavlik, J. M.; Zwipp, H.	2001	unclear population; unclear if all pts are fxs or if they are open/closed etc.
Negative pressure wound therapy with saline instillation: 131 patient case series	Brinkert, D.; Ali, M.; Naud, M.; Maire, N.; Trial, C.; Teot, L.	2013	mixed population; 35% fx

Article Title	Authors	Year	Reason for Exclusion
Ilizarov fixator pin site care: the role of crusts in the prevention of infection	Britten, S.; Ghoz, A.; Duffield, B.; Giannoudis, P. V.	2013	Pin site infection
Intramedullary nailing of open fractures of the femoral shaft	Brumback, R. J.; Ellison, P. S., Jr.; Poka, A.; Lakatos, R.; Bathon, G. H.; Burgess, A. R.	1989	no comparison group
Heterotopic ossification about the hip after intramedullary nailing for fractures of the femur	Brumback, R. J.; Wells, D.; Lakatos, R.; Poka, A.; Bathon, G. H.; Burgess, A. R.	1990	mixed fx population
Fixation with bioabsorbable screws for the treatment of fractures of the ankle	Bucholz, R. W.; Henry, S.; Henley, M. B.	1994	patient population; closed with internal fixation
External fixation in comminuted upper femoral fractures	Buckley, J. R.; Caiach, S. M.	1993	no comparison group
Reoperation Rate Differences Between Open Reduction Internal Fixation and Primary Arthrodesis of Lisfranc Injuries	Buda, M.; Kink, S.; Stavenuiter, R.; Hagemeijer, C. N.; Chien, B.; Hosseini, A.; Johnson, A. H.; Guss, D.; DiGiovanni, C. W.	2018	patient population; closed with internal fixation
A prospective study of pain reduction and knee dysfunction comparing femoral skeletal traction and splinting in adult trauma patients	Bumpass, D. B.; Ricci, W. M.; McAndrew, C. M.; Gardner, M. J.	2015	mixed fx population

Article Title	Authors	Year	Reason for Exclusion
Clinical Outcomes following Tongue Type Calcaneus Fractures	Burnett, Z.; Barzee, B. M.; Hymes, R.; Cannada, L. K.	2019	irrelevant comparison; open vs closed fx
Microbiology and injury characteristics in severe open tibia fractures from combat	Burns, T. C.; Stinner, D. J.; Mack, A. W.; Potter, B. K.; Beer, R.; Eckel, T. T.; Possley, D. R.; Beltran, M. J.; Hayda, R. A.; Andersen, R. C.; Keeling, J. J.; Frisch, H. M.; Murray, C. K.; Wenke, J. C.; Ficke, J. R.; Hsu, J. R.; Skeletal Trauma Research, Consortium	2012	No factors of interest;
Obesity is associated with increased postoperative complications after operative management of tibial shaft fractures	Burrus, M. T.; Werner, B. C.; Yarboro, S. R.	2016	unknown etiology
Patient and Surgical Factors Contributing to Perioperative Infection in Complex Lower Extremity Trauma	Burtt, K. E.; Rounds, A. D.; Leland, H. A.; Alluri, R. K.; Patel, K. M.; Carey, J. N.	2016	very low quality
The influence of vacuum-assisted closure on inflammatory tissue reactions in the postoperative course of ankle fractures	Buttenschoen, K.; Fleischmann, W.; Haupt, U.; Kinzl, L.; Buttenschoen, D. C.	2001	patient population; closed with internal fixation

Article Title	Authors	Year	Reason for Exclusion
Long endomedullary nail in proximal third humeral shaft fractures	Caforio, M.; Maniscalco, P.; Colombo, M.; Calori, G. M.	2016	patient population; closed with internal fixation
The use of calcium sulfate impregnated with vancomycin in the treatment of open fractures of long bones: a preliminary study	Cai, X.; Han, K.; Cong, X.; Cai, J.; Tong, D.; Han, D.; Wang, Y.; Yu, B.	2010	case series
A New Approach to Surgical Management of Tibial Plateau Fractures	Callary, S. A.; Jones, C. F.; Kantar, K.; Du Toit, H.; Baker, M. P.; Thewlis, D.; Atkins, G. J.; Solomon, L. B.	2020	irrelevant topic; tx protocol
Frequency and risk factors of complications after surgical treatment of ankle fractures : a retrospective study of 433 patients	Cammas, C.; Ancion, A.; Detrembleur, C.; Tribak, K.; Putineanu, D.; Cornu, O.	2020	not target population; unknown if high energy
How do pilon fractures heal? An analysis of dual plating and bridging callus formation	Campbell, S. T.; Goodnough, L. H.; Salazar, B.; Lucas, J. F.; Bishop, J. A.; Gardner, M. J.	2020	mixed fx population
Open reduction and internal fixation compared with circular fixator application for bicondylar tibial plateau fractures. Results of a multicenter, prospective, randomized clinical trial	Canadian Orthopaedic Trauma, Society	2006	mixed fx population
The no-touch approach for operative treatment of pilon fractures to minimize soft tissue complications	Cannada, L. K.	2010	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Prevention of postoperative surgical wound complications in ankle and distal tibia fractures: results of Incisional Negative Pressure Wound Therapy	Canton, G.; Fattori, R.; Pinzani, E.; Monticelli, L.; Ratti, C.; Murena, L.	2020	not target population; unknown if high energy
Strategies to minimize soft tissues and septic complications in staged management of high-energy proximal tibia fractures	Canton, G.; Santolini, F.; Stella, M.; Moretti, A.; Surace, M. F.; Murena, L.	2020	case series
Initial management of open hand fractures in an emergency department	Capo, J. T.; Hall, M.; Nourbakhsh, A.; Tan, V.; Henry, P.	2011	no comparisons of interest
Complications following operative treatment of supination-adduction type II (AO/OTA 44A2.3) ankle fractures	Carney, J.; Ton, A.; Alluri, R. K.; Grisdela, P.; Marecek, G. S.	2020	no comparison group
Posterior-Based Approaches to Open Reduction Internal Fixation of Bimalleolar and Trimalleolar Fractures: A Systematic Review and Meta-analysis	Carr, D.; Vannabouathong, C.; Petrisor, B. A.; Parekh, S. G.; Bhandari, M.	2020	
Early complications in the operative treatment of ankle fractures. Influence of delay before operation	Carragee, E. J.; Csongradi, J. J.; Bleck, E. E.	1991	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Epidemiology of bacterial infection during management of open leg fractures	Carsenti-Etesse, H.; Doyon, F.; Desplaces, N.; Gagey, O.; Tancrede, C.; Pradier, C.; Dunais, B.; Dellamonica, P.	1999	Drug not available in U.S
Risk factors related to surgical site infection in orthopedic prosthesis surgery	Carvajal, R.; Londoño, A.	2012	article not in English
Limb salvage after vascular reconstruction followed by tissue transfer during the Global War on Terror	Casey, K.; Sabino, J.; Weiss, J. S.; Kumar, A.; Valerio, I.	2015	irrelevant topic; vascular injury
Severe open fractures of the tibia	Caudle, R. J.; Stern, P. J.	1987	No controlled comparisons; case series
Pin site care during circular external fixation using two different protocols	Cavusoglu, A. T.; Er, M. S.; Inal, S.; Ozsoy, M. H.; Dincel, V. E.; Sakaogullari, A.	2009	not target population; pin site infection
Temporary ipsilateral stiff shoulder after operative fixation of distal radial fractures	Cha, S. M.; Shin, H. D.; Hwang, S. J.	2017	patient population; closed with internal fixation
Early complications of medial opening wedge high tibial osteotomy using autologous tricortical iliac bone graft and T-plate fixation	Chae, D. J.; Shetty, G. M.; Wang, K. H.; Montalban Jr, A. S. C.; Kim, J. I.; Wook Nha, K.	2011	no comparison group

Article Title	Authors	Year	Reason for Exclusion
Injury characteristics and outcome of road traffic crash victims at Bugando Medical Centre in Northwestern Tanzania	Chalya, P. L.; Mabula, J. B.; Dass, R. M.; Mbelenge, N.; Ngayomela, I. H.; Chandika, A. B.; Gilyoma, J. M.	2012	mixed population; only 26.3% fx
Does a Stage Posterior Approach Have a Negative Effect on OTA 43C Fracture Outcomes?	Chan, D. S.; Balthrop, P. M.; White, B.; Glassman, D.; Sanders, R. W.	2017	mixed fx population
Antibiotic Prophylaxis in the Management of Open Fractures	Chang, Y.; Bhandari, M.; Zhu, K. L.; Mirza, R. D.; Ren, M.; Kennedy, S. A.; Negm, A.; Bhatnagar, N.; Naji, F. N.; Milovanovic, L.; Fei, Y.; Agarwal, A.; Kamran, R.; Cho, S. M.; Schandelmaier, S.; Wang, L.; Jin, L.; Hu, S.; Zhao, Y.; Lopes, L. C.; Wang, M.; Petrisor, B.; Ristevski, B.; Siemieniuk, R. A. C.; Guyatt, G. H.	2019	

Article Title	Authors	Year	Reason for Exclusion
Effects of Antibiotic Prophylaxis in Patients with Open Fracture of the Extremities: A Systematic Review of Randomized Controlled Trials	Chang, Y.; Kennedy, S. A.; Bhandari, M.; Lopes, L. C.; Bergamaschi Cde, C.; Carolina de Oliveira, E. Silva M.; Bhatnagar, N.; Mousavi, S. M.; Khurshid, S.; Petrisor, B.; Ren, M.; Sodhi, S. K.; Mirza, R. D.; Guyatt, G. H.	2015	References Reviewed
Use of gentamicin-loaded collagen sponge in internal fixation of open fractures	Chaudhary, S.; Sen, R. K.; Saini, U. C.; Soni, A.; Gahlot, N.; Singh, D.	2011	no comparison group
Are Volar Locking Plates Superior to Percutaneous K-wires for Distal Radius Fractures? A Meta-analysis	Chaudhry, H.; Kleinlugtenbelt, Y. V.; Mundi, R.; Ristevski, B.; Goslings, J. C.; Bhandari, M.	2015	unclear fx cause
Noncontiguous and open fractures of the lower extremity: Epidemiology, complications, and unplanned procedures	Chen, A. T.; Vallier, H. A.	2016	very low quality
Does continued aspirin mono-therapy lead to a higher bleeding risk after total knee arthroplasty?	Chen, C. F.; Tsai, S. W.; Wu, P. K.; Chen, C. M.; Chen, W. M.	2020	unclear population; unclear if TKA for fx

Article Title	Authors	Year	Reason for Exclusion
Comparison of percutaneous screw fixation and calcium sulfate cement grafting versus open treatment of displaced intra-articular calcaneal fractures	Chen, L.; Zhang, G.; Hong, J.; Lu, X.; Yuan, W.	2011	patient population; closed with internal fixation
Clinical analysis of 54 cases of large area soft tissue avulsion in the lower limb	Chen, Y.; Liu, L.	2016	<20 target population;
Procedure for Femoral Intertrochanteric Fractures using the "Three-Finger Method" Assisted by Proximal Femoral Nail Antirotation	Cheng Md, Q.; Lin Bm, L.; Zhu Md, X. D.; Li Md, G. Z.; Gao Bm, X. M.; Qian Bm, Y.; Zhao Md, G. Y.; Di Md, D. H.	2020	no comparison group
Causes of inpatient death for patients with warfare-related limb trauma and logistic regression analysis of the risk factors	Cheng, C. Z.; Zhao, D. H.; Li, Q. Y.; Qu, H. Y.; Chen, B. C.; Lin, Z. D.	2012	irrelevant topic; RFs for death, not SSI
Comparison of a minimally invasive technique with open tension band wiring for displaced transverse patellar fractures	Chiang, C. C.; Chen, W. M.; Jeff Lin, C. F.; Chen, C. F.; Huang, C. K.; Tzeng, Y. H.; Liu, C. L.	2011	patient population; closed with internal fixation
Arthroscopic Reduction and Minimally Invasive Surgery in Supination–External Rotation Ankle Fractures: A Comparative Study With Open Reduction	Chiang, C. C.; Tzeng, Y. H.; Jeff Lin, C. F.; Wang, C. S.; Lin, C. C.; Chang, M. C.	2019	fixation for closed fx
Minimally Invasive Versus Open Distal Fibular Plating for AO/OTA 44-B Ankle Fractures	Chiang, C. C.; Tzeng, Y. H.; Lin, C. C.; Huang, C. K.; Chang, M. C.	2016	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Does the quality of preoperative closed reduction of displaced ankle fractures affect wound complications after surgical fixation?	Chien, B. Y.; Stupay, K. L.; Miller, C. P.; Smith, J. T.; Briceno, J.; Kwon, J. Y.	2018	unclear fx cause
Complications and its impact in patients with closed and open tibial shaft fractures requiring open reduction and internal fixation	Chitnis, A. S.; Vanderkarr, M.; Sparks, C.; McGlohorn, J.; Holy, C. E.	2019	No factors of interest
Incidence of pin site infection in buried versus unburied K-wire fixation techniques in fracture fixation	Chitten, J. J.; Muthaiyan, P.; James, B.; Savery, V. B.	2018	mixed population; >20% open
An algorithmic approach for managing orthopaedic surgical wounds of the foot and ankle	Cho, E. H.; Garcia, R.; Pien, I.; Thomas, S.; Levin, L. S.; Hollenbeck, S. T.	2014	not target population; wounds not caused by trauma
Factors affecting clinical outcomes after treatment of extra-articular open tibial fractures	Cho, J. H.; Lee, I. J.; Bang, J. Y.; Song, H. K.	2016	very low quality
Dorsal and volar 2.4-mm titanium locking plate fixation for AO type C3 dorsally comminuted distal radius fractures	Chou, Y. C.; Chen, A. C. Y.; Chen, C. Y.; Hsu, Y. H.; Wu, C. C.	2011	unclear fx cause
Early postoperative outcomes associated with the anterolateral thigh flap in Gustilo IIIB fractures of the lower extremity	Christy, M. R.; Lipschitz, A.; Rodriguez, E.; Chopra, K.; Yuan, N.	2014	very low quality

Article Title	Authors	Year	Reason for Exclusion
Epidemiological analysis of outcomes in 323 open tibial diaphyseal fractures: a nine-year experience	Chua, W.; Murphy, D.; Siow, W.; Kagda, F.; Thambiah, J.	2012	No factors of interest;
Delayed presentation of IIIB tibial fractures: Outcome following management in a specialist centre	Chummun, S.; Bhatti, A.; Chesser, T. J.; Khan, U.	2012	irrelevant comparison; on-site referral vs off-site referral
Outcome of the management of open ankle fractures in an ortho-plastic specialist centre	Chummun, S.; Wright, T. C.; Chapman, T. W. L.; Khan, U.	2015	unclear tx
Assessment of Distal Radius Fracture Complications Among Adults 60 Years or Older: A Secondary Analysis of the WRIST Randomized Clinical Trial	Chung, K. C.; Malay, S.; Shauver, M. J.; Kim, H. M.; Wrist Group	2019	fixation for closed fx
What Factors are Associated With a Surgical Site Infection After Operative Treatment of an Elbow Fracture?	Claessen, F. M.; Braun, Y.; van Leeuwen, W. F.; Dyer, G. S.; van den Bekerom, M. P.; Ring, D.	2016	unclear fx cause
Plate fixation of open fractures of the tibia	Clifford, R. P.; Beauchamp, C. G.; Kellam, J. F.; Webb, J. K.; Tile, M.	1988	case series
Percutaneous clamping of spiral and oblique fractures of the tibial shaft: A safe and effective reduction aid during intramedullary nailing	Collinge, C. A.; Beltran, M. J.; Dollahite, H. A.; Huber, F. G.	2015	patient population; closed with internal fixation

Article Title	Authors	Year	Reason for Exclusion
Prolonged operative time increases infection rate in tibial plateau fractures	Colman, M.; Wright, A.; Gruen, G.; Siska, P.; Pape, H. C.; Tarkin, I.	2013	No factors of interest; sub-analysis does not include factors of interest
An interdisciplinary approach to improve surgical antimicrobial prophylaxis	Conaty, O.; Gaughan, L.; Downey, C.; Carolan, N.; Brophy, M. J.; Kavanagh, R.; McNamara, D. A. A.; Smyth, E.; Burns, K.; Fitzpatrick, F.	2018	mixed population; includes hip fx and TJA
Changing paradigms in lower extremity reconstruction in war-related injuries	Connolly, M.; Ibrahim, Z. R.; Johnson, O. N., 3rd	2016	References Reviewed
Retrospective review of tibial plateau fractures treated by two methods without staging	Conserva, V.; Vicenti, G.; Allegretti, G.; Filipponi, M.; Monno, A.; Picca, G.; Moretti, B.	2015	fixation for closed fx
Negative pressure dressings are no better than standard dressings for open fractures	Cook, R.; Thomas, V.; Martin, R.	2019	Highlights of a full-article that was recalled

Article Title	Authors	Year	Reason for Exclusion
Negative-pressure wound therapy versus standard dressings for adults with an open lower limb fracture: the WOLLF RCT	Costa, M. L.; Achten, J.; Bruce, J.; Davis, S.; Hennings, S.; Willett, K.; Petrou, S.; Jeffery, S.; Griffin, D.; Parker, B.; Masters, J.; Lamb, S. E.; Tutton, E.; Parsons, N.	2018	Same Article as 733
UK DRAFFT: A randomised controlled triaof percutaneous fixation with kirschner wires versus volar locking-plate fixation in the treatment of adult patients with a dorsally displaced fracture of the distal radius	Costa, M. L.; Achten, J.; Caroline, P.; Parsons, N. R.; Rangan, A.; Tubeuf, S.; Yu, G.; Lamb, S. E.	2015	not target population; fixation for closed fx
Intramedullary nail fixation versus locking plate fixation for adults with a fracture of the distal tibia: the UK FixDT RCT	Costa, M. L.; Achten, J.; Hennings, S.; Boota, N.; Griffin, J.; Petrou, S.; Maredza, M.; Dritsaki, M.; Wood, T.; Masters, J.; Pallister, I.; Lamb, S. E.; Parsons, N. R.	2018	patient population; closed with internal fixation

Article Title	Authors	Year	Reason for Exclusion
Effect of Incisional Negative Pressure Wound Therapy vs Standard Wound Dressing on Deep Surgical Site Infection After Surgery for Lower Limb Fractures Associated With Major Trauma: The WHIST Randomized Clinical Trial	Costa, M. L.; Achten, J.; Knight, R.; Bruce, J.; Dutton, S. J.; Madan, J.; Dritsaki, M.; Parsons, N.; Fernandez, M.; Grant, R.; Nanchahal, J.; Whist Trial Collaborators	2020	not target population; 34% low energy
Negative-pressure wound therapy compared with standard dressings following surgical treatment of major trauma to the lower limb: the WHiST RCT	Costa, M. L.; Achten, J.; Knight, R.; Png, M. E.; Bruce, J.; Dutton, S.; Madan, J.; Vadher, K.; Dritsaki, M.; Masters, J.; Spoors, L.; Campolier, M.; Parsons, N.; Fernandez, M.; Jones, S.; Grant, R.; Nanchahal, J.	2020	mixed fracture
Operative management of ankle fractures in patients with diabetes mellitus	Costigan, W.; Thordarson, D. B.; Debnath, U. K.	2007	unclear fx cause
The role of primary plastic surgery in the management of open fractures	Court-Brown, C. M.; Honeyman, C. S.; Clement, N. D.; Hamilton, S. A.; McQueen, M. M.	2015	not target outcome; no SSI

Article Title	Authors	Year	Reason for Exclusion
Factors affecting infection after calcaneal fracture fixation	Court-Brown, C. M.; Schmied, M.; Schutte, B. G.	2009	unclear fx cause
Systematic review and meta-analysis of the additional benefit of local prophylactic antibiotic therapy for infection rates in open tibia fractures treated with intramedullary nailing	Craig, J.; Fuchs, T.; Jenks, M.; Fleetwood, K.; Franz, D.; Iff, J.; Raschke, M.	2014	References Reviewed
Association of Short-term Complications With Procedures Through Separate Incisions During Total Ankle Replacement	Criswell, B.; Hunt, K.; Kim, T.; Chou, L.; Haskell, A.	2016	no comparison group
Management of elbow stiffness after postoperative treatment of terrible triad elbow injury: maintaining mobility and stability using a combined protocol	Cui, H. M.; Yu, Y. L.; He, Y.; Cheng, Y.; Liu, J. Z.; Zheng, W.; Chen, S.; Fan, C. Y.	2018	irrelevant topic; elbow stiffness management
Two-stage open reduction and internal fixation versus limited internal fixation combined with external fixation: a meta-analysis of postoperative complications in patients with severe Pilon fractures	Cui, X.; Chen, H.; Rui, Y.; Niu, Y.; Li, H.	2018	fixation for closed fx
The fate of lower extremities with failed free flaps: a single institution's experience over 25 years	Culliford, A. T. th; Spector, J.; Blank, A.; Karp, N. S.; Kasabian, A.; Levine, J. P.	2007	No controlled comparisons; case series

Article Title	Authors	Year	Reason for Exclusion
30-day Readmissions and Reoperations after Total Elbow Arthroplasty: A National Database Study	Cutler, H. S.; Collett, G.; Farahani, F.; Ahn, J.; Nakonezny, P.; Koehler, D.; Khazzam, M.	2020	unclear fx cause
Use of a Mini-External Fixator for the Treatment of Hand Fractures	Dailiana, Z.; Agorastakis, D.; Varitimidis, S.; Bargiotas, K.; Roidis, N.; Malizos, K. N.	2009	patient population; fingers
A comparative study of intramedullary interlocking nailing and minimally invasive plate osteosynthesis in extra articular distal tibial fractures	Daolagupu, A. K.; Mudgal, A.; Agarwala, V.; Dutta, K. K.	2017	patient population; closed with internal fixation
Case-Match Controlled Comparison of Minimally Invasive Plate Osteosynthesis and Intramedullary Nailing for the Stabilization of Humeral Shaft Fractures	Davies, G.; Yeo, G.; Meta, M.; Miller, D.; Hohmann, E.; Tetsworth, K.	2016	Not first presentation of injury
A New Lateral Fixed Angle Locking Ankle Arthrodesis Plate: Technique and Rate of Union	Davies, M. B.; Blundell, C. M.	2017	irrelevant topic; arthritis tx
The care of pin sites with external fixation	Davies, R.; Holt, N.; Nayagam, S.	2005	Pin site infection
Gentamicin-Coated Tibia Nail in Fractures and Nonunion to Reduce Fracture-Related Infections: A Systematic Review	De Meo, D.; Cannari, F. M.; Petriello, L.; Persiani, P.; Villani, C.	2020	

Article Title	Authors	Year	Reason for Exclusion
Predictors of Patient-Reported Function and Pain Outcomes in Operative Ankle Fractures	Dean, D. M.; Ho, B. S.; Lin, A.; Fuchs, D.; Ochenjele, G.; Merk, B.; Kadakia, A. R.	2017	unclear fx cause; no outcomes of interest
The use of negative-pressure wound therapy (NPWT) in the temporary treatment of soft-tissue injuries associated with high-energy open tibial shaft fractures	Dedmond, B. T.; Kortesis, B.; Punger, K.; Simpson, J.; Argenta, J.; Kulp, B.; Morykwas, M.; Webb, L. X.	2007	case series
Long-term outcomes of total elbow arthroplasty for distal humeral fracture: results from a prior randomized clinical trial	Dehghan, N.; Furey, M.; Schemitsch, L.; Ristevski, B.; Goetz, T.; Schemitsch, E. H.; McKee, M.	2019	not target population; unknown if high energy
Duration of preventive antibiotic administration for open extremity fractures	Dellinger, E. P.; Caplan, E. S.; Weaver, L. D.; Wertz, M. J.; Droppert, B. M.; Hoyt, N.; Brumback, R.; Burgess, A.; Poka, A.; Benirschke, S. K.; et al.,	1988	Abx not available in US
Risk of infection after open fracture of the arm or leg	Dellinger, E. P.; Miller, S. D.; Wertz, M. J.; Grypma, M.; Droppert, B.; Anderson, P. A.	1988	very low quality

Article Title	Authors	Year	Reason for Exclusion
Comparison of free muscle and perforator skin flaps for soft tissue reconstruction of the foot and ankle	Demirtas, Y.; Neimetzade, T.; Kelahmetoglu, O.; Guneren, E.	2010	patient characteristic; not all trauma
Operative treatment of humeral shaft fractures. Comparison of plating and intramedullary nailing	Denies, E.; Nijs, S.; Sermon, A.; Broos, P.	2010	unclear fx cause
Discharging pin sites following K-wire fixation of distal radial fractures: a case for pin removal?	Desai, A.; Dramis, A.; Thompson, N.; Board, T.; Choudhary, A.	2009	irrelevant topic; early pin removal
Outcomes of Subfascial, Suprafascial, and Super-Thin Anterolateral Thigh Flaps: Tailoring Thickness without Added Morbidity	Diamond, S.; Seth, A. K.; Chattha, A. S.; Iorio, M. L.	2018	unclear population; does not specify if pts sustained fx
Risk factors for infection and amputation following open, combat-related calcaneal fractures	Dickens, J. F.; Kilcoyne, K. G.; Kluk, M. W.; Gordon, W. T.; Shawen, S. B.; Potter, B. K.	2013	very low quality
Risk factors for decreased range of motion and poor outcomes in open periarticular elbow fractures	Dickens, J. F.; Wilson, K. W.; Tintle, S. M.; Heckert, R.; Gordon, W. T.; D'Alleyrand, J. C. G.; Potter, B. K.	2015	no outcomes of interest
Efficacy of antibiotics in low-velocity gunshot fractures	Dickey, R. L.; Barnes, B. C.; Kearns, R. J.; Tullos, H. S.	1989	not target population; pts did not undergo surgical reduction

Article Title	Authors	Year	Reason for Exclusion
Unreamed rod with early wound closure for grade IIIA and IIIB open tibial fractures: analysis of 40 consecutive patients	Dickson, K. F.; Hoffman, W. Y.; Delgado, E. D.; Contreras, D. M.	1998	no comparison group
Outpatient management of low-velocity gunshot-induced fractures	Dickson, K.; Watson, T. S.; Haddad, C.; Jenne, J.; Harris, M.	2001	no comparison group
Open fractures of the tibia: Experience in a district hospital	Dinakar, B.; Khan, T.; Kumar, A.	2005	no comparison group
Risk factors for postoperative wound complications of calcaneal fractures following plate fixation	Ding, L.; He, Z.; Xiao, H.; Chai, L.; Xue, F.	2013	mixed population; includes 24% low energy fx
Predictors of nonunion and infectious complications in patients with posttraumatic Subtalar Arthrodesis	Dingemans, S. A.; Backes, M.; Goslings, J. C.; De Jong, V. M.; Luitse, J. S. K.; Schepers, T.	2016	not target population; revision surgery
Prophylactic negative pressure wound therapy after lower extremity fracture surgery: a pilot study	Dingemans, S. A.; Birnie, M. F. N.; Backes, M.; de Jong, V. M.; Luitse, J. S.; Goslings, J. S.; Schepers, T.	2018	fixation for closed fx
Two-stage treatment in patients with patients with high-energy femoral fractures does not lead to an increase in deep infectious complications: a propensity score analysis	Dingemans, S. A.; Sier, M. A. T.; Peters, R. W.; Goslings, J. C.; Schepers, T.	2018	mixed fracture

Article Title	Authors	Year	Reason for Exclusion
Predictors of Adverse Events for Ankle Fractures: An Analysis of 6800 Patients	Dodd, A. C.; Lakomkin, N.; Attum, B.; Bulka, C.; Karhade, A. V.; Douleh, D. G.; Mir, H.; Jahangir, A. A.; Obremskey, W. T.; Sethi, M. K.	2016	unclear fx cause
Increased risk of adverse events in management of femur and tibial shaft fractures with plating: An analysis of NSQIP data	Dodd, A. C.; Salib, C. G.; Lakomkin, N.; Obremskey, W. T.; Sethi, M. K.	2016	unclear fx cause
Is Definitive Plate Fixation Overlap with External Fixator Pin Sites a Risk Factor for Infection in Pilon Fractures?	Dombrowsky, A.; Abyar, E.; McGwin, G.; Johnson, M.	2020	irrelevant topic; plate pin overlap
Incidence of infection following internal fixation of open and closed tibia fractures in India (INFINITI): a multi-centre observational cohort study	Doshi, P.; Gopalan, H.; Sprague, S.; Pradhan, C.; Kulkarni, S.; Bhandari, M.	2017	very low quality
Early orthopedic intervention in burn patients with major fractures	Dossett, A. B.; Hunt, J. L.; Purdue, G. F.; Schlegel, J. D.	1991	patient population; includes fractures to face, head spine and pelvis
Arthroscopically assisted treatment for Schatzker type I-V tibial plateau fractures	Duan, X. J.; Yang, L.; Guo, L.; Chen, G. X.; Dai, G.	2008	more than 20% not high energy
Surgical site infection in tibial plateau fractures with ipsilateral compartment syndrome	Dubina, A. G.; Paryavi, E.; Manson, T. T.; Allmon, C.; O'Toole, R. V.	2017	not target population; unknown if high energy

Article Title	Authors	Year	Reason for Exclusion
Type C tibial pilon fractures: short- and long-term outcome following operative intervention	Duckworth, A. D.; Jefferies, J. G.; Clement, N. D.; White, T. O.	2016	not target population; fixation for closed fx
Open hand fractures: An analysis of the recovery of active motion and of complications	Duncan, R. W.; Freeland, A. E.; Jabaley, M. E.; Meydrech, E. F.	1993	not target population; fingers
Is locked compressive intramedullary nailing for adult humerus shaft fractures advantageous?	Duygun, F.; Aldemir, C.	2017	no outcomes of interest
Meta-analysis of re-operation, nonunion, and infection after open reduction and internal fixation of patella fractures	Dy, C. J.; Little, M. T.; Berkes, M. B.; Ma, Y.; Roberts, T. R.; Helfet, D. L.; Lorich, D. G.	2012	unclear fx cause
One-stage reconstruction of war wounds with free osteocutaneous flaps	Džepina, I.; Stanec, Z.; Škrbic, S.; Hulina, D.; Ivrlac, R.; Unušic, J.; Montani, D.	1997	Sample Size too Small (n < 10 per group)
Outcomes of closed reduction and periarticular pinning of base and shaft fractures of the proximal phalanx	Eberlin, K. R.; Babushkina, A.; Neira, J. R.; Mudgal, C. S.	2014	case series
Minimal Invasive Fixation Can Decrease Infection Rates in Diabetic and Obese Patients With Severe Ankle Fracture and Syndesmotic Injury	Ebraheim, N. A.; Dailey, M.; Huff, S.; Qu, Y.; White, E.; Liu, J.	2019	mixed population; includes non-fx and low-energy fx
Ankle fractures involving the fibula proximal to the distal tibiofibular syndesmosis	Ebraheim, N. A.; Mekhail, A. O.; Gargasz, S. S.	1997	unclear fx cause; only 74% are definitively high-energy

Article Title	Authors	Year	Reason for Exclusion
Severe open tibial fractures. Results treating 202 injuries with external fixation	Edwards, C. C.; Simmons, S. C.; Browner, B. D.; Weigel, M. C.	1988	no comparison group
Treatment of external fixation pins about the wrist: a prospective, randomized trial	Egol, K. A.; Paksima, N.; Puopolo, S.; Klugman, J.; Hiebert, R.; Koval, K. J.	2006	unclear fx cause
Staged management of high-energy proximal tibia fractures (OTA types 41): the results of a prospective, standardized protocol	Egol, K. A.; Tejwani, N. C.; Capla, E. L.; Wolinsky, P. L.; Koval, K. J.	2005	insufficient data for target comparison
PC-Fix and local infection resistance--influence of implant design on postoperative infection development, clinical and experimental results	Eijer, H.; Hauke, C.; Arens, S.; Printzen, G.; Schlegel, U.; Perren, S. M.	2001	case series
Comparative prospective study of early outcomes after osteosynthesis with locked intramedullary nailing or plating for closed femoral shaft fractures at the National Orthopaedic Hospital Enugu, Nigeria	Ekwunife, R. T.; Iyidobi, E. C.; Enweani, U. N.; Nwadinigwe, C. U.; Okwesili, C. I.; Ekwedigwe, H. C.; Obande, B. O.	2020	fixation for closed fx
Tibial plateau fracture management: arthroscopically-assisted versus ORIF procedure – clinical and radiological comparison	Elabjer, E.; Bencic, I.; Cuti, T.; Cerovecki, T.; Curic, S.; Vidovic, D.	2017	fixation for closed fx
Clinical outcome of conventional versus biological fixation of subtrochanteric fractures by proximal femoral locked plate	El-Desouky, I. I.; Mohamed, M. M.; Kandil, A. E.	2016	not target population; hip fx

Article Title	Authors	Year	Reason for Exclusion
The mangled foot and ankle: Results from a 2-year prospective study	Ellington, J. K.; Bosse, M. J.; Castillo, R. C.; MacKenzie, E. J.	2013	not target outcome; no SSI
What is the effect of smoking on postoperative outcomes after ankle-fracture surgery? A retrospective cohort study	Elmallah, R. D. K.; Sbravati, N.; Hendrix, S. T.; Greggory Tharp, J.; Bergin, P.	2021	mixed population; >50% low-energy
Strategies in evaluation and management of Bam earthquake victims	Emami, M. J.; Tavakoli, A. R.; Alemzadeh, H.; Abdinejad, F.; Shahcheraghi, G.; Erfani, M. A.; Mozafarian, K.; Solooki, S.; Rezazadeh, S.; Ensafdaran, A.; Nouraie, H.; Jaberi, F. M.; Sharifian, M.	2005	review
The effect of inferomedial screw on postoperative shoulder function and mechanical alignment in proximal humerus fractures	Erdogan, M.; Desteli, E. E.; Imren, Y.; Üztürk, A.; Kiliç, M.; Sezgin, H.	2014	not target population; shoulder fx
A systematic review and meta-analysis of functional outcomes and complications following external fixation or open reduction internal fixation for distal intra-articular tibial fractures: an update	Erichsen, J. L.; Andersen, P. I.; Viberg, B.; Jensen, C.; Damborg, F.; Froberg, L.	2019	

Article Title	Authors	Year	Reason for Exclusion
Salvage reverse total shoulder arthroplasty for failed operative treatment of proximal humeral fractures in patients younger than 60 years: long-term results	Ernstbrunner, L.; Rahm, S.; Suter, A.; Imam, M. A.; Catanzaro, S.; Grubhofer, F.; Gerber, C.	2020	irrelevant topic; failure tx
Prevention of infection following orthopedic surgery	Eron, L. J.	1985	
Survival analysis of the factors affecting in mortality in injured patients requiring dialysis due to acute renal failure during the Marmara earthquake: Survivors vs non-survivors	Ersoy, A.; Yavuz, M.; Usta, M.; Ercan, I.; Aslanhan, I.; Güllülü, M.; Kurt, E.; Emir, G.; Dilek, K.; Yurtkuran, M.	2003	mixed population; includes non-extremity surgery
Factors affecting results of patients with humeral proximal end fractures undergoing primary hemiarthroplasty: A retrospective study in 42 patients	Esen, E.; Dogramaci, Y.; Gültekin, S.; Deveci, M. A.; Suluova, F.; Kanatli, U.; Bölükbasi, S.	2009	not target population; shoulder surgery
A retrospective study of risk factors for poor outcomes in methicillin-resistant Staphylococcus aureus (MRSA) infection in surgical patients	Eseonu, K. C.; Middleton, S. D.; Eseonu, C. C.	2011	mixed population; 63% hip fx
Treatment of humeral shaft fractures: Minimally invasive plate osteosynthesis versus open reduction and internal fixation	Esmailiejah, A. A.; Abbasian, M. R.; Safdari, F.; Ashoori, K.	2015	mixed population; >20% low-energy

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Ilizarov external fixation versus plate osteosynthesis in the management of extra-articular fractures of the distal tibia	Fadel, M.; Ahmed, M. A.; Al-Dars, A. M.; Maabed, M. A.; Shawki, H.	2015	fixation for closed fx
The prevention of wound contamination by skin organisms by the pre-operative application of an iodophor impregnated plastic adhesive drape	Fairclough, J. A.; Johnson, D.; Mackie, I.	1986	not target population; hip fx
Comparison of 3 Minimally Invasive Methods for Distal Tibia Fractures	Fang, J. H.; Wu, Y. S.; Guo, X. S.; Sun, L. J.	2016	mixed population; >20% low-energy
“Open Fractures Infection! Bacteriological Study and Risk Factors	Fanjalalaina, Ralahy Malinirina	2018	very low quality
Operative Treatment and Soft Tissue Management of Open Distal Tibial Fractures - Pitfalls and Results	Faschingbauer, M.; Meiners, J.; Schulz, A. P.; Rudolf, K. D.; Kienast, B.	2009	no comparison group
Percutaneous reduction and fixation of intraarticular calcaneal fractures: A series with 2-year follow-up	Fathi, H.; Samir Fahmy, F.; Abd Elwahab, A.	2018	case series
Usefulness of prophylactic antibiotics in preventing infection after internal fixation of closed hand fractures	Feldman, G.; Orbach, H.; Rozen, N.; Rubin, G.	2021	mixed population; includes >20% finger fx

Article Title	Authors	Year	Reason for Exclusion
Comparison of percutaneous cannulated screw fixation and calcium sulfate cement grafting versus minimally invasive sinus tarsi approach and plate fixation for displaced intra-articular calcaneal fractures: A prospective randomized controlled trial	Feng, Y.; Shui, X.; Wang, J.; Cai, L.; Yu, Y.; Ying, X.; Kong, J.; Hong, J.	2016	fixation for closed fx
The PINS Trial: a prospective randomized clinical trial comparing a traditional versus an emollient skincare regimen for the care of pin-sites in patients with circular frames	Ferguson, D.; Harwood, P.; Allgar, V.; Roy, A.; Foster, P.; Taylor, M.; Moulder, E.; Sharma, H.	2021	not target population; unknown if high energy
The Microbiological Profiles of Infected Prosthetic Implants with an Emphasis on the Organisms which Form Biofilms	Fernandes, A.; Dias, M.	2013	not target population; PJI
Orthopaedic treatment in tibial diaphyseal fractures. Risk factors affecting union	Ferrandez, L.; Curto, J.; Sanchez, J.; Guiral, J.; Ramos, L.	1991	No factors of interest;
Outcomes of Staged Treatment for Complex Distal Radius Fractures	Ficke, B.; Ransom, E. F.; Hess, M. C.; Moon, A. S.; McKissack, H. M.; Shah, A.; Chaudhari, N.	2018	very low quality

Article Title	Authors	Year	Reason for Exclusion
The timing of flap coverage, bone-grafting, and intramedullary nailing in patients who have a fracture of the tibial shaft with extensive soft-tissue injury	Fischer, M. D.; Gustilo, R. B.; Varecka, T. F.	1991	no comparison group
Surgical Site Infection In Orthopaedic Surgery: Correlation Between Age, Diabetes, Smoke And Surgical Risk	Fisichella, L.; Fenga, D.; Rosa, M. A.	2014	mixed population; 62% fractures
Early wound complications of operative treatment of calcaneus fractures: analysis of 190 fractures	Folk, J. W.; Starr, A. J.; Early, J. S.	1999	unclear fx cause; 18 fx are open
Which Surgical Treatment for Open Tibial Shaft Fractures Results in the Fewest Reoperations? A Network Meta-analysis	Foote, C. J.; Guyatt, G. H.; Vignesh, K. N.; Mundi, R.; Chaudhry, H.; Heels-Ansdell, D.; Thabane, L.; Tornetta, P.; Bhandari, M.	2015	References Reviewed
A Reevaluation of the Risk of Infection Based on Time to Debridement in Open Fractures: Results of the GOLIATH Meta-Analysis of Observational Studies and Limited Trial Data	Foote, C. J.; Tornetta, P., 3rd; Reito, A.; Al-Hourani, K.; Schenker, M.; Bosse, M.; Coles, C. P.; Bozzo, A.; Furey, A.; Leighton, R.; Goliath Investigators	2021	

Article Title	Authors	Year	Reason for Exclusion
Do inflammatory markers portend heterotopic ossification and wound failure in combat wounds?	Forsberg, J. A.; Potter, B. K.; Polfer, E. M.; Safford, S. D.; Elster, E. A.	2014	mixed population; 21% soft-tissue injuries w/out fx
Stabilization of Olecranon Fractures by Tension Band Wiring or Plate Osteosynthesis: A Retrospective Study of 41 Cases	Fournet, A.; Boursier, J. F.; Corbeau, S.; Decambron, A.; Viateau, V.; Fayolle, P.; Bedu, A. S.; Leperlier, D.; Manassero, M.	2018	animal study
Popliteal artery repair in massively transfused military trauma casualties: a pursuit to save life and limb	Fox, C. J.; Perkins, J. G.; Kragh, J. F., Jr.; Singh, N. N.; Patel, B.; Ficke, J. R.	2010	Irrelevant Topic: limb salvage rates between wars
Factors affecting the outcome after proximal femoral fractures	Fox, H. J.; Pooler, J.; Prothero, D.; Bannister, G. C.	1994	not target population; hip fx
Multidose prophylactic IV antibiotics do not lower the risk of surgical site infection for isolated closed ankle fractures	Frank, M.; Francis, J.; Bender, M.; Roberts, M.; Watson, D.; Shah, A.; Maxson, B.; Infante, A.; Sanders, R.; Mir, H. R.	2019	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Factors influencing time to union of diaphyseal humeral fractures after plate fixation: A retrospective cohort study	Frantz, T. L.; Meschbach, N. T.; Niedermeier, S. R.; Pettit, R. J.; Plummer, D. R.; Harrison, R. K.	2019	unclear fx cause; mixed population: includes shoulder
Treatment of displaced intra-articular calcaneal fractures with combined transarticular external fixation and minimal internal fixation	Fu, T. H.; Liu, H. C.; Su, Y. S.; Wang, C. J.	2013	no comparison group
Healthcare resources attributable to methicillin-resistant Staphylococcus aureus orthopedic surgical site infections	Fukuda, H.; Sato, D.; Iwamoto, T.; Yamada, K.; Matsushita, K.	2020	mixed population; includes non-fx
Reamed versus minimally reamed nailing: a prospectively randomised study of 100 patients with closed fractures of the tibia	Gaebler, C.; McQueen, M. M.; Vecsei, V.; Court-Brown, C. M.	2011	mixed population; major low energy fx
Hybrid external fixation in the treatment of tibial pilon fractures: A retrospective analysis of 162 fractures	Galante, V. N.; Vicenti, G.; Corina, G.; Mori, C.; Abate, A.; Picca, G.; Conserva, V.; Speciale, D.; Scialpi, L.; Tartaglia, N.; Caiaffa, V.; Moretti, B.	2016	irrelevant comparison; fx type

Article Title	Authors	Year	Reason for Exclusion
The economic burden of infections following intramedullary nailing for a tibial shaft fracture in England	Galvain, T.; Chitnis, A.; Paparouni, K.; Tong, C.; Holy, C. E.; Giannoudis, P. V.	2020	fixation for closed fx
A comparative study of long third-generation gamma nail and long proximal femoral nail antirotation in the treatment of subtrochanteric femoral fracture	Gao, M.; Zhu, R.; Shi, W.; Yang, H.	2017	not target population; hip fx
Timing for Surgical Stabilization with K-wires after Open Fractures of Proximal and Middle Phalangeal Shaft	Gao, Y.; Wang, Q.; Zhu, H.; Xu, Z.	2017	not target population; finger fx
Prophylaxis against infection. Single-dose cefonicid compared with multiple-dose cefamandole	Garcia, S.; Lozano, M. L.; Gatell, J. M.; Soriano, E.; Ramon, R.; Sanmiguel, J. G.	1991	not target population; hip fx
Secondary soft tissue compromise in tongue-type calcaneus fractures	Gardner, M. J.; Nork, S. E.; Barei, D. P.; Kramer, P. A.; Sangeorzan, B. J.; Benirschke, S. K.	2008	Doesn't address question of interest;
Comparative prospective study between medial and lateral distal tibial locking compression plates for distal third tibial fractures	Garg, S.; Khanna, V.; Goyal, M. P.; Joshi, N.; Borade, A.; Ghuse, I.	2017	fixation for closed fx
The management of tibial fractures in acute spinal cord injury patients	Garland, D. E.; Saucedo, T.; Reiser, T. V.	1986	fixation for closed fx (closed), <10 pts per group (open)

Article Title	Authors	Year	Reason for Exclusion
Soft tissue management in open tibial shaft fractures: A comparison of institutional preferences and resultant early clinical outcomes	Garner, M. R.; Warner, S. J.; Heiner, J. A.; Kim, Y. T.; Agel, J.	2020	<10 pts per group (open and closed fx)
Perioperative cefamandole prophylaxis against infections	Gatell, J. M.; Garcia, S.; Lozano, L.; Soriano, E.; Ramon, R.; SanMiguel, J. G.	1987	mixed population; includes hip fx
Wound complications after open reduction and internal fixation of tibial plateau fractures in the elderly: a multicentre study	Gaunder, C. L.; Zhao, Z.; Henderson, C.; McKinney, B. R.; Stahel, P. F.; Zelle, B. A.	2019	very low quality
Open tibial fractures with severe soft-tissue loss. Limb salvage compared with below-the-knee amputation	Georgiadis, G. M.; Behrens, F. F.; Joyce, M. J.; Earle, A. S.; Simmons, A. L.	1993	insufficient data for target outcomes
MRSA colonisation in patients with proximal femur fractures in a German trauma centre: incidence, infection rates and outcomes	Gessmann, J.; Kammler, J.; Schildhauer, T. A.; Kaminski, A.	2012	not target population; hip fx
Current Trends in the Management of Ballistic Fractures of the Hand and Wrist: Experiences of a High-Volume Level I Trauma Center	Ghareeb, P. A.; Daly, C.; Liao, A.; Payne, D.	2018	no comparison group
Evidence based update: open versus closed reduction	Ghayoumi, P.; Kandemir, U.; Morshed, S.	2015	not target population; hip fx

Article Title	Authors	Year	Reason for Exclusion
Nonunion of the femoral diaphysis. The influence of reaming and non-steroidal anti-inflammatory drugs	Giannoudis, P. V.; MacDonald, D. A.; Matthews, S. J.; Smith, R. M.; Furlong, A. J.; De Boer, P.	2000	Doesn't address question of interest;
Early Conversion of External Fixation to Interlocked Nailing in Open Fractures of Both Bone Leg Assisted with Vacuum Closure (VAC) - Final Outcome	Gill, S. P.; Raj, M.; Kumar, S.; Singh, P.; Kumar, D.; Singh, J.; Deep, A.	2016	no comparison group
Antibiotic prophylaxis for surgery for proximal femoral and other closed long bone fractures	Gillespie, W. J.; Walenkamp, G.	2001	Repeat of 711
Antibiotic prophylaxis for surgery for proximal femoral and other closed long bone fractures	Gillespie, W. J.; Walenkamp, G. H.	2010	
Outcome evaluation of staged treatment for bicondylar tibial plateau fractures	Giordano, V.; do Amaral, N. P.; Koch, H. A.; E. Albuquerque RP; de Souza, F. S.; Dos Santos Neto, J. F.	2017	no comparison group
Does concurrent tibial intramedullary nailing and fibular fixation increase rates of tibial nonunion? A matched cohort study	Githens, M.; Haller, J.; Agel, J.; Firoozabadi, R.	2017	no comparison group
Association between trauma quality indicators and outcomes for injured patients	Glance, L. G.; Dick, A. W.; Mukamel, D. B.; Osler, T. M.	2012	mixed population; all traumas are included not limited to just ortho

Article Title	Authors	Year	Reason for Exclusion
The microbiological basis for a revised antibiotic regimen in high-energy tibial fractures: preventing deep infections by nosocomial organisms	Glass, G. E.; Barrett, S. P.; Sanderson, F.; Pearse, M. F.; Nanchahal, J.	2011	<10 pts per group
Early Definitive Fracture Fixation is Safely Performed in the Presence of an Open Abdomen in Multiply Injured Patients	Glass, N. E.; Burlew, C. C.; Hahnhaussen, J.; Weckbach, S.; Pieracci, F. M.; Moore, E. E.; Stahel, P. F.	2017	irrelevant comparison; fixation prior or after abdominal wall closure
Factors associated with infection following open distal radius fractures	Glueck, D. A.; Charoglu, C. P.; Lawton, J. N.	2009	very low quality
Evaluation of long-term quality of life using the foot and ankle outcome score (FAOS) questionnaire in patients treated by minimally invasive reduction and percutaneous stabilization of intra-articular calcaneal fractures	Golec, P.; Golec, J.	2020	irrelevant comparison; fx type
Results of open tibial fracture treatment using external fixation	Golubovic, I.; Ristic, B.; Stojiljkovic, P.; Ciric, M.; Golubovic, I.; Radovanovic, Z.; Petrovic, S.; Djordjevic, N.; Golubovic, Z.; Najman, S.	2016	no comparison group
Low-velocity gunshot wounds of the proximal phalanx: treatment by early stable fixation	Gonzalez, M. H.; Hall, M.; Hall, R. F., Jr.	1998	not target population; finger fx

Article Title	Authors	Year	Reason for Exclusion
Low-velocity gunshot wounds of the metacarpal: treatment by early stable fixation and bone grafting	Gonzalez, M. H.; McKay, W.; Hall, R. F., Jr.	1993	case series
Fix and flap: the radical orthopaedic and plastic treatment of severe open fractures of the tibia	Gopal, S.; Majumder, S.; Batchelor, A. G.; Knight, S. L.; De Boer, P.; Smith, R. M.	2000	very low quality
Diabetes and Healing Outcomes in Lower Extremity Fractures: A Systematic Review	Gortler, H.; Rusyn, J.; Godbout, C.; Chahal, J.; Schemitsch, E. H.; Nauth, A.	2018	
Clinical experience of patellar fracture fixation using metal wire or non-absorbable polyester--a study of 37 cases	Gosal, H. S.; Singh, P.; Field, R. E.	2001	mixed population; major low energy fx
Antibiotics for preventing infection in open limb fractures	Gosselin, R. A.; Roberts, I.; Gillespie, W. J.	2004	
Volar locking plate fixation versus external fixation of distal radius fractures: a meta-analysis	Gouk, C. J. C.; Bindra, R. R.; Tarrant, D. J.; Thomas, M. J. E.	2018	
Longer Operative Time Is Independently Associated With Surgical Site Infection and Wound Dehiscence Following Open Reduction and Internal Fixation of the Ankle	Gowd, A. K.; Bohl, D. D.; Hamid, K. S.; Lee, S.; Holmes, G. B.; Lin, J.	2020	not factor of interest; operation length

Article Title	Authors	Year	Reason for Exclusion
Implant-related sepsis in lower limb fractures following gunshot injuries in the civilian population: A systematic review	Graham, S. M.; Wijesekera, M. P.; Laubscher, M.; Maqungo, S.; Held, M.; Ferreira, N.; Harrison, W. J.	2019	
The Use of Percutaneous Screw Fixation Without Fracture Site Preparation in the Treatment of Fifth Metatarsal Base Nonunion	Grant, M. J.; Molloy, A. P.; Mason, L. W.	2020	irrelevant topic; non-union tx
Is obesity protective against wound healing complications in pilon surgery? Soft tissue envelope and pilon fractures in the obese	Graves, M. L.; Porter, S. E.; Fagan, B. C.; Brien, G. A.; Lewis, M. W.; Biggers, M. D.; Woodall, J. R.; Russell, G. V.	2010	Doesn't address question of interest;
Treatment options for unstable ankle fractures in older adults: A systematic review and meta-analysis	Grazette, A.; Wigley, C.; Metcalfe, A.	2020	not target population; no high-energy fx
Early complications in the management of open femur fractures: a retrospective study	Green, A.; Trafton, P. G.	1991	Sample Size too Small (n < 10 per group)
Closed reduction intermetacarpal Kirschner wire fixation in the treatment of unstable fractures of the base of the first metacarpal	Greeven, A. P. A.; Alta, T. D. W.; Scholtens, R. E. M.; De Heer, P.; Van Der Linden, F. M.	2012	case series

Article Title	Authors	Year	Reason for Exclusion
Open reduction and internal fixation of tibial pilon fractures using a lateral approach	Grose, A.; Gardner, M. J.; Hettrich, C.; Fishman, F.; Lorich, D. G.; Asprinio, D. E.; Helfet, D. L.	2007	case series
Risk factors and failures in the management of limb injuries in combat casualties	Grosset, A.; Pfister, G.; de l'Escalopier, N.; Plang, S.; Russo, A. P.; Murison, J. C.; Mathieu, L.; Rigal, S.	2019	very low quality
Limb loss following lower extremity arterial trauma: what can be done proactively?	Guerrero, A.; Gibson, K.; Kralovich, K. A.; Pipinos, I.; Agnostopolous, P.; Carter, Y.; Bulger, E.; Meissner, M.; Karmy-Jones, R.	2002	mixed population; 51.5% fx
A comparison of the functional and radiological results of Paris plaster cast and ulnar gutter splint in the conservative treatment of fractures of the fifth metacarpal	Gulabi, D.; Avci, C. C.; Cecen, G. S.; Bekler, H. I.; Saglam, F.; Merih, E.	2014	not target population; non-surgical pts
Surgical treatment of distal tibia fractures: open versus MIPO	Gulabi, D.; Bekler, H. I.; Saglam, F.; Tasdemir, Z.; Cecen, G. S.; Elmali, N.	2016	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Comparing intramedullary nailing and plate fixation for treating distal tibail fractures: A meta-analysis of randomized controlled trials	Guo, C.; Ma, J.; Ma, X.; Wang, Y.; Sun, L.; Lu, B.; Tian, A.; Wang, Y.; Dong, B.	2018	mixed fx population
The modified Palmer lateral approach for calcaneal fractures: wound healing and postoperative computed tomographic evaluation of fracture reduction	Gupta, A.; Ghalambor, N.; Nihal, A.; Trepman, E.	2003	no comparison group
Free tissue transfer to the traumatized upper extremity: Risk factors for postoperative complications in 282 cases	Gupta, A.; Lakhiani, C.; Lim, B. H.; Aho, J. M.; Goodwin, A.; Tregaskiss, A.; Lee, M.; Scheker, L.; Saint-Cyr, M.	2015	mixed population; only 60% fx
The timing of ankle fracture surgery and its effect on complications and hostpital stay- A prospective study in a tertiary centre	Gupta, S.; Singh, O.; ud din Darokhan, M. A.; Sen, A.; Charak, S. S.	2018	mixed population; 28% low-energy fx
Complications Following Operatively Treated Ankle Fractures in Insulin- and Non-Insulin-Dependent Diabetic Patients	Haddix, K. P.; Clement, R. C., 3rd; Tennant, J. N.; Ostrum, R. F.	2018	unclear fx cause
Does external fixator pin site distance from definitive implant affect infection rate in pilon fractures?	Hadeed, M. M.; Evans, C. L.; Werner, B. C.; Novicoff, W. M.; Weiss, D. B.	2019	irrelevant topic; pin site distance
Ways to prevent infection after open fracture of the lower limb	Haider, M. G.	2013	No controlled comparisons; case series

Article Title	Authors	Year	Reason for Exclusion
Influence of prior fasciotomy on infection after open reduction and internal fixation of tibial plateau fractures	Hak, D. J.; Lee, M.; Gotham, D. R.	2010	Irrelevant Topic: Fasciotomy Wounds
Age and dressing type as independent predictors of post-operative infection in patients with acute compartment syndrome of the lower leg	Hake, M. E.; Etscheidt, J.; Chadayammuri, V. P.; Kirsch, J. M.; Mauffrey, C.	2017	mixed fracture
Open reduction and internal fixation compared with circular fixator application for bicondylar tibial plateau fractures. Surgical technique	Hall, J. A.; Beuerlein, M. J.; McKee, M. D.; Canadian Orthopaedic Trauma, Society	2009	fixation for closed fx
Does Provisional Plating of Closed Tibia Fractures Have Higher Complication Rates?	Haller, J. M.; Githens, M.; Scolaro, J.; Firoozabadi, R.	2017	irrelevant topic; reduction techniques
Does Early versus Delayed Spanning External Fixation Impact Complication Rates for High-energy Tibial Plateau and Plafond Fractures?	Haller, J. M.; Holt, D.; Rothberg, D. L.; Kubiak, E. N.; Higgins, T. F.	2016	irrelevant topic; timing of closed fx fixation
Infections after intramedullary fixation of trochanteric fractures are uncommon and implant removal is not usually needed	Halonen, L. M.; Stenroos, A.; Vasara, H.; Huotari, K.; Kosola, J.	2020	not target population; hip fx
Expanding the utility of modified vascularized femoral periosteal bone-flaps: An analysis of its form and a comparison with a conventional-bone-graft	Hamada, Y.; Hibino, N.; Kobayashi, A.	2014	irrelevant topic; bone grafting

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Soft tissue infection after missile injuries to the extremities--a non-randomized, prospective study in Gaza City	Hamouda, H. M.; Witso, E.; Moghani, N. K.; Shahwan, A.; Nygaard, O. P.	2007	case series
Bone grafts and bone substitutes for treating distal radial fractures in adults	Handoll, H. H. G.; Watts, A. C.	2008	unclear fx cause
The functional outcome and quality of life after treatment of isolated medial malleolar fractures	Hanhisuanto, S.; Kortekangas, T.; Pakarinen, H.; Flinkkilä, T.; Leskelä, H. V.	2017	irrelevant comparison; surgery vs non-surgical treatment
Efficacy of ceftriaxone versus cefazolin in the prophylactic management of extra-articular cortical violation of bone due to low-velocity gunshot wounds	Hansraj, K. K.; Weaver, L. D.; Todd, A. O.; Taylor, S. M.; Griffin, M. D.; Dukhram, K. M.; Judd, T. P.; Hansraj, M. S.	1995	no surgery
Application of a Ni-Ti arched shape-memory connector in unstable lateral malleolus fractures: A retrospective study	Hao, Z. C.; Xia, Y.; Wu, J. H.; Zhang, Y. T.; Xu, S. G.	2019	fixation for closed fx
Can applied external fixators be sterilized for surgery? A prospective cohort study of orthopaedic trauma patients	Hardeski, D.; Gaski, G.; Joshi, M.; Venezia, R.; Nascone, J. W.; Sciadini, M. F.; O'Toole, R. V.	2016	mixed population; includes second presentation of injury; no controlled comparisons
Kirschner wire pin tract infection rates: a randomized controlled trial between percutaneous and buried wires	Hargreaves, D. G.; Drew, S. J.; Eckersley, R.	2004	irrelevant comparison; buried vs above skin wires

Article Title	Authors	Year	Reason for Exclusion
The role of biofilm formation in percutaneous Kirschner-wire fixation of radial fractures	Hargreaves, D. G.; Pajkos, A.; Deva, A. K.; Vickery, K.; Filan, S. L.; Tonkin, M. A.	2002	patients in group two have current infection
Early outcome of culture-negative infection in open fractures of the lower limb: A prospective study	Hariharan, T. D.; Joseph, C. M.; Samuel, S.; Elangovan, D.; Livingston, A.; Ramasamy, B.; Nithyananth, M.; Jepegnanam, T.	2019	no comparison group
Administration of intravenous antibiotics in patients with open fractures is dependent on emergency room triaging	Harper, K. D.; Quinn, C.; Eccles, J.; Ramsey, F.; Rehman, S.	2018	mixed population; includes pelvic fx
Results and outcomes after operative treatment of high-energy tibial plafond fractures	Harris, A. M.; Patterson, B. M.; Sontich, J. K.; Vallier, H. A.	2006	fixation for closed fx
Reoperation rate in diaphyseal tibia fractures	Harris, I.; Lyons, M.	2005	mixed population; 43% low energy fx
The risk of local infective complications after damage control procedures for femoral shaft fracture	Harwood, P. J.; Giannoudis, P. V.; Probst, C.; Krettek, C.; Pape, H. C.	2006	No factors of interest;
External fixation and infection of soft tissues close to fracture localization	Has, B.; Nagy, A.; Pavic, R.; Splavski, B.; Kristek, J.; Vidovic, D.	2006	fixation for closed fx
A new nail with a locking blade for complex proximal humeral fractures	Hashmi, F. R.; Mayr, E.	2016	not target population; shoulder surgery

Article Title	Authors	Year	Reason for Exclusion
The operative treatment of complex pilon fractures: A strategy of soft tissue control	He, X.; Hu, Y.; Ye, P.; Huang, L.; Zhang, F.; Ruan, Y.	2013	case series
Open fractures of the calcaneus: soft-tissue injury determines outcome	Heier, K. A.; Infante, A. F.; Walling, A. K.; Sanders, R. W.	2003	no comparison group
Plate fixation or intramedullary fixation of humeral shaft fractures: An updated meta-analysis	Heineman, D. J.; Poolman, R. W.; Nork Sean, S. E.; Ponsen, K. J.; Bhandari, M.	2010	unclear fx cause
Open tibial fractures treated with the Ex-fi-re external fixation system	Helland, P.; Boe, A.; Molster, A. O.; Solheim, E.; Hordvik, M.	1996	no comparison group
Infection following fractures of the proximal tibia - a systematic review of incidence and outcome	Henkelmann, R.; Frosch, K. H.; Glaab, R.; Lill, H.; Schoepp, C.; Seybold, D.; Josten, C.; Hepp, P.; Committee, Trauma of the A. G. A. Society for Arthroscopy; Joint, Surgery	2017	References Reviewed
Risk factors for deep surgical site infection in patients with operatively treated tibial plateau fractures: A retrospective multicenter study	Henkelmann, R.; Frosch, K. H.; Mende, M.; Gensior, T. J.; Ull, C.; Braun, P. J.; Katthagen, C.; Glaab, R.; Hepp, P.	2020	insufficient data for target factors

Article Title	Authors	Year	Reason for Exclusion
Effect of fracturoscopy on the incidence of surgical site infections post tibial plateau fracture surgery	Henkelmann, R.; Krause, M.; Alm, L.; Glaab, R.; Mende, M.; Ull, C.; Braun, P. J.; Katthagen, C.; Gensior, T. J.; Frosch, K. H.; Hepp, P.	2020	irrelevant topic; fracturoscopy
The prophylactic use of antibiotic impregnated beads in open fractures	Henry, S. L.; Ostermann, P. A.; Seligson, D.	1990	No controlled comparisons
Outcomes of Type I Open Distal Radius Fractures: A Comparison of Delayed and Urgent Open Reduction Internal Fixation	Henry, T. W.; Matzon, J. L.; McEntee, R. M.; Lutsky, K. F.	2020	<10 pts per group
Calcaneal fracture fixation using a new interlocking nail reduces complications compared to standard locking plates – Preliminary results after 1.6 years	Herlyn, A.; Brakelmann, A.; Herlyn, P. K.; Gradl, G.; Mittlmeier, T.	2019	fixation for closed fx
Is there an association between comorbidities and the outcome of microvascular free tissue transfer?	Herold, C.; Gohritz, A.; Meyer-Marcotty, M.; Steiert, A.; Jokuszies, A.; Vaske, B.; Vogt, P. M.	2011	unclear population; does not specifically state how many pts have fx
Vacuum-assisted wound closure (VAC therapy) for the management of patients with high-energy soft tissue injuries	Herscovici, D., Jr.; Sanders, R. W.; Scaduto, J. M.; Infante, A.; DiPasquale, T.	2003	No comparison group
Acute management of high-energy lisfranc injuries: A simple approach	Herscovici, D., Jr.; Scaduto, J. M.	2018	case series

Article Title	Authors	Year	Reason for Exclusion
Ballistic fractures during the 2003 Gulf conflict--early prognosis and high complication rate	Hinsley, D. E.; Phillips, S. L.; Clasper, J. S.	2006	irrelevant comparison; fx type and injury cause
Open reduction and internal fixation of acute intra-articular displaced calcaneal fractures: a retrospective analysis of surgical timing and infection rates	Ho, C. J.; Huang, H. T.; Chen, C. H.; Chen, J. C.; Cheng, Y. M.; Huang, P. J.	2013	fixation for closed fx
Does temporary external fixation and staged protocol for closed fractures lead to bacterial contamination of the surgical site and associated complications? – A prospective trial	Hodel, S.; Koller, T.; Link, B. C.; Rossi, M.; Babst, R.; Beeres, F. J. P.	2018	<10 pts per group
Observations concerning different patterns of bone healing using the Point Contact Fixator (PC-Fix) as a new technique for fracture fixation	Hofer, H. P.; Wildburger, R.; Szyszkowitz, R.	2001	irrelevant topic; reduction techniques
Soft tissue problems in ankle fractures treated surgically. A prospective study of 154 consecutive closed ankle fractures	Höiness, P.; Engebretsen, L.; Strömsöe, K.	2003	very low quality
Early complications of surgically managed ankle fractures related to the AO classification.A review of 118 ankle fractures treated with open reduction and internal fixation	Hoiness, P.; Stromsoe, K.	1999	irrelevant comparison; fx type

Article Title	Authors	Year	Reason for Exclusion
The influence of the timing of surgery on soft tissue complications and hospital stay. A review of 84 closed ankle fractures	Hoiness, P.; Stromsoe, K.	2000	mixed population; >50% low-energy
Immediate internal fixation of open ankle fractures	Hong-Chuan, W.; Shi-Lian, K.; Heng-Sheng, S.; Gui-Gen, P.; Ya-Fei, Z.	2010	case series
Evaluation of the effectiveness of the angular stable locking system in patients with distal tibial fractures treated with intramedullary nailing: A multicenter randomized controlled trial	Höntzsch, D.; Schaser, K. D.; Hofmann, G. O.; Pohlemann, T.; Hem, E. S.; Rothenbach, E.; Krettek, C.; Attal, R.	2014	fixation for closed fx
A prospective randomized controlled study of fixation of long oblique and spiral shaft fractures of the proximal phalanx: Closed reduction and percutaneous Kirschner wiring versus open reduction and lag screw fixation	Horton, T. C.; Hatton, M.; Davis, T. R. C.	2003	fixation for closed fx
Severity of upper-limb panga injuries and infection rates associated with early v. late tendon repair	Howard, N.; Holmes, W. J.; Price, C. E.; Rollinson, P.	2014	Irrelevant Topic: Tendon Repair
Early fixation failure of locked plating in complex distal femoral fractures: Root causes analysis	Hsu, C. L.; Yang, J. J.; Yeh, T. T.; Shen, H. C.; Pan, R. Y.; Wu, C. C.	2021	mixed population; 31.8% low-energy fx

Article Title	Authors	Year	Reason for Exclusion
Open reduction and internal fixation of Gustilo type-I and type-II open pilon fractures using a lateral approach	Hu, C.; Zhu, W.; Chahal, K.; Zhu, N.; Fang, W.; Jing, J.; Zhan, J.	2019	no comparison group
Effects of sensory nerve anterolateral femoral lateral flaps in the treatment of open fractures with soft tissue defects	Hu, R.; Ren, Y.; Yan, L.; Ding, F.; Chen, X.; Cheng, K.; Liao, S.	2019	Workgroup exclusion
Arthroscopic suture fixation of tibial eminence avulsion fractures	Huang, T. W.; Hsu, K. Y.; Cheng, C. Y.; Chen, L. H.; Wang, C. J.; Chan, Y. S.; Chen, W. J.	2008	no comparison group
Teicoplanin in open fractures: a preliminary report	Hughes, S. P.; Strachan, E.; Miles, R.; Williams, A. H.	1992	insufficient data for target outcomes
Infectious complications and soft tissue injury contribute to late amputation after severe lower extremity trauma	Huh, J.; Stinner, D. J.; Burns, T. C.; Hsu, J. R.; Late Amputation Study, Team	2011	not target population; amputation
Local antimicrobial administration for prophylaxis of surgical site infections	Huiras, P.; Logan, J. K.; Papadopoulos, S.; Whitney, D.	2012	
Posttraumatic arthrodesis of the subtalar joint - outcome in workers compensation and rates of non-union	Hungerer, S.; Trapp, O.; Augat, P.; Bühren, V.	2011	irrelevant comparison; primary vs secondary arthrodesis

Article Title	Authors	Year	Reason for Exclusion
Impact of postdischarge surveillance on the rate of surgical site infection after orthopedic surgery	Huotari, K.; Lyytikainen, O.; Hospital Infection Surveillance, Team	2006	mixed population; majority hip and knee replacement
Pins and plaster vs external fixation in the treatment of unstable distal radial fractures - A randomized prospective study	Hutchinson, D. T.; Strenz, G. O.; Cautilli, R. A.	1995	fixation for closed fx
Management of patients with traumatic rupture of the diaphragm	Hwang, S. W.; Kim, H. Y.; Byun, J. H.	2011	not target population; diaphragm rupture
Determinants of management outcome in open tibia fractures in Ile-Ife	Ikem, I. C.; Oginni, L. M.; Ogunlusi, J. D.	2006	very low quality
Treatment of distal tibia metaphyseal fractures; plating versus intramedullary nailing: a systematic review of recent evidence	Iqbal, H. J.; Pidikiti, P.	2013	fixation for closed fx
Antibiotic Prophylaxis in Adults With Open Tibial Fractures: What Is the Evidence for Duration of Administration? A Systematic Review	Isaac, S. M.; Woods, A.; Danial, I. N.; Mourkus, H.	2016	References Reviewed
The effect of cigarette smoking on hindfoot fusions	Ishikawa, S. N.; Murphy, G. A.; Richardson, E. G.	2002	mixed population; includes several non-fx causes
Comparison of two techniques of interlocking intramedullary nailing in fractures of Tibia	Jafree, S. B. H.; Hamid, A.; Saeed, R.; Ali, N.	2013	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
The use of adjuvant local antibiotic hydroxyapatite bio-composite in the management of open Gustilo Anderson type IIIB fractures. A prospective review	Jahangir, N.; Niazi, N.; Aljawadi, A.; Reid, A.; Wong, J.; Drampalos, E.; Pillai, A.	2019	case series
Delayed amputation following trauma increases residual lower limb infection	Jain, A.; Glass, G. E.; Ahmadi, H.; Mackey, S.; Simmons, J.; Hettiaratchy, S.; Pearse, M.; Nanchahal, J.	2013	no comparison group
Functional outcome of open distal femoral fractures managed with lateral locking plates	Jain, D.; Arora, R.; Garg, R.; Mahindra, P.; Selhi, H. S.	2020	case series
Soft tissue complications in distal tibial fractures managed with medial locking plates: A myth or reality?	Jain, D.; Selhi, H. S.; Yamin, M.; Mahindra, P.	2017	no comparison group
Intramedullary fixation of distal fibular fractures: a systematic review of clinical and functional outcomes	Jain, S.; Haughton, B. A.; Brew, C.	2014	unclear fx cause
Medium-term results after complex intra-articular fractures of the tibial plateau	Jansen, H.; Frey, S. P.; Doht, S.; Fehske, K.; Meffert, R. H.	2013	case series
Long term results of Philos plating and percutaneous K-wire fixation in proximal Humerus fractures in the elderly	Jaura, G. S.; Sikdar, J.; Singh, S.	2014	not target population; shoulder surgery

Article Title	Authors	Year	Reason for Exclusion
Effect of early versus delayed wound closure on union time of gustilo III-A tibial shaft fractures	Jhatiyal, R. A.; Tunio, Z.; Shah, N.; Ahmed, T.; Khaskheli, J. H.; Ahmed, G. S.	2020	not target outcome; no SSI
Calcaneus traction compression with orthopaedic reduction forceps combined with percutaneous minimally invasive treatment of intra-articular calcaneal fractures: An analysis of efficacy	Jianchuan, W.; Song, Q.; Tienan, W.; Zongpu, W.; Chongjun, X.; Dewei, Z.	2020	fixation for closed fx
Risk factors for complications following open reduction internal fixation of distal radius fractures	Jiang, J. J.; Phillips, C. S.; Levitz, S. P.; Benson, L. S.	2014	unclear fx cause
A comparative study of Less Invasive Stabilization System (LISS) fixation and two-incision double plating for the treatment of bicondylar tibial plateau fractures	Jiang, R.; Luo, C. F.; Wang, M. C.; Yang, T. Y.; Zeng, B. F.	2008	mixed population; 64% high-energy
Concurrent internal fixation and soft tissue reconstruction by distally based sural flap: a practicable scheme for complex distal tibial fractures	Jitprapaikulsarn, S.; Sukha, K.; Patamamongkonchai, C.; Gromprasit, A.; Thremthakanpon, W.	2021	<20 total pts
The effect of care bundle development on surgical site infection after hemiarthroplasty: an 8-year review	Johnson, B.; Starks, I.; Bancroft, G.; Roberts, P. J.	2012	not target population; hip surgery

Article Title	Authors	Year	Reason for Exclusion
Infectious complications of open type III tibial fractures among combat casualties	Johnson, E. N.; Burns, T. C.; Hayda, R. A.; Hospenthal, D. R.; Murray, C. K.	2007	no comparison group
Ankle fractures in patients with diabetes mellitus	Jones, K. B.; Maiers-Yelden, K. A.; Marsh, J. L.; Zimmerman, M. B.; Estin, M.; Saltzman, C. L.	2005	not target population; low-energy fx
Single-dose cephalosporin prophylaxis of 929 surgical procedures in a prepaid group practice: a prospective, randomized comparison of cefoperazone and cefotaxime	Jones, R. N.; Wojeski, W. V.	1987	mixed population; includes non-ortho surgeries
Cephalosporins for prophylaxis in operative repair of femoral fractures. Levels in serum, muscle, and hematoma	Jones, S.; DiPiro, J. T.; Nix, D. E.; Bhatti, N. A.	1985	<20 target population;
Outcome of application of primary versus secondary Illizarov's fixator in open tibial shaft fractures	Joshi, A.; Singh, S.; Jain, S.; Rohilla, N.; Trikha, V.; Yadav, C.	2016	No controlled comparisons; case series
The challenge of Monteggia-like lesions of the elbow: Mid-term results of 46 cases	Jungbluth, P.; Tanner, S.; Schneppendahl, J.; Grassmann, J. P.; Wild, M.; Hakimi, M.; Windolf, J.; Laun, R.	2018	case series

Article Title	Authors	Year	Reason for Exclusion
Large variations in the practice patterns of surgical antiseptic preparation solutions in patients with open and closed extremity fractures: a cross-sectional survey	Jurado-Ruiz, M.; Slobogean, G. P.; Bzovsky, S.; Garibaldi, A.; O'Hara, N. N.; Howe, A.; Petrisor, B.; Sprague, S.	2018	irrelevant topic; surgeon survey
Anchor suture fixation of distal pole fractures of patella: twenty seven cases and comparison to partial patellectomy	Kadar, A.; Sherman, H.; Drexler, M.; Katz, E.; Steinberg, E. L.	2016	not target population; unknown if high energy
Predictors for nonunion, reoperation and infection after surgical fixation of patellar fracture	Kadar, A.; Sherman, H.; Glazer, Y.; Katz, E.; Steinberg, E. L.	2015	unclear fx cause
Problems of various fixation methods for open tibia fractures: experience in a Japanese level I trauma center	Kai, H.; Yokoyama, K.; Shindo, M.; Itoman, M.	1998	unclear tx; tx times are not defined for any group
Pattern of bony injuries among civilian gunshot victims at tertiary care hospital in Karachi, Pakistan	Kaim Khani, G. M.; Humail, S. M.; Hafeez, K.; Ahmed, N.	2015	No factors of interest;
Wound closure of leg fasciotomy: comparison of vacuum-assisted closure versus shoelace technique. A randomised study	Kakagia, D.; Karadimas, E. J.; Drosos, G.; Ververidis, A.; Trypsiannis, G.; Verettas, D.	2014	Irrelevant Topic: Fasciotomy Wounds
Early Differential Value of Plasma Presepsin on Infection of Trauma Patients	Kang, J.; Gong, P.; Zhang, X. D.; Wang, W. J.; Li, C. S.	2019	irrelevant topic; biomarkers

Article Title	Authors	Year	Reason for Exclusion
Closure of Persistent, Small, Posterior Elbow Soft Tissue Defects Using a Rotation Flap: A Retrospective Study	Kang, S. W.; Kim, K. J.; Park, J. K.; Jeong, H. S.; Cha, J. K.; Kim, Y. H.	2020	no factor of interest
Antibiotic prophylaxis in the surgical treatment of peritrochanteric fractures: a comparative trial between two cephalosporins	Karachalios, T.; Lyritis, G. P.; Hatzopoulos, E.	1990	not target population; hip fx
Single-dose prophylaxis of ceftriaxone versus standard dosage of cefotaxime in the prophylaxis of bacterial complications in orthopedic surgery	Karachalios, T.; Lyritis, G.; Hatzopoulos, E.; Sapkas, G.	1987	not target population; hip fx
The timing of microsurgical reconstruction in lower extremity trauma	Karanas, Y. L.; Nigriny, J.; Chang, J.	2008	<20 total pts
Incidence of infection after surgical management of open tibial shaft fractures	Karim, A.; Ahmed, M. A.; Zia ur, Rehman	2017	insufficient data for target outcomes
Reconstruction of Lower Extremity Defects Using the Serratus Anterior Free Flap: A Systematic Review and Retrospective Case Series	Karir, A.; Stein, M. J.; Shiga, S.; Zhang, J.	2020	mixed population; 20% chronic ulcer
Fibular nailing for fixation of ankle fractures in patients at high risk of surgical wound infection	Karkkola, S.; Kortekangas, T.; Pakarinen, H.; Flinkkila, T.; Niinimaki, J.; Leskela, H. V.	2020	unclear fx cause
Impact of operative time on short-term adverse events following total shoulder arthroplasty	Kashanchi, K. I.; Nazemi, A. K.; Komatsu, D. E.; Wang, E. D.	2020	not target population; shoulder surgery

Article Title	Authors	Year	Reason for Exclusion
External fixation versus "p" plate for distal radius fractures	Kateros, K.; MacHeras, G.; Galanakos, S. P.; Sofianos, I.; Papakostas, I.; Papadakis, S. A.	2010	not target population; majority low-energy
Safety of immediate open reduction and internal fixation of geriatric open fractures of the distal radius	Kaufman, A. M.; Pensy, R. A.; O'Toole, R. V.; Eglseder, W. A.	2014	No controlled comparisons; case series
Experience with Managing Complicated Fractures Using Ilizarov Principle in Lagos, Nigeria	Kayode, M. O.; Adewole, O. A.; Shoga, M. O.; Giwa, S. O.	2017	case series
Short-term outcomes of severe open wartime tibial fractures treated with ring external fixation	Keeling, J. J.; Gwinn, D. E.; Tintle, S. M.; Andersen, R. C.; McGuigan, F. X.	2008	No controlled comparisons; case series
The ankle injury management (AIM) trial: a pragmatic, multicentre, equivalence randomised controlled trial and economic evaluation comparing close contact casting with open surgical reduction and internal fixation in the treatment of unstable ankle fractures in patients aged over 60 years	Keene, D. J.; Mistry, D.; Nam, J.; Tutton, E.; Handley, R.; Morgan, L.; Roberts, E.; Gray, E.; Briggs, A.; Lall, R.; et al.,	2016	unclear fx cause
The management of gunshot fractures of the humerus	Keller, A.	1995	<10 pts per group
Risk factors for surgical site infection following operative ankle fracture fixation	Kelly, E. G.; Cashman, J. P.; Groarke, P. J.; Morris, S. F.	2013	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Timing of Debridement and Infection Rates in Open Fractures of the Hand: A Systematic Review	Ketonis, C.; Dwyer, J.; Ilyas, A. M.	2017	
Comparison of shoulder function, radial nerve palsy and infection after nailing versus plating in humeral shaft fractures	Khan, A. S.; Afzal, W.; Anwar, A.	2010	fixation for closed fx
Outcomes in open tibia fractures: relationship between delay in treatment and infection	Khatod, M.; Botte, M. J.; Hoyt, D. B.; Meyer, R. S.; Smith, J. M.; Akeson, W. H.	2003	No controlled comparisons; case series
Primary internal fixation in open fractures of tibia following high-velocity gunshot wounds: a single-centre experience	Khatri, J. P.; Kumar, M.; Singh, C. M.	2020	No controlled comparisons; case series
Complications in the management of closed high-energy proximal tibial plateau fractures	Khatri, K.; Sharma, V.; Goyal, D.; Farooque, K.	2016	very low quality
Reconstruction of the lower extremity with microvascular free flaps: a 10-year experience with 304 consecutive cases	Khouri, R. K.; Shaw, W. W.	1989	No controlled comparisons; case series
Fracture management of civilian gunshot wounds to the hand	Kiehn, M. W.; Mitra, A.; Gutowski, K. A.	2005	mixed population; 42% finger fx
The effect of the cerclage wire in the treatment of subtrochanteric femur fracture with the long proximal femoral nail: A review of 52 cases	Kilinc, B. E.; Oc, Y.; Kara, A.; Erturer, R. E.	2018	not target population; hip fx

Article Title	Authors	Year	Reason for Exclusion
Negative pressure wound therapy vs. conventional management in open tibia fractures: Systematic review and meta-analysis	Kim, J. H.; Lee, D. H.	2019	
Is It Worth Discriminating Against Patients Who Smoke? A Systematic Literature Review on the Effects of Tobacco Use in Foot and Ankle Surgery	Kim, J. H.; Patel, S.	2017	
A Prospective Randomized Study on Operative Treatment for Simple Distal Tibial Fractures-Minimally Invasive Plate Osteosynthesis Versus Minimal Open Reduction and Internal Fixation	Kim, J. W.; Kim, H. U.; Oh, C. W.; Kim, J. W.; Park, K. C.	2018	fixation for closed fx (closed), <10 pts per group (open)
The effect of an abnormal bmi on orthopaedic trauma patients: A systematic review and meta-analysis	Kinder, F.; Giannoudis, P. V.; Boddice, T.; Howard, A.	2020	Mixed population; includes non-fx injury
Four-corner arthrodesis - Does the source of graft affect bony union rate? Iliac crest versus distal radius bone graft	Kitzinger, H. B.; Karle, B.; Prommersberger, K. J.; Van Schoonhoven, J.; Frey, M.	2012	Irrelevant Topic: Scaphoid Exision and Four-Corner Arthrodesis
Clinical outcomes of treatment with locking compression plates for distal femoral fractures in a retrospective cohort	Kiyono, M.; Noda, T.; Nagano, H.; Maehara, T.; Yamakawa, Y.; Mochizuki, Y.; Uchino, T.; Yokoo, S.; Demiya, K.; Saiga, K.; Shimamura, Y.; Ozaki, T.	2019	no comparison group

Article Title	Authors	Year	Reason for Exclusion
Minimally invasive technique versus an extensile lateral approach for intra-articular calcaneal fractures	Kline, A. J.; Anderson, R. B.; Davis, W. H.; Jones, C. P.; Cohen, B. E.	2013	unclear fx cause
Early Complications following Articular Calcaneus Fracture Repair: Evaluation of Open Versus Percutaneous Techniques	Knapik, D. M.; Hermelin, M. J.; Tanenbaum, J. E.; Vallier, H. A.	2019	<10 pts per group (open fx), fixation for closed fx
Comparison of intravenous and oral antibiotic therapy in the treatment of fractures caused by low-velocity gunshots. A prospective, randomized study of infection rates	Knapp, T. P.; Patzakis, M. J.; Lee, J.; Seipel, P. R.; Abdollahi, K.; Reisch, R. B.	1996	No surgery; excluded injuries that needed operative tx
Minimally Invasive Plate Osteosynthesis Using a Screw Compression Method for Treatment of Humeral Shaft Fractures	Ko, S. H.; Cha, J. R.; Lee, C. C.; Joo, Y. T.; Eom, K. S.	2017	fixation for closed fx
Evaluation of Reduction Accuracy of Suture-Button and Screw Fixation Techniques for Syndesmotic Injuries	Kocadal, O.; Yucel, M.; Pepe, M.; Aksahin, E.; Aktekin, C. N.	2016	fixation for closed fx
A comparative study of three commonly used fixation techniques for isolated medial malleolus fracture	Kochai, A.; Turker, M.; Cicekli, O.; Ozdemir, U.; Bayam, L.; Erkorkmaz, U.; Sukur, E.	2018	unclear fx cause
Multimodal strategy in surgical site infections control and prevention in orthopaedic patients - a 10-year retrospective observational study at a Polish hospital	Kolpa, M.; Slowik, R.; Walaszek, M.; Wolak, Z.; Rozanska, A.; Wojkowska-Mach, J.	2020	mixed population; 40% fx

Article Title	Authors	Year	Reason for Exclusion
Handgun injuries with metacarpal and proximal phalangeal fractures: early definitive treatment	Komurcu, M.; Alemdaroglu, B.; Kurklu, M.; Ozkan, H.; Basbozkurt, M.	2008	mixed population; ~50% finger fx
Comparison of two different locking plates for two-, three- and four-part proximal humeral fractures--results of an international multicentre study	Konrad, G.; Hirschmuller, A.; Audige, L.; Lambert, S.; Hertel, R.; Sudkamp, N. P.	2012	not target population; shoulder fx
Early versus delayed treatment of severe ankle fractures: a comparison of results	Konrath, G.; Karges, D.; Watson, J. T.; Moed, B. R.; Cramer, K.	1995	unclear fx cause
A case-control study of surgical site infection following operative fixation of fractures of the ankle in a large U.K. trauma unit	Korim, M. T.; Payne, R.; Bhatia, M.	2014	unclear fx cause
The analysis of the variables, affecting outcome in surgically treated tibia pilon fractured patients	Korkmaz, A.; Ciftdemir, M.; Ozcan, M.; Copuroglu, C.; Saridogan, K.	2013	fixation for closed fx
Risk factors for infectious complications after open fractures; a systematic review and meta-analysis	Kortram, K.; Bezstarosti, H.; Metsemakers, W. J.; Raschke, M. J.; Van Lieshout, E. M. M.; Verhofstad, M. H. J.	2017	
Incidence and analysis of open fractures of the midshaft and distal femur	Kovar, F. M.; Jaindl, M.; Schuster, R.; Endler, G.; Platzer, P.	2013	case series

Article Title	Authors	Year	Reason for Exclusion
Performance evaluation of comprehensive treatment of patients with infectious complications of bullet-extremity fractures	Kozlov, V. K.; Chililov, A. M.; Akhmedov, B. G.	2015	not target population; already infected
Treatment of bicondylar tibia plateau fractures using locked plating versus external fixation	Krupp, R. J.; Malkani, A. L.; Roberts, C. S.; Seligson, D.; Crawford, C. H., 3rd; Smith, L.	2009	fixation for closed fx
Acute versus delayed reverse total shoulder arthroplasty for proximal humerus fractures in the elderly: Mid-term outcomes	Kuhlmann, N. A.; Taylor, K. A.; Roche, C. P.; Franovic, S.; Chen, C.; Carofino, B. C.; Flurin, P. H.; Wright, T. W.; Schoch, B. S.; Zuckerman, J. D.; Muh, S. J.	2020	not target population; shoulder surgery
Lessons from the modern battlefield: successful upper extremity injury reconstruction in the subacute period	Kumar, A. R.; Grewal, N. S.; Chung, T. L.; Bradley, J. P.	2009	no comparison group
Appropriateness and pharmacoeconomics of surgical antimicrobial prophylaxis in open reduction internal fixation surgery practiced in a tertiary hospital compared to recommendations in the national center for disease control guidelines	Kumari, P.; Siddegowda, J. B.; Krishnaiah, V.	2019	irrelevant topic; appropriate use compared to national guidelines
Surgical interventions for treating distal tibial metaphyseal fractures in adults	Kuo, L. T.; Chi, C. C.; Chuang, C. H.	2015	

Article Title	Authors	Year	Reason for Exclusion
Open fractures of the distal radius: the effects of delayed debridement and immediate internal fixation on infection rates and the need for secondary procedures	Kurylo, J. C.; Axelrad, T. W.; Tornetta, P., 3rd; Jawa, A.	2011	No controlled comparisons; case series
Intramedullary versus extramedullary fixation for subtrochanteric femur fractures	Kuzyk, P. R.; Bhandari, M.; McKee, M. D.; Russell, T. A.; Schemitsch, E. H.	2009	
Effect of Delay to Definitive Surgical Fixation on Wound Complications in the Treatment of Closed, Intra-articular Calcaneus Fractures	Kwon, J. Y.; Guss, D.; Lin, D. E.; Abousayed, M.; Jeng, C.; Kang, S.; Ellington, J. K.	2015	unclear fx cause
External fixation in war traumatology: report from the Rwandese war (October 1, 1990 to August 1, 1993)	Labeeu, F.; Pasuch, M.; Toussaint, P.; Van Erps, S.	1996	no comparison group
Intramedullary nailing for adult open tibial shaft fracture. An 85-case series	Laigle, M.; Rony, L.; Pinet, R.; Lancigu, R.; Steiger, V.; Hubert, L.	2019	No controlled comparisons; case series
Nosocomial infection with SARS-CoV-2 and main outcomes after surgery within an orthopaedic surgery department in a tertiary trauma centre in Spain	Lakhani, K.; Minguell, J.; Guerra-Farfán, E.; Lara, Y.; Jambrina, U.; Pijoan, J.; Núñez, J. H.	2020	not target population; unknown if high energy

Article Title	Authors	Year	Reason for Exclusion
Long-term outcome of pronation-external rotation ankle fractures treated with syndesmotic screws only	Lambers, K. T. A.; Van Den Bekerom, M. P. J.; Doornberg, J. N.; Stufkens, S. A. S.; Van Dijk, C. N.; Kloen, P.	2013	unclear fx cause
Efficacy of surgical wound drainage in orthopaedic trauma patients: a randomized prospective trial	Lang, G. J.; Richardson, M.; Bosse, M. J.; Greene, K.; Meyer, R. A., Jr.; Sims, S. H.; Kellam, J. F.	1998	mixed population; 47% pelvis and hip surgery
Does an additional antirotation U-Blade (RC) lag screw improve treatment of AO/OTA 31 A1-3 fractures with gamma 3 nail?	Lang, N. W.; Arthold, C.; Joestl, J.; Gormasz, A.; Boesmueller, S.; Hajdu, S.; Sarahrudi, K.	2016	not target population; hip fx
Peri-operative antibiotic treatment of bacteriuria reduces early deep surgical site infections in geriatric patients with proximal femur fracture	Langenhan, R.; Bushuven, S.; Reimers, N.; Probst, A.	2018	not target population; hip fx
The role of diabetes mellitus and BMI in the surgical treatment of ankle fractures	Lanzetti, R. M.; Lupariello, D.; Venditto, T.; Guzzini, M.; Ponzo, A.; De Carli, A.; Ferretti, A.	2018	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Does perioperative systemic infection or fever increase surgical infection risks after internal fixation of femur and tibia fractures in an intensive care polytrauma unit?	Large, T. M.; Alton, T. B.; Patton, D. J.; Beingessner, D.	2013	
Should insertion of intramedullary nails for tibial fractures be with or without reaming? A prospective, randomized study with 3.8 years' follow-up	Larsen, L. B.; Madsen, J. E.; Høiness, P. R.; Øvre, S.	2004	fixation for closed fx
Increased Risk of Nonunion and Charcot Arthropathy After Ankle Fracture in People With Diabetes	Lavery, L. A.; Lavery, D. C.; Green, T.; Hunt, N.; La Fontaine, J.; Kim, P. J.; Wukich, D.	2020	mixed population; 59% had surgery
Temporary bridging external fixation in distal tibial fracture	Lavini, F.; Dall'Oca, C.; Mezzari, S.; Maluta, T.; Luminari, E.; Perusi, F.; Vecchini, E.; Magnan, B.	2014	not target population; unknown if high energy
On the use of drains in orthopedic and trauma	Lawal, Y. Z.; Ogirima, M. O.; Dahiru, I. L.; Abubakar, K.; Ajibade, A.	2014	not target population; unknown if high energy
Antimicrobial gauze as a dressing reduces pin site infection: a randomized controlled trial	Lee, C. K.; Chua, Y. P.; Saw, A.	2012	not outcome of interest; pin site infections

Article Title	Authors	Year	Reason for Exclusion
Low-energy Gunshot-induced Tibia Fractures: What Proportion Develop Complications?	Lee, C.; Brodke, D. J.; Engel, J.; Schloss, M. G.; Zaidi, S. M. R.; O'Toole, R. V.; Gulbrandsen, T.; Hogue, M.; Badon, J.; Bergin, P. F.; Lirette, S. T.; Morellato, J.	2021	no comparison group
Fixator-assisted Technique Enables Less Invasive Plate Osteosynthesis in Medial Opening-wedge High Tibial Osteotomy: A Novel Technique	Lee, D. H.; Ryu, K. J.; Kim, J. H.; Soung, S.; Shin, S.	2015	no comparison group
Counting the costs of major trauma in a provincial trauma centre	Lee, H.; Croft, R.; Monos, O.; Harmston, C.	2018	mixed population; includes non-extremity
Surgical site infection in the elderly following orthopaedic surgery. Risk factors and outcomes	Lee, J.; Singletary, R.; Schmader, K.; Anderson, D. J.; Bolognesi, M.; Kaye, K. S.	2006	mixed population; 16% fx
Plate osteosynthesis versus intramedullary nailing for both forearm bones fractures	Lee, S. K.; Kim, K. J.; Lee, J. W.; Choy, W. S.	2014	mixed population; 38% low-energy
When is the Critical Time for Soft Tissue Reconstruction of Open Tibia Fracture Patients?	Lee, S. Y.; Seong, I. H.; Park, B. Y.	2020	no comparison group
Surgical treatment of distal tibia fractures: A comparison of medial and lateral plating	Lee, Y. S.; Chen, S. H.; Lin, J. C.; Chen, Y. O.; Huang, C. R.; Cheng, C. Y.	2009	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Lateral fixation of AO type-B2 ankle fractures in the elderly: the Knowles pin versus the plate	Lee, Y. S.; Huang, H. L.; Lo, T. Y.; Huang, C. R.	2007	fixation for closed fx (closed), <10 pts per group (open)
Intramedullary fixation of tibial shaft fractures: A comparison of the unlocked and interlocked nail	Lee, Y. S.; Lo, T. Y.; Huang, H. L.	2008	fixation for closed fx
Comparing Outcomes for Fasciocutaneous versus Muscle Flaps in Foot and Ankle Free Flap Reconstruction	Lee, Z. H.; Abdou, S. A.; Daar, D. A.; Anzai, L.; Stranix, J. T.; Thanik, V.; Levine, J. P.; Saadeh, P. B.	2019	not target outcome; no SSI
Staple versus suture closure for ankle fracture fixation: Retrospective chart review for safety and outcomes	Lehtonen, E.; Patel, H.; Phillips, S.; Correia Pinto, M.; Naranje, S.; Shah, A.	2018	mixed population; >50% low-energy

Article Title	Authors	Year	Reason for Exclusion
Posttraumatic mucormycosis: A nationwide study in France and review of the literature	Lelievre, L.; Garcia-Hermoso, D.; Abdoul, H.; Hivelin, M.; Chouaki, T.; Toubas, D.; Mamez, A. C.; Lantieri, L.; Lortholary, O.; Lanternier, F.; Freimann, C.; Rispal, P.; Lewandowski, E.; Chouaki, T.; Dupont, H.; Damaj, G.; Mertl, P.; Six, P.; Bouchara, J. P.; Hitoto, H.; Ifrah, N.; Urban, T.; Carrelet, T.; Pellegrini, J. P.; Mosser, A.; Calmelet, A.; Braman, F.; Bordes, D.; Pobel, D.; Dussaucy, A.; Viel, J. F.; Grenouillet, F.; Blasco, G.; Legrand, F.; Navellou, J. C.; Plouvier, E.; Tavernier, L	2014	irrelevant comparison; infection vs not infected
Factors associated with adverse events after distal tibiofibular syndesmosis fixation	Lemmers, D. H. L.; Lubberts, B.; Stavenuiter, R.; Guss, D.; Johnson, A. H.; Kerkhoffs, Gmmj; DiGiovanni, C. W.	2020	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Timing of wound closure in open fractures based on cultures obtained after debridement	Lenarz, C. J.; Watson, J. T.; Moed, B. R.; Israel, H.; Mullen, J. D.; Macdonald, J. B.	2010	irrelevant topic; timing based on culture, not comparison of timings
A prospective, randomized trial comparing the limited contact dynamic compression plate with the point contact fixator for forearm fractures	Leung, F.; Chow, S. P.	2003	mixed fracture; fixation for closed
Outcomes of an aseptic technique for Kirschner wire percutaneous pinning in the hand and wrist	Levy, K. H.; Sedaghatpour, D.; Avoricani, A.; Kurtzman, J. S.; Koehler, S. M.	2021	case
The clinical effects of multi-modal analgesia on postoperative pain and nosocomial infection in patients with lower limb fracture	Li, H. B.; Xu, S. H.	2017	unclear fx cause
Incidence and risk factors for surgical site infection following open reduction and internal fixation of adult tibial plateau fractures	Li, J.; Zhu, Y.; Liu, B.; Dong, T.; Chen, W.; Zhang, Y.	2018	mixed population; 46% high-energy
Incidence and risks for surgical site infection after closed tibial plateau fractures in adults treated by open reduction and internal fixation: a prospective study	Li, J.; Zhu, Y.; Zhao, K.; Zhang, J.; Meng, H.; Jin, Z.; Ma, J.; Zhang, Y.	2020	very low quality

Article Title	Authors	Year	Reason for Exclusion
Limited open reduction is better for simple- distal tibial shaft fractures than minimally invasive plate osteosynthesis	Li, Q.; Zeng, B. F.; Luo, C. F.; Song, S.; Zhang, C. Q.; Kong, W. Q.	2014	unclear fx cause
Wound and Sural Nerve Complications of the Sinus Tarsi Approach for Calcaneus Fractures	Li, S.	2018	fixation for closed fx
Complications in operative fixation of calcaneal fractures	Li, Y.; Bao, R. H.; Jiang, Z. Q.; Wu, H. Y.	2016	very low quality
The Effect of Negative Pressure Therapy on Closed Wound After the Orthopedic Surgery of Lower Limb: A Meta-Analysis	Li, Y.; Wu, B.; Liu, Y.	2020	
Closed reduction external fixator fixation versus open reduction internal fixation in the patients with bennett fracture dislocation	Li, Z. Z.; Guo, Y.; Tian, W.; Tian, G. L.	2014	fixation for closed fx
Anterior discectomy/corpectomy and fusion with internal fixation for the treatment of unstable hangman's fractures: A retrospective study of 38 cases	Li, Z.; Li, F.; Hou, S.; Zhao, Y.; Mao, N.; Hou, T.; Tang, J.	2015	fixation for closed fx
A double-blinded, randomized, controlled clinical trial to compare cefazolin and cefonicid for antimicrobial prophylaxis in clean orthopedic surgery	Liebergall, M.; Mosheiff, R.; Rand, N.; Peyser, A.; Shaul, J.; Kahane, Y.; Shapiro, M.	1995	not target population; unknown if high energy

Article Title	Authors	Year	Reason for Exclusion
Outcome comparison in traumatic lower-extremity reconstruction by using various composite vascularized bone transplantation	Lin, C. H.; Wei, F. C.; Chen, H. C.; Chuang, D. C.	1999	not target population; unknown if high energy
Safety and Efficacy of Prophylactic Closed Incision Negative Pressure Therapy after Acute Fracture Surgery	Lin, K. C.; Li, Y. S.; Tarng, Y. W.	2020	no comparison group
The success of single débridement and primary closure of acute postoperative infections after open reduction and internal fixation	Lin, S.; Hammerberg, E. M.; Stahel, P.; Hak, D. J.	2013	not target population; already infected
Surgical site infection after open reduction and internal fixation of tibial plateau fractures	Lin, S.; Mauffrey, C.; Hammerberg, E. M.; Stahel, P. F.; Hak, D. J.	2014	very low quality
Open reduction and stable fixation of isolated, displaced talar neck and body fractures	Lindvall, E.; Haidukewych, G.; DiPasquale, T.; Herscovici, D., Jr.; Sanders, R.	2004	no comparison group
Predebridement wound culture in open fractures does not predict postoperative wound infection: A pilot study	Lingaraj, R.; Santoshi, J. A.; Devi, S.; Najimudeen, S.; Gnanadoss, J. J.; Kanagasabai, R.; Kanungo, R.	2015	very low quality

Article Title	Authors	Year	Reason for Exclusion
Closed fractures of the tibial shaft. A meta-analysis of three methods of treatment	Littenberg, B.; Weinstwin, L. P.; McCarren, M.; Mead, T.; Swiontkowski, M. F.; Rudicell, S. A.; Heck, D.	1998	
Multiple preoperative biomarkers are associated with incidence of surgical site infection following surgeries of ankle fractures	Liu, D.; Zhu, Y.; Chen, W.; Li, M.; Liu, S.; Zhang, Y.	2020	mixed population; over 50% low-energy
Surgical Implant Generation Network (SIGN) Fin nail versus SIGN standard intramedullary nail for distal diaphyseal femur fractures treated via retrograde approach	Liu, M. B.; Ali, S. H.; Haonga, B. T.; Eliezer, E. N.; Albright, P. D.; Morshed, S.; Shearer, D.	2019	fixation for closed fx
Staged surgical treatment of open Lisfranc fracture dislocations using an adjustable bilateral external fixator: A retrospective review of 21 patients	Liu, X.; An, J.; Chen, Y.; Deng, W.; An, X.; Zhang, H.	2020	no comparison group
Negative pressure wound therapy versus conventional wound dressings in treatment of open fractures: A systematic review and meta-analysis	Liu, X.; Zhang, H.; Cen, S.; Huang, F.	2018	
Interlocking intramedullary nail fixation with additional bone grafting from trochanter via a femoral hollow trephine in the treatment of femoral shaft fractures: design and clinical application	Liu, Y.; Zheng, Y.; Shen, Z.; Wang, S.; Wei, X.; Gu, X.; Zhan, H.; Kuang, Y.	2017	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Antimicrobial Prophylaxis with Combat-Related Open Soft-Tissue Injuries	Lloyd, B. A.; Murray, C. K.; Shaikh, F.; Carson, M. L.; Blyth, D. M.; Schnaubelt, E. R.; Whitman, T. J.; Tribble, D. R.; Infectious Disease Clinical Research Program Trauma Infectious Disease Outcomes Study, Group	2018	not target population; open soft-tissue but no fx
Trauma centre experience: flap reconstruction of traumatic lower limb injuries	Lo, C. H.; Leung, M.; Baillieu, C.; Chong, E. W.; Cleland, H.	2007	case series
Does the muscle improve validated outcome measures in open tibial fractures? New insights from a cohort study of the anterolateral thigh flap (ALT) versus ALT-Vastus lateralis flaps	Lo, S. J.; Lee, Y. C.; Hsu, J.; Hsu, C. C.; Lin, C. H.; Lin, C. H.	2020	very low quality
Does muscle improve validated outcome measures in open tibial fractures? New insights from a cohort study of the anterolateral thigh flap (ALT) versus ALT-Vastus lateralis flaps	Lo, S. J.; Lee, Y. C.; Hsu, J.; Hsu, C. C.; Lin, C. H.; Lin, C. H.	2021	Very Low Quality
Economic impact of cancellous bone grafting in trauma surgery	Lohmann, H.; Grass, G.; Rangger, C.; Mathiak, G.	2007	mixed fx population

Article Title	Authors	Year	Reason for Exclusion
Outcomes, complications, utilization trends, and risk factors for primary and revision total elbow replacement	Lovy, A. J.; Keswani, A.; Dowdell, J.; Koehler, S.; Kim, J.; Hausman, M. R.	2016	mixed population; only 34% fx
Betadine-Soaked Alcohol Pad and Rigid Immobilization: An Inexpensive and Effective Method to Diminish Infections With Exposed Kirschner Wires in Hand Fractures	Lovy, A. J.; Levy, I.; Keswani, A.; Hausman, M. R.	2020	no comparison group
Incidence and risk factors for surgical site infection after open reduction and internal fixation of intra-articular fractures of distal femur: A multicentre study	Lu, K.; Zhang, J.; Cheng, J.; Liu, H.; Yang, C.; Yin, L.; Wang, H.; You, X.; Qu, Q.	2019	mixed population; >20% low-energy
Preoperative indications for total shoulder arthroplasty predict adverse postoperative complications	Lung, B. E.; Kanjiya, S.; Bisogno, M.; Komatsu, D. E.; Wang, E. D.	2019	not target population; TSA
Do surgical site complications after ankle fracture surgery reduce with Aquacel Extra Ag R?	Luque-Valenzuela, M.; Sanchez-Aguilera, A. J.; Martin-Vivaldi-Jimenez, A.; Jodar-Graus, R.; Prados-Olleta, N.	2019	not target population; unknown if high energy
External fixation is more suitable for intra-articular fractures of the distal radius in elderly patients	Ma, C.; Deng, Q.; Pu, H.; Cheng, X.; Kan, Y.; Yang, J.; Yusufu, A.; Cao, L.	2016	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Incidence and risk factors for deep surgical site infection after open reduction and internal fixation of closed tibial plateau fractures in adults	Ma, Q.; Aierxiding, A.; Wang, G.; Wang, C.; Yu, L.; Shen, Z.	2018	mixed population; 40% high-energy
Soft tissue reconstruction of open tibial fractures	Maajid, S.; Mir, Gh R.; Akbar, S.	2002	no comparison group
A Machine Learning Algorithm to Identify Patients with Tibial Shaft Fractures at Risk for Infection After Operative Treatment	Machine Learning Consortium, on behalf of the Sprint; Flow Investigators	2021	No factors of interest;
Time management of open lower-leg fractures in Morocco	Magoumou, Adonis; El Andaloussi, Yassir; Fahsi, Simohamed; Hiba, Othmane; Fadili, Mustapha; Nechad, Mohamed; Ouarab, Mohamed; Widad, Fatima Zahra; Nani, Samira; Hassoune, Samira	2014	no comparison group
A Randomized Controlled Study to Compare Conventional and Evidence Based Treatment Protocols in Fresh Compound Fractures	Mahajan, K.; Verma, V.; Singh, G. K.; Kumar, S.; Avasthi, S.	2016	irrelevant comparison; treatment pathway comparisons

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Functional outcome of patients of tibial fracture treated with solid nail (SIGN nail) versus conventional hollow nail – A randomized trial	Maharjan, R.; Shrestha, B. P.; Chaudhary, P.; Rijal, R.; Shah Kalawar, R. P.	2021	fixation for closed fx
Ankle fracture treated with the AO principle--an experience with 116 cases	Mak, K. H.; Chan, K. M.; Leung, P. C.	1985	no comparison group
Breakage and Migration of Metal Wires in Operated Patella Fractures: Does it Correlate with Time?	Mak, N. T. S.	2013	not target population; not first presentation on injury
Comparative study of internal and hybrid external fixation in tibial condylar fractures	Malakasi, A.; Lallos, S. N.; Chronopoulos, E.; Korres, D. S.; Efstathopoulos, N. E.	2013	fixation for closed fx
Factors affecting rates of infection and nonunion in intramedullary nailing	Malik, M. H.; Harwood, P.; Diggle, P.; Khan, S. A.	2004	No factors of interest;
Intramedullary nailing versus plating for distal tibia fractures without articular involvement: a meta-analysis	Mao, Z.; Wang, G.; Zhang, L.; Zhang, L.; Chen, S.; Du, H.; Zhao, Y.; Tang, P.	2015	
Why a surgically treated humeral shaft fracture became a nonunion: review of 11 years in two trauma centers	Maresca, A.; Sangiovanni, P.; Cerbasi, S.; Politano, R.; Fantasia, R.; Commessatti, M.; Pascarella, R.	2017	<20 total pts
War injuries to the extremities	Maricevic, A.; Erceg, M.	1997	case series

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Application of wound dressing Molndal technique in clean and potentially contamined postoperative wounds--initial comparative study	Marinovic, M.; Cicvaric, T.; Grzalja, N.; Bacic, G.; Radovic, E.	2011	not target population; hip fx
Surgical site complications in open pronation-abduction ankle fracture-dislocations with medial tension failure wounds	Martin, C. W.; Ryan, J. C.; Bullock, T. S.; Cabot, J. H.; Makhani, A. A.; Griffin, L. P.; Zelle, B. A.	2021	very low quality
Negative pressure wound therapy for at-risk surgical closures in patients with multiple comorbidities: a prospective randomized controlled study	Masden, D.; Goldstein, J.; Endara, M.; Xu, K.; Steinberg, J.; Attinger, C.	2012	mixed population; includes closure for non-fx causes
Comparison of Early Adverse Events After Operative Treatment of Bimalleolar and Trimalleolar Fractures Versus Pilon Fractures	Masrouha, K. Z.; Tamim, H.; Taha, A.; Sheikh Taha, A. M.; Abi-Melhem, R.; Al-Taki, M.	2017	irrelevant comparison; fracture types
Prevention of pin track infection in external fixation with silver coated pins: clinical and microbiological results	Masse, A.; Bruno, A.; Bosetti, M.; Biasibetti, A.; Cannas, M.; Gallinaro, P.	2000	not target population; pin track infection
Single-stage orthoplastic reconstruction of Gustilo-Anderson Grade III open tibial fractures greatly reduces infection rates	Mathews, J. A.; Ward, J.; Chapman, T. W.; Khan, U. M.; Kelly, M. B.	2015	No controlled comparisons
Predisposing factors for early infection in patients with open fractures and proposal for a risk score	Matos, M. A.; Lima, L. G.; de Oliveira, L. A.	2015	very low quality

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Obese Patients Have Fewer Wound Complications Following Fixation of Ankle Fractures	Matson, A. P.; Morwood, M. P.; Peres Da Silva, A.; Cone, E. B.; Hurwitz, S. R.; Zura, R. D.	2017	mixed population; <50% high-energy
Comparison between suture and staple fixations as internal fixation techniques for Akin osteotomy	Matsumoto, T.; Takeda, R.; Maenohara, Y.; Chang, S. H.; Omata, Y.; Takuo, J.; Tanaka, S.	2021	Irrelevant Topic: Akin Osteotomies
Infection after intramedullary nailing of severe open tibial fractures initially treated with external fixation	Maurer, D. J.; Merkow, R. L.; Gustilo, R. B.	1989	
Less is more: lag screw only fixation of lateral malleolar fractures	McKenna, P. B.; O'Shea, K.; Burke, T.	2007	unclear fx cause
Incidence and Risk Factors for Pin Site Infection of Exposed Kirschner Wires Following Elective Forefoot Surgery	McKenzie, J. C.; Rogero, R. G.; Khawam, S.; McDonald, E. L.; Nicholson, K.; Shakked, R. J.; Fuchs, D.; Raikin, S. M.	2019	not target population; pin site infection
Comparison of risk factors for postoperative complications across age groups in patients undergoing ORIF of the ankle	McKissack, H. M.; Viner, G. C.; Jha, A. J.; Wilson, J. T.; Anderson, M. C.; McGwin, G., Jr.; Shah, A. B.	2019	not a factor of interest; age
Infections in open fractures of the hand	McLain, R. F.; Steyers, C.; Stoddard, M.	1991	mixed population; includes finger fx

Article Title	Authors	Year	Reason for Exclusion
Surgical fixation methods for tibial plateau fractures	McNamara, I. R.; Smith, T. O.; Shepherd, K. L.; Clark, A. B.; Nielsen, D. M.; Donell, S.; Hing, C. B.	2015	
Antibiotic prophylaxis in proximal femoral fracture	McQueen, M. M.; LittleJohn, M. A.; Miles, R. S.; Hughes, S. P.	1990	not target population; hip fx
Surgical Site Infections after Open Reduction Internal Fixation for Trauma in Low and Middle Human Development Index Countries: A Systematic Review	McQuillan, T. J.; Cai, L. Z.; Corcoran-Schwartz, I.; Weiser, T. G.; Forrester, J. D.	2018	
Intramedullary nailing versus proximal plating in the management of closed extra-articular proximal tibial fracture: a randomized controlled trial	Meena, R. C.; Meena, U. K.; Gupta, G. L.; Gahlot, N.; Gaba, S.	2015	patient population; closed with internal fixation
Four-Screw Plate Fixation vs Conventional Fixation for Diaphyseal Fractures of the Forearm	Mehdi Nasab, S. A.; Sarrafan, N.; Sabahi, S.	2012	fixation for closed fx
A staged treatment plan for the management of Type II and Type IIIA open calcaneus fractures	Mehta, S.; Mirza, A. J.; Dunbar, R. P.; Barei, D. P.; Benirschke, S. K.	2010	no comparison group

Article Title	Authors	Year	Reason for Exclusion
What factors are associated with outcomes scores after surgical treatment of ankle fractures with a posterior malleolar fragment?	Meijer, D. T.; Gevers Deynoot, B. D. J.; Stufkens, S. A.; Sierevelt, I. N.; Goslings, J. C.; Kerkhoffs, G. M. M. J.; Doornberg, J. N.	2019	mixed population; 18% high-energy
Functional outcome of fasciocutaneous flap used for soft tissue coverage for open tibia fracture (gustilo type IIIB), remote area hospital of Pakistan experience	Memon, A.; Memon, F. A.; Keerio, N. H.	2017	no comparison group
Microbiology of combat-related extremity wounds: Trauma Infectious Disease Outcomes Study	Mende, K.; Stewart, L.; Shaikh, F.; Bradley, W.; Lu, D.; Krauss, M. R.; Greenberg, L.; Yu, Q.; Blyth, D. M.; Whitman, T. J.; Petfield, J. L.; Tribble, D. R.	2019	not target population; infected at initial presentation
Deep surgical site infection after ankle fractures treated by open reduction and internal fixation in adults: A retrospective case-control study	Meng, J.; Sun, T.; Zhang, F.; Qin, S.; Li, Y.; Zhao, H.	2018	mixed population; 74.5% low-energy
External fixation versus open reduction and internal fixation for tibial pilon fractures: A meta-analysis based on observational studies	Meng, Y. C.; Zhou, X. H.	2016	

Article Title	Authors	Year	Reason for Exclusion
Factors increasing the risk of infection in patients with open fractures	Merritt, K.	1988	very low quality
Comparison of Clinical Outcomes After Intramedullary Fixation of Tibia Fractures Caused by Blunt Trauma and Civilian Gunshot Wounds: A Retrospective Review	Metcalf, K. B.; Smith, E. J.; Wetzel, R. J.; Sontich, J. K.; Ochenjele, G.	2020	fixation for closed fx
Prophylactic antibiotics in open distal phalanx fractures: systematic review and meta-analysis	Metcalfe, D.; Aquilina, A. L.; Hedley, H. M.	2016	systematic review references reviewed
External versus internal fixation for bicondylar tibial plateau fractures: systematic review and meta-analysis	Metcalfe, D.; Hickson, C. J.; McKee, L.; Griffin, X. L.	2015	Systematic Review - exclude
Individual risk factors for deep infection and compromised fracture healing after intramedullary nailing of tibial shaft fractures: a single centre experience of 480 patients	Metsemakers, W. J.; Handojo, K.; Reynders, P.; Sermon, A.; Vanderschot, P.; Nijs, S.	2015	mixed population; 30% low-energy fx
Infection after fracture fixation of the tibia: Analysis of healthcare utilization and related costs	Metsemakers, W. J.; Smeets, B.; Nijs, S.; Hoekstra, H.	2017	unclear fx cause
Risk factors for wound complications after ankle fracture surgery	Miller, A. G.; Margules, A.; Raikin, S. M.	2012	unclear fx cause
The effects of preoperative smoking cessation on the healing of fractures and postoperative complications: A systematic review and meta-analysis	Min, W.; An, R.; Li, S.; Feng, J.; Yang, J.; Huang, Z.	2017	

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Comparison of Open and Closed Hand Fractures and the Effect of Urgent Operative Intervention	Minhas, S. V.; Catalano, L. W., 3rd	2019	mixed population; includes finger fx
Comparison of K-wire versus screw fixation after open reduction of transitional (Tillaux and triplane) distal tibia fractures	Mishra, N.; Wang, S.; Chua, Z. K. H.; Lam, K. Y.; Mahadev, A.	2020	fixation for closed fx
Complex proximal humeral fractures in adults--a systematic review of management	Misra, A.; Kapur, R.; Maffulli, N.	2001	
Dermotaxis v/s loop suture technique for closure of fasciotomy wounds: a study of 50 cases	Mittal, N.; Bohat, R.; Virk, J. S.; Mittal, P.	2018	not target population; unknown if high energy
Infectious complications of damage control orthopedics in war trauma	Mody, R. M.; Zapor, M.; Hartzell, J. D.; Robben, P. M.; Waterman, P.; Wood-Morris, R.; Trotta, R.; Andersen, R. C.; Wortmann, G.	2009	very low quality
Risk factors for infection after operative fixation of Tibial plateau fractures	Momaya, A. M.; Hlavacek, J.; Etier, B.; Johannesmeyer, D.; Oladeji, L. O.; Niemeier, T. E.; Herrera, N.; Lowe, J. A.	2016	very low quality

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Surgical site infection and costs in low- And middle-income countries: A systematic review of the economic burden	Monahan, M.; Jowett, S.; Pinkney, T.; Brocklehurst, P.; Morton, D. G.; Abdali, Z.; Roberts, T. E.	2020	
Comparison between intramedullary nailing and percutaneous K-wire fixation for fractures in the distal third of the metacarpal bone	Moon, S. J.; Yang, J. W.; Roh, S. Y.; Lee, D. C.; Kim, J. S.	2014	unclear fx cause
Day case locked anterior plating for distal radial fractures is safe with uninterrupted antithrombotic therapy	Morris, J. A.; Little, M.; Ashdown, T.; Clough, O. T.; Packer, T.; Anakwe, R. E.	2020	unclear fx cause
Implant Failure Rates and Cost Analysis of Contoured Locking Versus Conventional Plate Fixation of Distal Fibula Fractures	Moss, L. K.; Kim-Orden, M. H.; Ravinsky, R.; Hoshino, C. M.; Zinar, D. M.; Gold, S. M.	2017	fixation for closed fx
Rectus abdominis free tissue transfer in lower extremity reconstruction: Long term follow up in 58 cases	Moucharafieh, R. C.; Nehme, A. H.; Badra, M. I.; Rahal, M. J. H.	2019	mixed population; <50% for wounds
Bacterial load in relation to vacuum-assisted closure wound therapy: a prospective randomized trial	Mouës, C. M.; Vos, M. C.; van den Bemd, G. J.; Stijnen, T.; Hovius, S. E.	2004	not target population; unknown if high energy
Evaluation of thompson's quadricepsplasty results in patients with knee stiffness resulted from femoral fracture	Mousavi, H.; Mir, B.; Safaei, A.	2017	irrelevant comparison; fx type

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Primary total elbow replacement for fractures of the distal humerus	Muller, L. P.; Kamineni, S.; Rommens, P. M.; Morrey, B. F.	2005	review
Comparison of Posterior Approach With Intramedullary Nailing Versus Lateral Transfibular Approach With Fixed-Angle Plating for Tibiotalocalcaneal Arthrodesis	Mulligan, R. P.; Adams, S. B., Jr.; Easley, M. E.; DeOrio, J. K.; Nunley, J. A., 2nd	2017	not target population; unknown if high energy
The use of negative pressure to promote the healing of tissue defects: a clinical trial using the vacuum sealing technique	Mullner, T.; Mrkonjic, L.; Kwasny, O.; Vecsei, V.	1997	<20 target population;
A comparison of the use and non-use of closed suction wound drainage in open reduction and internal fixation of femoral shaft fractures	Muoghalu, O. N.; Eyichukwu, G. O.; Iyidobi, E.; Anyaehie, U. E.; Madu, K. A.; Okwesili, I. C.	2019	unclear fx cause; unclear if population is mixed
Complex femur fractures: treatment with the Wagner external fixation device or the Grosse-Kempf interlocking nail	Murphy, C. P.; D'Ambrosia, R. D.; Dabezies, E. J.; Acker, J. H.; Shoji, H.; Chuinard, R. G.	1988	mixed fx population
Meta-analysis of antibiotics for simple hand injuries requiring surgery	Murphy, G. R.; Gardiner, M. D.; Glass, G. E.; Kreis, I. A.; Jain, A.; Hettiaratchy, S.	2016	

Article Title	Authors	Year	Reason for Exclusion
Prevention of infections associated with combat-related extremity injuries	Murray, C. K.; Obremskey, W. T.; Hsu, J. R.; Andersen, R. C.; Calhoun, J. H.; Clasper, J. C.; Whitman, T. J.; Curry, T. K.; Fleming, M. E.; Wenke, J. C.; Ficke, J. R.; Prevention of Combat-Related Infections Guidelines, Panel	2011	
Bacterial cultures and antibiotic sensitivity in open fractures	Mustafa, Y.; Hussain, M.; Qureshi, S. A.; Abbas, N.; Haq, A. U.; Haq, A. L.	2020	review
Infections after shoulder arthroplasty are correlated with higher anesthetic risk score: a case-control study in Brazil	Nagaya, L. H.; Salles, M. J. C.; Takikawa, L. S. C.; Fregoneze, M.; Doneux, P.; Silva, L. A. D.; Sella, G. D. V.; Miyazaki, A. N.; Checchia, S. L.	2017	not target population; shoulder surgery
Clinical and radiological outcome of percutaneous plating in extra-articular proximal tibia fractures: A prospective study	Naik, M. A.; Arora, G.; Tripathy, S. K.; Sujir, P.; Rao, S. K.	2013	case series

Article Title	Authors	Year	Reason for Exclusion
Management of severe open tibial fractures: the need for combined orthopaedic and plastic surgical treatment in specialist centres	Naique, S. B.; Pearse, M.; Nanchahal, J.	2006	Irrelevant Topic: treatment location
Union Rates and Reported Range of Motion Are Acceptable After Open Forearm Fractures in Military Combatants	Nappo, K. E.; Hoyt, B. W.; Balazs, G. C.; Nanos, G. P.; Ipsen, D. F.; Tintle, S. M.; Polfer, E. M.	2019	no comparison group
Effect of smoking cessation intervention on results of acute fracture surgery: a randomized controlled trial	Nasell, H.; Adami, J.; Samnegard, E.; Tonnesen, H.; Ponzer, S.	2010	mixed population; >20% hip fx
The impact of smoking on complications after operatively treated ankle fractures--a follow-up study of 906 patients	Nasell, H.; Ottosson, C.; Tornqvist, H.; Linde, J.; Ponzer, S.	2011	mixed population; 78% low-energy fx
Current concepts and challenges in managing ankle fractures in the presence of diabetes: A systematic review of the literature	Nash, W. J.; Hester, T.; Ha, J.	2021	
Incidence and risk factors for removal of an internal fixation following surgery for ankle fracture: A retrospective cohort study of 997 patients	Naumann, M. G.; Sigurdsen, U.; Utvag, S. E.; Stavem, K.	2016	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Complications after surgical management of distal lower leg fractures	Neumann, M. V.; Strohm, P. C.; Reising, K.; Zwingmann, J.; Hammer, T. O.; Suedkamp, N. P.	2016	fixation for closed fx
The importance of early operative treatment in open fractures of the fingers	Ng, T.; Unadkat, J.; Bilonick, R. A.; Wollstein, R.	2014	Not population of interest; finger fx
Infection and Complications After Low-velocity Intra-articular Gunshot Injuries	Nguyen, M. P.; Reich, M. S.; O'Donnell, J. A.; Savakus, J. C.; Prayson, N. F.; Golob, J. F., Jr.; McDonald, A. A.; Como, J. J.; Vallier, H. A.	2017	mixed population; 40% non-surgical tx
Infection Rates and Treatment of Low-Velocity Extremity Gunshot Injuries	Nguyen, M. P.; Savakus, J. C.; O'Donnell, J. A.; Prayson, N. F.; Reich, M. S.; Golob, J. F., Jr.; McDonald, A. A.; Como, J. J.; Vallier, H. A.	2017	mixed population; only 57% pts have fx
Is It Safe to Prep the External Fixator In Situ During Second-Stage Pilon Surgical Treatment?	Nielsen, P. J.; Grossman, L. S.; Siebler, J. C.; Lyden, E. R.; Reed, L. K.; Mormino, M. A.	2018	not target population; unknown if high energy
Local antibiotics: panacea for long term skeletal traction	Nigam, V.; Jaiswal, A.; Dhaon, B. K.	2005	mixed population; majority hip fx

Article Title	Authors	Year	Reason for Exclusion
Missile injuries of the knee joint	Nikolic, D.; Draškovic, V.; Vulovic, R.; Mladenovic, M.	2000	no comparison group
Quality Indicators for Prevention of Infection in the Surgical Site: The Israeli National Program for Quality Indicators Experience	Niv, Y.; Kuniavsky, M.; Bronshtein, O.; Goldschmidt, N.; Hanhart, S.; Levine, D.; Mahalla, H.	2021	irrelevant topic; compliance audit
A radiographic and clinical comparison of reamer-irrigator-aspirator versus iliac crest bone graft in ankle arthrodesis	Nodzo, S. R.; Kaplan, N. B.; Hohman, D. W.; Ritter, C. A.	2014	Irrelevant Topic: Tibiotalar Fusion
Negative pressure wound therapy for surgical wounds healing by primary closure	Norman, G.; Goh, E. L.; Dumville, J. C.; Shi, C.; Liu, Z.; Chiverton, L.; Stankiewicz, M.; Reid, A.	2020	
Prevalence of Deep Surgical Site Infection After Repair of Periarticular Knee Fractures: A Systematic Review and Meta-analysis	Norris, G. R.; Checketts, J. X.; Scott, J. T.; Vassar, M.; Norris, B. L.; Giannoudis, P. V.	2019	
A systematic review and meta-analysis of the sinus tarsi and extended lateral approach in the operative treatment of displaced intra-articular calcaneal fractures	Nosewicz, T. L.; Dingemans, S. A.; Backes, M.; Luitse, J. S. K.; Goslings, J. C.; Schepers, T.	2019	

Article Title	Authors	Year	Reason for Exclusion
Bone and wound fluid concentrations of cephalosporins. Oral cefadroxil and parenteral cefuroxime compared in 52 patients with a trochanteric fracture	Nungu, K. S.; Larsson, S.; Wallinder, L.; Holm, S.	1995	not target population; hip fx
Prophylaxis with oral cefadroxil versus intravenous cefuroxime in trochanteric fracture surgery. A clinical multicentre study	Nungu, K. S.; Olerud, C.; Rehnberg, L.; Larsson, S.; Nordell, P.; Allvin, I.; Bengtsson, S.; Wallinder, L.; Hedin, G.	1995	not target population; hip fx
The use of clopidogrel (Plavix) in patients undergoing nonelective orthopaedic surgery	Nydick, J. A.; Farrell, E. D.; Marcantonio, A. J.; Hume, E. L.; Marburger, R.; Ostrum, R. F.	2010	mixed population; 79% hip fx
A Prospective Randomized Trial to Assess Oral Versus Intravenous Antibiotics for the Treatment of Postoperative Wound Infection After Extremity Fractures (POvIV Study)	Obremskey, W. T.; Schmidt, A. H.; O'Toole, R. V.; DeSanto, J.; Morshed, S.; Tornetta, P., 3rd; Murray, C. K.; Jones, C. B.; Scharfstein, D. O.; Taylor, T. J.; Carlini, A. R.; Castillo, R. C.; Metrc,	2017	not target population; already infected

Article Title	Authors	Year	Reason for Exclusion
Prophylactic surgical drainage is associated with increased infection following intramedullary nailing of diaphyseal long bone fractures: A prospective cohort study in Nigeria	Oguzie, G. C.; Albright, P.; Ali, S. H.; Duru, N. E.; Iyidobi, E. C.; Lasebikan, O. A.; Chukwumam, D. C.; Wu, H. H.; Ikpeme, I. A.	2020	fixation for closed fx
Plating of humeral shaft fractures: Comparison of standard conventional plating versus minimally invasive plating	Oh, C. W.; Byun, Y. S.; Oh, J. K.; Kim, J. J.; Jeon, I. H.; Lee, J. H.; Park, K. H.	2012	<10 pts per group (open fx), fixation for closed fx
Comparison of arthroscopy-assisted vs. open reduction and fixation of coronoid fractures of the ulna	Oh, W. T.; Do, W. S.; Oh, J. C.; Koh, I. H.; Kang, H. J.; Choi, Y. R.	2021	mixed population; >50% low-energy
Outcome of subtrochanteric femur resection in patients with spinal cord injuries	Ohlmeier, M.; Bode, A.; Suero, E. M.; Grasmucke, D.; Aach, M.; Meindl, R.; Schildhauer, T. A.; Citak, M.	2018	no comparison group
Compartment syndrome of the thigh: a systematic review	Ojike, N. I.; Roberts, C. S.; Giannoudis, P. V.	2010	
The Diabetic Pilon Fracture: Are They as Bad as We Think?	Oladeji, L. O.; Platt, B.; Crist, B. D.	2020	mixed population; 64.2% high-energy
A review of forty five open tibial fractures covered with free flaps. Analysis of complications, microbiology and prognostic factors	Olesen, U. K.; Juul, R.; Bonde, C. T.; Moser, C.; McNally, M.; Jensen, L. T.; Elberg, J. J.; Eckardt, H.	2015	very low quality

Article Title	Authors	Year	Reason for Exclusion
The cost of infection in severe open tibial fractures treated with a free flap	Olesen, U. K.; Pedersen, N. J.; Eckardt, H.; Lykke-Meyer, L.; Bonde, C. T.; Singh, U. M.; McNally, M.	2017	cost analysis
Incidence and risk factors associated with infection after intramedullary nailing of femoral and tibial diaphyseal fractures: Prospective study	Oliveira, P. R.; Leonhardt, M. C.; Carvalho, V. C.; Kojima, K. E.; Silva, J. S.; Rossi, F.; Lima, A. L. L.	2018	mixed fracture
The impact of lifestyle risk factors on the rate of infection after surgery for a fracture of the ankle	Olsen, L. L.; Moller, A. M.; Brorson, S.; Hasselager, R. B.; Sort, R.	2017	unclear fx cause
Analysis of Risk Factors for Gunshot Wound Infection in a Nigerian Civilian Trauma Setting	Omoke, N. I.	2016	mixed population; only 24% fx
Analysis of machete cut fractures in Nigerian civilian trauma setting	Omoke, N. I.; Lasebikan, O. A.; Ahaotu, F. N.; Nnadozie, U. U.; Nwigwe, G. C.	2021	no comparison group
Unblinded randomized control trial on prophylactic antibiotic use in gustilo II open tibia fractures at Kenyatta National Hospital, Kenya	Ondari, J. N.; Masika, M. M.; Ombachi, R. B.; Ating'a, J. E.	2016	confounded treatment; different doses, timings, and abxs

Article Title	Authors	Year	Reason for Exclusion
Suture button versus syndesmosis screw constructs for acute ankle diastasis injuries: A meta-analysis and systematic review of randomised controlled trials	Onggo, J. R.; Nambiar, M.; Phan, K.; Hickey, B.; Ambikaipalan, A.; Hau, R.; Bedi, H.	2020	
Comparison of standard surgical debridement versus the VERSAJET Plus TM Hydrosurgery system in the treatment of open tibia fractures: a prospective open label randomized controlled trial	Oosthuizen, B.; Mole, T.; Martin, R.; Myburgh, J. G.	2014	irrelevant topic; surgical cutting tools
Functional and radiological outcomes in displaced heel fractures: Open reduction and internal fixation versus external fixation	Ortu, S.; Brusoni, M.; Pisanu, F.; Caggiari, G.; Ciurlia, E.; Bienati, F.; Manunta, A. F.; Doria, C.; Manca, M.	2020	fixation for closed fx
Results of non-operative and operative treatment of humeral shaft fractures. A series of 104 cases	Osman, N.; Touam, C.; Masmejean, E.; Asfazadourian, H.; Alnot, J. Y.	1998	fixation for closed fx
What Factors Are Associated with Reoperation after Operative Treatment of Terrible Triad Injuries?	Ostergaard, P. J.; Tarabochia, M. A.; Hall, M. J.; Dyer, G.; Earp, B. E.; Blazar, P.; Zhang, D.	2020	unclear fx cause
Arthroscopic treatment of tibial eminence fracture: A systematic review of different fixation methods	Osti, L.; Buda, M.; Soldati, F.; Del Buono, A.; Osti, R.; Maffulli, N.	2016	

Article Title	Authors	Year	Reason for Exclusion
Bacterial skin contamination after surgical preparation in foot and ankle surgery	Ostrander, R. V.; Brage, M. E.; Botte, M. J.	2003	unclear population; unclear if fx are cause for surgery or if toes are involved
Bacterial contamination of open fractures - pathogens, antibiotic resistances and therapeutic regimes in four hospitals of the trauma network Cologne, Germany	Otchwemah, R.; Grams, V.; Tjardes, T.; Shafizadeh, S.; Bathis, H.; Maegele, M.; Messler, S.; Bouillon, B.; Probst, C.	2015	No controlled comparisons; case series
Local Antibiotic Therapy to Reduce Infection After Operative Treatment of Fractures at High Risk of Infection: A Multicenter, Randomized, Controlled Trial (VANCO Study)	O'Toole, R. V.; Joshi, M.; Carlini, A. R.; Murray, C. K.; Allen, L. E.; Scharfstein, D. O.; Gary, J. L.; Bosse, M. J.; Castillo, R. C.; Metrc,	2017	protocol
Use of the minicondylar plate in metacarpal and phalangeal fractures	Ouellette, E. A.; Freeland, A. E.	1996	no comparison group
Contemporary demographics and complications of patients treated for open ankle fractures	Ovaska, M. T.; Madanat, R.; Honkamaa, M.; Makinen, T. J.	2015	very low quality
Risk factors for deep surgical site infection following operative treatment of ankle fractures	Ovaska, M. T.; Makinen, T. J.; Madanat, R.; Huotari, K.; Vahlberg, T.; Hirvensalo, E.; Lindahl, J.	2013	mixed population; <20% high-energy

Article Title	Authors	Year	Reason for Exclusion
Predictors of poor outcomes following deep infection after internal fixation of ankle fractures	Ovaska, M. T.; Makinen, T. J.; Madanat, R.; Vahlberg, T.; Hirvensalo, E.; Lindahl, J.	2013	mixed population; 14% high-energy fx
Double-blind randomized prospective study of the efficacy of antibiotic prophylaxis for open reduction and internal fixation of closed ankle fractures	Paiement, G. D.; Renaud, E.; Dagenais, G.; Gosselin, R. A.	1994	mixed population; >20% low-energy
Comparisons of external fixator combined with limited internal fixation and open reduction and internal fixation for Sanders type 2 calcaneal fractures: Finite element analysis and clinical outcome	Pan, M.; Chai, L.; Xue, F.; Ding, L.; Tang, G.; Lv, B.	2017	fixation for closed fracture
Nonunion after primary treatment of tibia fractures with external fixation	Papaioannou, N.; Mastrokalos, D.; Papagelopoulos, P. J.; Tyllianakis, M.; Athanassopoulos, J.; Nikiforidis, P. A.	2001	no comparison group
Prevalence of complications of open tibial shaft fractures stratified as per the Gustilo-Anderson classification	Papakostidis, C.; Kanakaris, N. K.; Pretel, J.; Faour, O.; Morell, D. J.; Giannoudis, P. V.	2011	

Article Title	Authors	Year	Reason for Exclusion
Antibiotics in the treatment of low-velocity gunshot-induced fractures: a systematic literature review	Papasoulis, E.; Patzakis, M. J.; Zalavras, C. G.	2013	
Randomized comparative study between extensile lateral and sinus tarsi approaches for the treatment of Sanders type 2 calcaneal fracture	Park, C. H.; Yan, H.; Park, J.	2021	not target population; unknown if high energy
Immediate interlocking nailing versus external fixation followed by delayed interlocking nailing for Gustilo type IIIB open tibial fractures	Park, H. J.; Uchino, M.; Nakamura, M.; Ueno, M.; Kojima, Y.; Itoman, M.; Yokoyama, K.; Suzuki, T.; Nemoto, M.	2007	<10 pts per group
Comparison of 2-Octyl Cyanoacrylate Topical Skin Adhesive and Simple Interrupted Nylon Sutures for Wound Closure in Ankle Fracture Surgery	Park, Y. H.; Song, J. H.; Choi, G. W.; Kim, H. J.	2018	patient population; closed unclear high energy
Closed suction surgical wound drainage after orthopaedic surgery	Parker, M. J.; Livingstone, V.; Clifton, R.; McKee, A.	2007	
Gamma versus DHS nailing for extracapsular femoral fractures. Meta-analysis of ten randomised trials	Parker, M. J.; Pryor, G. A.	1996	
Risk Factors for Deep Infection Following Plate Fixation of Proximal Tibial Fractures	Parkkinen, M.; Madanat, R.; Lindahl, J.; Makinen, T. J.	2016	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Comparing Muscle and Fasciocutaneous Free Flaps in Lower Extremity Reconstruction--Does It Matter?	Paro, J.; Chiou, G.; Sen, S. K.	2016	not target population; unknown if high energy
Predictive model for surgical site infection risk after surgery for high-energy lower-extremity fractures: development of the risk of infection in orthopedic trauma surgery score	Paryavi, E.; Stall, A.; Gupta, R.; Scharfstein, D. O.; Castillo, R. C.; Zadnik, M.; Hui, E.; O'Toole, R. V.	2013	mixed population; 17%open fx; no etiologies listed
Risk Factors for Nonunion Following Ankle Arthrodesis: A Systematic Review and Meta-analysis	Patel, S.; Baker, L.; Perez, J.; Vulcano, E.; Kaplan, J.; Aiyer, A.	2021	
Prospective, randomized, double-blind study comparing single-agent antibiotic therapy, ciprofloxacin, to combination antibiotic therapy in open fracture wounds	Patzakis, M. J.; Bains, R. S.; Lee, J.; Shepherd, L.; Singer, G.; Ressler, R.; Harvey, F.; Holtom, P.	2000	Abx not available in US
Efficacy of perioperative cefamandole with postoperative cephalexin in the primary outpatient treatment of open wounds of the hand	Peacock, K. C.; Hanna, D. P.; Kirkpatrick, K.; Breidenbach, W. C.; Lister, G. D.; Firrell, J.	1988	mixed population; includes finger and nail bed injuries
Microvascular soft tissue reconstruction for acute tibial fractures--late complications and the role of bone grafting	Peat, B. G.; Liggins, D. F.	1990	Very Low Quality
Do Poller screws effect union in tibial shaft fractures treated with intramedullary nailing?	Peat, F.; Ordas-Bayon, A.; Krkovic, M.	2021	unclear fx cause; mixed fx

Article Title	Authors	Year	Reason for Exclusion
Severe open tibial fractures in combat trauma: management and preliminary outcomes	Penn-Barwell, J. G.; Bennett, P. M.; Fries, C. A.; Kendrew, J. M.; Midwinter, M. J.; Rickard, R. F.	2013	very low quality
Acute bilateral leg amputation following combat injury in UK servicemen	Penn-Barwell, J. G.; Bennett, P. M.; Kay, A.; Sargeant, I. D.	2014	case series
Factors influencing infection in 10 years of battlefield open tibia fractures	Penn-Barwell, J. G.; Bennett, P. M.; Mortiboy, D. E.; Fries, C. A.; Groom, A. F.; Sargeant, I. D.	2016	very low quality
What are the risk factors for hardware removal after tibia or fibula fracture?	Perdue, P. W.; Rosenbaum, Y. A.; Perfetti, D. C.; Kapadia, B. H.; Boylan, M. R.; Jauregui, J. J.; Paulino, C. B.	2015	unclear fx cause
Length of preoperative hospital stay: a risk factor for reducing surgical infection in femoral fracture cases	Pereira, H. O.; Rezende, E. M.; Couto, B. R.	2015	mixed population; includes hip fx and low-energy fx
Risk factors for reoperation after total elbow arthroplasty	Perretta, D.; van Leeuwen, W. F.; Dyer, G.; Ring, D.; Chen, N.	2017	mixed population; 27% traumatic
A preliminary study of the effect of closed incision management with negative pressure wound therapy over high-risk incisions	Perry, K. L.; Rutherford, L.; Sajik, D. M.; Bruce, M.	2015	Study Conducted on Animals

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Plantar Approach for Midfoot Wedge Resection to Reconstruct the Rocker Bottom Foot	Persky, J. D.; Langan, T.; Smith, C. N.; Burns, P. R.	2019	not target population; foot deformity
Treatment of fracture-related infection of the lower extremity with antibiotic-eluting ceramic bone substitutes: case series of 35 patients and literature review	Pesch, S.; Hanschen, M.; Greve, F.; Zyskowski, M.; Seidl, F.; Kirchhoff, C.; Biberthaler, P.; Huber-Wagner, S.	2020	case series
Tubular vs Profile Plate in Peroneal or Bimalleolar Fractures: is There a Real Difference in Skin Complication? A Retrospective Study in Three Level I Trauma Center	Petruccelli, R.; Bisaccia, M.; Rinonapoli, G.; Rollo, G.; Meccariello, L.; Falzarano, G.; Ceccarini, P.; Bisaccia, O.; Giaracuni, M.; Caraffa, A.	2017	fixation for closed fx
Comparison of different locking plate fixation methods in distal tibia fractures	Piatkowski, K.; Piekarczyk, P.; Kwiatkowski, K.; Przybycien, M.; Chwedczuk, B.	2015	<10 pts per group (open and closed fx)
Titanium alloy pins versus stainless steel pins in external fixation at the wrist: a randomized prospective study	Pieske, O.; Geleng, P.; Zaspel, J.; Piltz, S.	2008	patient population; majority low-energy

Article Title	Authors	Year	Reason for Exclusion
Clinical benefit of hydroxyapatite-coated pins compared with stainless steel pins in external fixation at the wrist: a randomised prospective study	Pieske, O.; Kaltenhauser, F.; Pichlmaier, L.; Schramm, N.; Trentzsch, H.; Loffler, T.; Greiner, A.; Piltz, S.	2010	patient population; majority low-energy
Hydroxyapatite-coated pins versus titanium alloy pins in external fixation at the wrist: a controlled cohort study	Pieske, O.; Pichlmaier, L.; Kaltenhauser, F.; Schramm, N.; Rubenbauer, B.; Greiner, A.; Piltz, S.	2011	<10 pts per group w/ high energy trauma
Race may not affect [correct] outcomes in operatively treated tibia fractures	Piposar, J.; Fowler, J. R.; Gaughan, J. P.; Rehman, S.	2012	not factor of interest; race
Comparison of bioabsorbable versus metallic implant fixation for physeal and epiphyseal fractures of the distal tibia	Podeszwa, D. A.; Wilson, P. L.; Holland, A. R.; Copley, L. A.	2008	fixation for closed fx
Total elbow arthroplasty following complex fractures of the distal humerus: Results in patients over 65 years of age	Pogliacomi, F.; Schiavi, P.; Defilippo, M.; Calderazzi, F.; Corradi, M.; Vaienti, E.; Ceccarelli, F.; Rotini, R.	2016	patient population; unclear high energy
Deep wound infection after proximal femoral fracture: consequences and costs	Pollard, T. C.; Newman, J. E.; Barlow, N. J.; Price, J. D.; Willett, K. M.	2006	not target population; hip fx

Article Title	Authors	Year	Reason for Exclusion
Systematic review of the literature and evidence-based recommendations for antibiotic prophylaxis in trauma: results from an Italian consensus of experts	Poole, D.; Chieregato, A.; Langer, M.; Viaggi, B.; Cingolani, E.; Malacarne, P.; Mengoli, F.; Nardi, G.; Nascimben, E.; Riccioni, L.; Turriziani, I.; Volpi, A.; Coniglio, C.; Gordini, G.; Trauma Update Working, Group	2014	
Management of high-risk popliteal vascular blunt trauma: Clinical experience with 62 cases	Pourzand, A.; Fakhri, B. A.; Azhough, R.; Hassanzadeh, M. A.; Hashemzadeh, S.; Bayat, A. M.	2010	not target outcome; no SSI
Skin closure with surgical staples in ankle fractures: a safe and reliable method	Prabhakar, G.; Bullock, T. S.; Martin, C. W.; Ryan, J. C.; Cabot, J. H.; Makhani, A. A.; Griffin, L. P.; Shah, K.; Zelle, B. A.	2020	fixation for closed fx
The 6-Hour Rule for Surgical Debridement of Open Tibial Fractures: A Systematic Review and Meta-Analysis of Infection and Nonunion Rates	Prodromidis, A. D.; Charalambous, C. P.	2016	

Article Title	Authors	Year	Reason for Exclusion
External fixation-minimal osteosynthesis: indications, role, and place in war surgery	Pukljak, D.	1997	mixed population; includes closed fx
Risk Factors for the Occurrence and Progression of Posttraumatic Elbow Stiffness: A Case-Control Study of 688 Cases	Qian, Y.; Yu, S.; Shi, Y.; Huang, H.; Fan, C.	2020	no comparison group
Godina revisited: a systematic review of traumatic lower extremity wound reconstruction timing	Qiu, E.; Kurlander, D. E.; Ghaznavi, A. M.	2018	
The efficacy of volar locking plates and external fixation for patients with unstable distal radial fractures: A meta-analysis	Qu, S.; Zhang, B.; Shang, K.; Wang, P.; Wei, X.; Zhuang, Y.; Zhang, K.	2019	
Does coating an intramedullary nail with polymethylmethacrylate improve mechanical stability at the fracture site?	Quinnan, S.; Seiter, M.; Al-Barghouthi, A.; Milne, E.; Latta, L.; Travascio, F.	2021	in vitro study
Subtalar fusion after displaced intra-articular calcaneal fractures: does initial operative treatment matter? Surgical technique	Radnay, C. S.; Clare, M. P.; Sanders, R. W.	2010	not target population; unknown if high energy
Adherence to American society of health-system pharmacists surgical antibiotic prophylaxis guidelines in a teaching hospital	Rafati, M.; Shiva, A.; Ahmadi, A.; Habibi, O.	2014	irrelevant topic; guideline adherence
Prevalence of antibiotic resistant pathogens in post-orthopedic implant site	Rafiq, A.; Ahsan Ul, Haq; Hannan, A.; Choudhary, A. A.	2019	No controlled comparisons; case series

Article Title	Authors	Year	Reason for Exclusion
Kirschner wire pin tract infection rates between percutaneous and buried wires in treating metacarpal and phalageal fractures	Rafique, A.; Ghani, S.; Sadiq, M.; Ahmed Siddiqui, I.	2006	not target population; unknown if high energy
Treatment of Casualties in a Forward Hospital of Indian Army : Nine year Experience	Rai, K. M.; Kale, R.; Mohanty, S. K.; Chakrabarty, A.; Waghray, M. R.; Kumar, R.; Prasad, D.; Lahiri, A. K.	2004	review
The open blast pelvis: the significant burden of management	Ramasamy, A.; Evans, S.; Kendrew, J. M.; Cooper, J.	2012	not target population; pelvic injury
The modern "deck-slap" injury--calcaneal blast fractures from vehicle explosions	Ramasamy, A.; Hill, A. M.; Phillip, R.; Gibb, I.; Bull, A. M.; Clasper, J. C.	2011	no comparison group
Ilizarov external fixation or locked intramedullary nailing in diaphyseal tibial fractures: A randomized, prospective study of 58 consecutive patients	Ramos, T.; Eriksson, B. I.; Karlsson, J.; Nistor, L.	2014	mixed population; majority closed and low energy fx
Cost-Effectiveness Analysis of Syndesmotic Screw Versus Suture Button Fixation in Tibiofibular Syndesmotic Injuries	Ramsey, D. C.; Friess, D. M.	2018	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Transepidermal oxygen flux measurement - First clinical application for postoperative wound monitoring	Ranieri, M.; Klein, S.; Taeger, C.; Kotrade, A.; Nerlich, M.; Dolderer, J.; Prantl, L.; Geis, S.	2017	<20 total pts; hip fx
Is Postoperative Glucose Variability Associated with Adverse Outcomes Following Shoulder Arthroplasty?	Rao, A. J.; Yeatts, N. C.; Reid, R. T.; Trofa, D. P.; Scarola, G.; Schiffern, S. C.; Hamid, N.; Saltzman, B. M.	2020	not target population; TSA
Factors associating with surgical site infection following operative management of malleolar fractures at an urban level 1 trauma center	Rascoe, A. S.; Kavanagh, M. D.; Audet, M. A.; Hu, E.; Vallier, H. A.	2020	mixed population; 66% low-energy fx
Afghan war wounded: experience with 200 cases	Rautio, J.; Paavolainen, P.	1988	case series
A prospective, randomised, controlled trial comparing wound dressings used in hip and knee surgery: Aquacel and Tegaderm versus Cutiplast	Ravenscroft, M. J.; Harker, J.; Buch, K. A.	2006	not target population; unknown if high energy
Development of a surgical site infection prediction model in orthopaedic trauma: The Denver Health Model	Reese, S. M.; Knepper, B.; Young, H. L.; Mauffrey, C.	2017	unclear fx cause
Intrmedullary versus extramedullary fixation of lateral malleolus fractures	Rehman, H.; McMillan, T.; Rehman, S.; Clement, A.; Finlayson, D.	2015	

Article Title	Authors	Year	Reason for Exclusion
Diabetic Control Predicts Surgical Site Infection Risk in Orthopaedic Trauma Patients	Reich, M. S.; Fernandez, I.; Mishra, A.; Kafchinski, L.; Adler, A.; Nguyen, M. P.	2019	mixed population; 42% hip fx
Procedure-specific surgical site infection rates and postdischarge surveillance in Scotland	Reilly, J.; Allardice, G.; Bruce, J.; Hill, R.; McCoubrey, J.	2006	not target population; no extremity fx
Timing of antimicrobial initiation and reduced infection risk in open limb fractures: a cohort study	Reisfeld, S.; Labnawi, I.; Shadmi, N.; Stein, M.	2020	very low quality
Distal femoral osteotomy in a young symptomatic population: Outcomes correlate to concomitant pathology	Rensing, N.; Prabhakar, G.; Kusnezov, N.; Zarkadis, N. J.; Waterman, B. R.; Pallis, M.	2019	<20 total pts
The use of negative pressure wound therapy in severe open lower extremity fractures: identifying the association between length of therapy and surgical outcomes	Rezzadeh, K. S.; Nojan, M.; Buck, A.; Li, A.; Vardanian, A.; Crisera, C.; Festekjian, J.; Jarrahy, R.	2015	Sample Size too Small (n < 10 per group)
Is after-hours orthopaedic surgery associated with adverse outcomes? A prospective comparative study	Ricci, W. M.; Gallagher, B.; Brandt, A.; Schwappach, J.; Tucker, M.; Leighton, R.	2009	not a factor of interest; time of op
Radial forearm flap donor-site complications and morbidity: a prospective study	Richardson, D.; Fisher, S. E.; Vaughan, E. D.; Brown, J. S.	1997	not target population; unknown if high energy

Article Title	Authors	Year	Reason for Exclusion
Comparison study of patient demographics and risk factors for surgical site infections following open reduction and internal fixation for lateral malleolar ankle fractures within the medicare population	Richardson, N. G.; Swiggett, S. J.; Pasternack, J. B.; Vakharia, R. M.; Kang, K. K.; Abdelgawad, A.	2020	unclear fx cause
Incidence of Treatment for Infection of Buried Versus Exposed Kirschner Wires in Phalangeal, Metacarpal, and Distal Radial Fractures	Ridley, T. J.; Freking, W.; Erickson, L. O.; Ward, C. M.	2017	unclear fx cause
Correlation of Soft Tissue Swelling and Timing to Surgery With Acute Wound Complications for Operatively Treated Ankle and Other Lower Extremity Fractures	Riedel, M. D.; Parker, A.; Zheng, M.; Briceno, J.; Staffa, S. J.; Miller, C. P.; Kaiser, P. B.; Wu, J. S.; Zurakowski, D.; Kwon, J. Y.	2019	unclear fx cause
Surgical treatment of extra-articular or simple intra-articular distal tibial fractures: External fixation versus intramedullary nailing	Ristiniemi, J.; Luukinen, P.; Ohtonen, P.	2011	<10 pts per group (open fx), fixation for closed fx
Functional outcomes of posttraumatic lower limb salvage: a pilot study of anterolateral thigh perforator flaps versus muscle flaps	Rodriguez, E. D.; Bluebond-Langner, R.; Copeland, C.; Grim, T. N.; Singh, N. K.; Scalea, T.	2009	not target population; unknown if fractures

Article Title	Authors	Year	Reason for Exclusion
Predictive factors of distal femoral fracture nonunion after lateral locked plating: a retrospective multicenter case-control study of 283 fractures	Rodriguez, E. K.; Boulton, C.; Weaver, M. J.; Herder, L. M.; Morgan, J. H.; Chacko, A. T.; Appleton, P. T.; Zurakowski, D.; Vrahas, M. S.	2014	Mixed fx population; includes non traumatic causes
Evidence-based protocol for prophylactic antibiotics in open fractures: improved antibiotic stewardship with no increase in infection rates	Rodriguez, L.; Jung, H. S.; Goulet, J. A.; Cicalo, A.; Machado-Aranda, D. A.; Napolitano, L. M.	2014	confounded tx; comparison of two different abx protocols
Hyperglycemia as a risk factor for postoperative early wound infection after bicondylar tibial plateau fractures: Determining a predictive model based on four methods	Rodriguez-Buitrago, A.; Basem, A.; Okwumabua, E.; Enata, N.; Evans, A.; Pennings, J.; Karacay, B.; Rice, M. J.; Obremskey, W.	2019	irrelevant topic; hyperglycemic testing
Anterior Midline Incision is a Safe and Effective Approach for High-energy Medial Shear Fractures of the Tibial Plateau	Rodriguez-Buitrago, A.; Cereijo, C.; Yusi, K.; Obremskey, W. T.	2020	no comparison group
A randomized comparison of volar plate and external fixation for intra-articular distal radius fractures	Roh, Y. H.; Lee, B. K.; Baek, J. R.; Noh, J. H.; Gong, H. S.; Baek, G. H.	2015	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Trends in shoulder arthroplasty in Israel	Rosen, N.; Chechik, O.; Goldstein, Y.; Dolkart, O.; Mozes, G.; Rak, O.; Dalich, A.; Geron, Y.; Maman, E.	2019	not target population; shoulder surgery
Infectious morbidity in extremity fractures	Roth, A. I.; Fry, D. E.; Polk, H. C., Jr.	1986	mixed population; 36% hip fx
Secondary nailing after external fixation for tibial shaft fracture: risk factors for union and infection. A 55 case series	Roussignol, X.; Sigonney, G.; Potage, D.; Etienne, M.; Duparc, F.; Dujardin, F.	2015	unclear fx cause
Staged Prone/Supine Fixation of High-Energy Multicolumnar Tibial Plateau Fractures: A Multicenter Analysis	Row, E. R.; Komatsu, D. E.; Watson, J. T.; Jones, C.; Kottmeier, S.	2018	no comparison group
Fractures of the tibial pilon treated by open reduction and internal fixation (locking compression plate-less invasive stabilising system): Complications and sequelae	Rubio-Suarez, J. C.; Carbonell-Escobar, R.; Rodriguez-Merchan, E. C.; Ibarzabal-Gil, A.; Gil-Garay, E.	2018	fixation for closed fx
Complications of high-energy bicondylar tibial plateau fractures treated with dual plating through 2 incisions	Ruffolo, M. R.; Gettys, F. K.; Montijo, H. E.; Seymour, R. B.; Karunakar, M. A.	2015	very low quality
Surgical site infections after distal radius fracture surgery: a nation-wide cohort study of 31,807 adult patients	Rundgren, J.; Enocson, A.; Jarnbert-Pettersson, H.; Mellstrand Navarro, C.	2020	not target population; unknown if high energy

Article Title	Authors	Year	Reason for Exclusion
Surgical Site Infection After Open Upper Extremity Fracture and the Effect of Urgent Operative Intervention	Ryan, D. J.; Minhas, S. V.; Konda, S.; Catalano, L. W.	2020	unclear fx cause
Is There a Difference in Infection Risk Between Single and Multiple Doses of Prophylactic Antibiotics? A Meta-analysis	Ryan, S. P.; Kildow, B. J.; Tan, T. L.; Parvizi, J.; Bolognesi, M. P.; Seyler, T. M.; American Association of, Hip; Knee Surgeons Research, Committee	2019	
The influence of timing of surgery on soft tissue complications in closed ankle fractures	Saithna, A.; Moody, W.; Jenkinson, E.; Almazedi, B.; Sargeant, I.	2009	unclear fx cause
Comparison of outcome in coverage of open fractures of tibia with pedicled fasciocutaneous flaps and muscle flaps with overlying graft in patients presenting to plastic surgery department, Lahore General Hospital, Lahore	Sajjad, Y.; Aslam, M. A.; Murtaza, M.	2019	very low quality
Wound-Healing Issues Following Rotational Ankle Fracture Surgery: Predictors and Local Management Options	Saleh, H.; Konda, S.; Driesman, A.; Stranix, J.; Ly, C.; Saadeh, P.; Egol, K.	2019	unclear fx cause; 6 open fx
Critical analysis of tibial fracture healing following unreamed nailing	Salem, K. H.	2012	mixed population; 64% high-energy

Article Title	Authors	Year	Reason for Exclusion
Prospective randomized trial comparing open reduction and internal fixation with minimally invasive reduction and percutaneous fixation in managing displaced intra-articular calcaneal fractures	Sampath Kumar, V.; Marimuthu, K.; Subramani, S.; Sharma, V.; Bera, J.; Kotwal, P.	2014	fixation for closed fx
Surgical site infections following routine syndesmotic screw removal; a systematic review	Sanders, F. R. K.; Birnie, M. F. N.; Penning, D.; Goslings, J. C.; Schepers, T.	2020	
Target site antibiotic concentrations in orthopedic/trauma extremity surgery: is prophylactic cefazolin adequately dosed? A systematic review and meta-analysis	Sanders, F. R. K.; Goslings, J. C.; Mathot, R. A. A.; Schepers, T.	2019	
Seasonal effect on the incidence of post-operative wound complications after trauma-related surgery of the foot, ankle and lower leg	Sanders, F. R. K.; Van't Hul, M.; Kistemaker, R. M. G.; Schepers, T.	2020	mixed population; includes implant removal and other procedures
The operative treatment of displaced intra-articular calcaneal fractures (DIACFS): Long term (10-20 years) results in 108 fractures using a prognostic CT classification	Sanders, R.; Vaupel, Z.; Erdogan, M.; Downes, K.	2014	not factor of interest; fx type
Leeds-Genoa Non-Union Index: a clinical tool for asessing the need for early intervention after long bone fracture fixation	Santolini, E.; West, R. M.; Giannoudis, P. V.	2020	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Management of upper extremity war injuries in the subacute period: A review of 62 cases	Sari, A.; Ozcelik, I. B.; Bayirli, D.; Ayik, O.; Mert, M.; Ercin, B. S.; Baki, H.; Mersa, B.	2020	No controlled comparisons; case series
Smoking and trimalleolar fractures are risk factors for infection after open reduction and internal fixation of closed ankle fractures: A multicenter retrospective study of 1,201 fractures	Sato, T.; Takegami, Y.; Sugino, T.; Bando, K.; Fujita, T.; Imagama, S.	2021	mixed population; >50% low-energy
A simple practical protocol for care of metal-skin interface of external fixation	Saw, A.; Chan, C. K.; Penafort, R.; Sengupta, S.	2006	no comparison group
Tibial pilon fractures treated with hybrid external fixator: analysis of 75 cases	Scaglione, M.; Celli, F.; Casella, F.; Fabbri, L.	2019	No controlled comparisons; case series
External fixation as a bridge to intramedullary nailing for patients with multiple injuries and with femur fractures: damage control orthopedics	Scalea, T. M.; Boswell, S. A.; Scott, J. D.; Mitchell, K. A.; Kramer, M. E.; Pollak, A. N.	2000	fixation for closed fx
Improving wound healing and preventing surgical site complications of closed surgical incisions: A possible role of incisional negative pressure wound therapy. A systematic review of the literature	Scalise, A.; Calamita, R.; Tartaglione, C.; Pierangeli, M.; Bolletta, E.; Gioacchini, M.; Gesuita, R.; Benedetto, G. D.	2016	

Article Title	Authors	Year	Reason for Exclusion
Early Postoperative Infection Following Open Reduction Internal Fixation Repair of Closed Malleolar Fractures	Schade, M. A.; Hollenbeak, C. S.	2018	unclear fx cause
Does timing to operative debridement affect infectious complications in open long-bone fractures? A systematic review	Schenker, M. L.; Yannascoli, S.; Baldwin, K. D.; Ahn, J.; Mehta, S.	2012	
The timing of ankle fracture surgery and the effect on infectious complications; a case series and systematic review of the literature	Schepers, T.; De Vries, M. R.; Van Lieshout, E. M.; Van der Elst, M.	2013	
Increased rates of wound complications with locking plates in distal fibular fractures	Schepers, T.; Van Lieshout, E. M.; De Vries, M. R.; Van der Elst, M.	2011	fixation for closed fx
Risk factors for 30-day postoperative complications and mortality following open reduction internal fixation of distal radius fractures	Schick, C. W.; Koehler, D. M.; Martin, C. T.; Gao, Y.; Pugely, A. J.; Shah, A.; Adams, B. D.	2014	unclear fx cause
Outcomes of intra-articular calcaneal fractures: surgical treatment of 114 consecutive cases at a maximum care trauma center	Schindler, C.; Schirm, A.; Zdravkovic, V.; Potocnik, P.; Jost, B.; Toepfer, A.	2021	very low quality
Negative pressure wound therapy in grade IIIB tibial fractures: fewer infections and fewer flap procedures?	Schlatterer, D. R.; Hirschfeld, A. G.; Webb, L. X.	2015	

Article Title	Authors	Year	Reason for Exclusion
Negative pressure wound therapy with reticulated open cell foam-adjunctive treatment in the management of traumatic wounds of the leg: a review of the literature	Schlatterer, D.; Hirshorn, K.	2008	
Open fractures: it doesn't come out in the wash	Schlitzkus, L. L.; Goettler, C. E.; Waibel, B. H.; Sagraves, S. G.; Hasty, C. C.; Edwards, M.; Rotondo, M. F.	2011	no factors of interest
The impact of compartment syndrome on hospital length of stay and charges among adult patients admitted with a fracture of the tibia	Schmidt, A. H.	2011	not target population; unknown if high energy
Cigarette smoking increases complications following fracture: a systematic review	Scolaro, J. A.; Schenker, M. L.; Yannascoli, S.; Baldwin, K.; Mehta, S.; Ahn, J.	2014	
Lateral Extensile Approach Versus Minimal Incision Approach for Open Reduction and Internal Fixation of Displaced Intra-articular Calcaneal Fractures: A Meta-analysis	Seat, A.; Seat, C.	2020	
Bifocal compression-distraction in the acute treatment of grade III open tibia fractures with bone and soft-tissue loss: a report of 24 cases	Sen, C.; Kocaoglu, M.; Eralp, L.; Gulsen, M.; Cinar, M.	2004	no comparison group

Article Title	Authors	Year	Reason for Exclusion
A Study of Clinical Applications of Perforator-Based Propeller Flaps in Leg Reconstructive Surgery: A Single-Center Experience of 40 Cases	Shahabuddin, S. F.; Khurram, M. F.	2020	not target population; unknown if high energy
Incidence, etiological profile, and treatment of surgical site infections in patients with gunshot injuries and bomb blast injuries in Pakistan	Shahabuddin,; Shahab, F.; Sikka, R. S.	2013	no factor of interest
Incidence and risk factors for surgical site infection after open reduction and internal fixation of tibial plateau fracture: A systematic review and meta-analysis	Shao, J.; Chang, H.; Zhu, Y.; Chen, W.; Zheng, Z.; Zhang, H.; Zhang, Y.	2017	
Risk factors for surgical site infection following operative treatment of ankle fractures: A systematic review and meta-analysis	Shao, J.; Zhang, H.; Yin, B.; Li, J.; Zhu, Y.; Zhang, Y.	2018	
Antegrade versus retrograde nailing in humeral shaft fractures: A prospective study	Sharma, G. M.; Bhardwaj, A. R.; Shah, S.	2020	fixation for closed fx (closed), <10 pts per group (open)
An audit on factors influencing infection in operated ankle fractures	Sharma, H.; Vashishtha, P.; Paode, V.; Sharma, R.; Kakar, R.	2006	no comparison group

Article Title	Authors	Year	Reason for Exclusion
Wound Surface Area as a Risk Factor for Flap Complications among Patients with Open Fractures	Shea, P.; O'Hara, N. N.; Sprague, S. A.; Bhandari, M.; Petrisor, B. A.; Jeray, K. J.; Zhan, M.; Slobogean, G. P.; Pensy, R. A.; Fluid Lavage in Open Wounds, Investigators	2018	not factor of interest; wound size
Open treatment of ankle fracture as inpatient increases risk of complication	Shen, M. S.; Dodd, A. C.; Lakomkin, N.; Mousavi, I.; Bulka, C.; Jahangir, A. A.; Sethi, M. K.	2017	unclear fx cause
Prospective randomized study of reamed versus unreamed femoral intramedullary nailing: an assessment of procedures	Shepherd, L. E.; Shean, C. J.; Gelalis, I. D.; Lee, J.; Carter, V. S.	2001	fixation for closed fx
Postoperative Morbidity by Procedure and Patient Factors Influencing Major Complications Within 30 Days Following Shoulder Surgery	Shields, E.; Iannuzzi, J. C.; Thorsness, R.; Noyes, K.; Voloshin, I.	2014	not target population; shoulder surgery
Antibiotic prophylaxis in bacterial infection of type IIIA open fracture of tibial shaft with or without fibula fracture	Shorin, H. R.; Daghi, M. G.; Mirkazemi, M.; Assadian, M.; Ashraf, H.; Izanloo, A.	2016	very low quality
Treatment of open tibial fractures with primary suture and Ilizarov fixation	Shtarker, H.; David, R.; Stolero, J.; Grimberg, B.; Soudry, M.	1997	case series

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Incidence of MRSA surgical-site infection in MRSA carriers in an orthopaedic trauma unit	Shukla, S.; Nixon, M.; Acharya, M.; Korim, M. T.; Pandey, R.	2009	mixed population; 30% hip fx
Wound-healing risk factors after open reduction and internal fixation of calcaneal fractures: does correction of Bohler's angle alter outcomes?	Shuler, F. D.; Conti, S. F.; Gruen, G. S.; Abidi, N. A.	2001	unclear fx cause
Surgical treatment of displaced intra-articular calcaneal fractures: Is bone grafting necessary?	Singh, A. K.; Vinay, K.	2013	patient population; closed unclear high energy
Gustilo IIIB Open Tibial Fractures: An Analysis of Infection and Nonunion Rates	Singh, A.; Jiong Hao, J. T.; Wei, D. T.; Liang, C. W.; Murphy, D.; Thambiah, J.; Han, C. Y.	2018	very low quality
Early versus delayed surgery for ankle fractures: A comparison of results	Singh, B. I.; Balaratnam, S.; Naidu, V.	2005	unclear fx cause;
Metallic or absorbable implants for ankle fractures: a comparative study of infections in 3,111 cases	Sinisaari, I.; Patiala, H.; Bostman, O.; Makela, E. A.; Hirvensalo, E.; Partio, E. K.; Tormala, P.; Rokkanen, P.	1996	unclear fx cause
Single centre experience of combat-related vascular injury in victims of Syrian conflict: Retrospective evaluation of risk factors associated with amputation	Sisli, E.; Kavala, A. A.; Mavi, M.; Sariosmanoglu, O. N.; Oto, O.	2016	Irrelevant Topic: Combat-Related Vascular Injury

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Open Reduction Internal Fixation of Distal Radius Fractures: Retrospective Cohort Analysis of the Geriatric Population Using the NSQIP Database	Skochdopole, A.; Tarabishy, S.; Hermiz, S.; Mailey, B.; Herrera, F. A.	2020	unclear fx cause
Decreasing time trend in SSI incidence for orthopaedic procedures: surveillance matters!	Skramm, I.; Saltyte Benth, J.; Bukholm, G.	2012	mixed population; only 31% ankle fx
Antibiotics in open fractures of the distal phalanx?	Sloan, J. P.; Dove, A. F.; Maheson, M.; Cope, A. N.; Welsh, K. R.	1987	not target population; distal finger fx
Single- versus multiple-dose antibiotic prophylaxis in the surgical treatment of closed fractures: a meta-analysis	Slobogean, G. P.; Kennedy, S. A.; Davidson, D.; O'Brien, P. J.	2008	
Single-dose versus multiple-dose antibiotic prophylaxis for the surgical treatment of closed fractures	Slobogean, G. P.; O'Brien, P. J.; Brauer, C. A.	2010	cost analysis
Analysis of the incidence of surgical site infections after open reposition of long bone fractures and closed fracture settings in a 7-year follow-up in an orthopedic and trauma ward in southern Poland	Slowik, R.; Walaszek, M.; Zienczuk, W.; Rozanska, A.; Wojkowska-Mach, J.; Kolpa, M.; Wolak, Z.; Kawik, L.	2020	No factors of interest;

Article Title	Authors	Year	Reason for Exclusion
Factors Associated With Wound- and Implant-Related Complications After Surgical Treatment of Ankle Fractures	Smeeing, D. P. J.; Briet, J. P.; van Kessel, C. S.; Segers, M. M.; Verleisdonk, E. J.; Leenen, L. P. H.; Houwert, R. M.; Hietbrink, F.	2018	mixed population; 36.3% low-energy
Early complications of operatively treated proximal humeral fractures	Smith, A. M.; Mardones, R. M.; Sperling, J. W.; Cofield, R. H.	2007	fixation for closed fx
Durability of Smoking Cessation for Elective Lower Extremity Orthopaedic Surgery	Smith, D. H.; McTague, M. F.; Weaver, M. J.; Smith, J. T.	2019	unclear population; does not specify what surgeries
Unreconstructable acute distal humeral fractures and their sequelae treated with distal humeral hemiarthroplasty: a two-year to eleven-year follow-up	Smith, G. C.; Hughes, J. S.	2013	no comparison group
Inpatient surgical site infection after shoulder arthroplasty	Smucny, M.; Menendez, M. E.; Ring, D.; Feeley, B. T.; Zhang, A. L.	2015	not target population; shoulder surgery
Fasciocutaneous free flaps are more reliable than muscle free flaps in lower limb trauma reconstruction: experience in a single trauma center	Sofiadellis, F.; Liu, D. S.; Webb, A.; Macgill, K.; Rozen, W. M.; Ashton, M. W.	2012	not target population; lower limb trauma

Article Title	Authors	Year	Reason for Exclusion
Comparison between ender and unreamed interlocking nails in tibial shaft fractures	Soleimanpour, J.; Feizi, H. H.; Mohseni, M. A.; Moradi, A.; Arzromchilar, A.	2008	mixed population; includes fixation for 42% closed fx
Association Between Smoking and Wound Infection Rates Following Calcaneal Fracture Fixation	Soni, A.; Vollans, S.; Malhotra, K.; Mann, C.	2014	unclear fx cause
Complication rates following open reduction and internal fixation of ankle fractures	SooHoo, N. F.; Krenek, L.; Eagan, M. J.; Gurbani, B.; Ko, C. Y.; Zingmond, D. S.	2009	unclear fx cause
To compare plating versus ilizrov external fixation approaches in the management of schatzker type VI tibial plateau fracture	Soomro, M. A.; Memon, F. A.; Ahmed, I.; Memon, A.; Laghari, M. A.	2017	fixation for closed fx
Managing the open calcaneal fracture: A systematic review	Spierings, K. E.; Min, M.; Nooijen, L. E.; Swords, M. P.; Schepers, T.	2019	
Risk factors for surgical site infections with the Sinus Tarsi Approach in displaced intra-articular calcaneal fractures; a prospective cohort study with a minimum of one year follow-up	Spierings, K. E.; Sanders, F. R. K.; Nosewicz, T. L.; Schepers, T.	2020	unclear fx cause
What are the Risk Factors for Deep Infection in OTA/AO 43C Pilon Fractures?	Spitler, C. A.; Hulick, R. M.; Weldy, J.; Howell, K.; Bergin, P. F.; Graves, M. L.	2020	very low quality

Article Title	Authors	Year	Reason for Exclusion
Duration of antibiotic treatment and risk of recurrence after surgical management of orthopaedic device infections: a multicenter case-control study	Spitzmuller, R.; Gumbel, D.; Guthoff, C.; Zaatreh, S.; Klinder, A.; Napp, M.; Bader, R.; Mittelmeier, W.; Ekkernkamp, A.; Kramer, A.; Stengel, D.	2019	not target population; revision for prior infection
High-energy war wounds: Flap reconstruction	Stanec, Z.; Skrbic, S.; Dzepina, I.; Hulina, D.; Ivrlac, R.; Unusic, J.; Montani, D.; Prpic, I.	1993	mixed population; only 63% fx
Management of open fractures of the tibial shaft in multiple trauma	Stanislaw, B. W.; Boguslaw, G. E.	2008	No controlled comparisons; case series
Cephalomedullary nails in the treatment of high-energy proximal femur fractures in young patients: a prospective, randomized comparison of trochanteric versus piriformis fossa entry portal	Starr, A. J.; Hay, M. T.; Reinert, C. M.; Borer, D. S.; Christensen, K. C.	2006	fixation for closed fx (closed), <10 pts per group (open)
Prevalence and risk factors for re-interventions following reamed intramedullary tibia nailing	Stavrou, P. Z.; Ciriello, V.; Theocharakis, S.; Gudipati, S.; Tosounidis, T. H.; Kanakaris, N. K.; Giannoudis, P. V.	2016	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Safety of skeletal traction through the distal femur, proximal tibia, and calcaneus	Stefl, M.; Azad, A.; Antonios, J.; Carney, J.; Marecek, G.	2019	mixed population; includes pelvic and hip fx
Delayed flap coverage of open extremity fractures after previous vacuum-assisted closure (VAC) therapy - worse or worth?	Steiert, A. E.; Gohritz, A.; Schreiber, T. C.; Krettek, C.; Vogt, P. M.	2009	no comparison group
C-Nail versus plate osteosynthesis in displaced intra-articular calcaneal fractures-a comparative retrospective study	Steinhausen, E.; Martin, W.; Lefering, R.; Lundin, S.; Glombitza, M.; Mester, B.; Brinkmann, N.; Dudda, M.	2021	unclear fx cause
The use of prophylactic flucloxacillin in treatment of open fractures of the distal phalanx within an accident and emergency department: a double-blind randomized placebo-controlled trial	Stevenson, J.; McNaughton, G.; Riley, J.	2003	not target population; finger fx
Effect of Surgeon and Hospital Volume on Complications After Operative Tarsal Fracture Repair	Stewart, C. C.; Brodke, D. J.; Morshed, S.	2019	unclear fx cause: only 7% open fx
Skin closure using staples and nylon sutures: a comparison of results	Stockley, I.; Elson, R. A.	1987	patient population; unclear high energy
Temporary Bridge Plating vs Primary Arthrodesis of the First Tarsometatarsal Joint in Lisfranc Injuries: Randomized Controlled Trial	Stødle, A. H.; Hvaal, K. H.; Brøgger, H. M.; Madsen, J. E.; Husebye, E. E.	2020	patient population; majority low-energy

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Operatively Treated Talus Fractures: Complications and Survivorship in a Large Patient Sample	Stone, M. A.; Flato, R. R.; Pannell, W.; Cohen, J. R.; Wang, J. C.; Marecek, G. S.	2018	unclear fx cause
Outpatient total elbow arthroplasty: 90-day outcomes	Stone, M. A.; Singh, P.; Rosario, S. L.; Omid, R.	2018	mixed population; 17.8% fx
Outcomes of tibia shaft fractures caused by low energy gunshot wounds	Su, C. A.; Nguyen, M. P.; O'Donnell, J. A.; Vallier, H. A.	2018	no factor of interest; injury characteristics
The incidence of and risk factors for deep infection after primary shoulder arthroplasty: An updated systematic review and meta-analysis	Sun, J.; Zhu, Y.; Liu, L.; Liu, S.; Chen, W.; Yang, Y.; Zhang, Y.	2019	
A randomised prospective study of two different combined internal and external fixation techniques for distal tibia shaft fractures	Sun, L. J.; Yu, X. B.; Dai, C. Q.; Hu, W.; Guo, X. S.; Chen, H.	2014	Article Retracted by Authors
A comparative study of cref and orif with steel plates in treating unstable distal radius fracture	Sun, M.; Wu, Y.; Yu, Q.; Li, Z.	2020	mixed population; >20% low energy
Surgical site infection following open reduction and internal fixation of a closed ankle fractures: A retrospective multicenter cohort study	Sun, R.; Li, M.; Wang, X.; Li, X.; Wu, L.; Chen, Z.; Chen, K.	2017	mixed population; 72.6% low-energy

Article Title	Authors	Year	Reason for Exclusion
Incidence and risk factors for surgical site infection after open reduction and internal fixation of ankle fracture: A retrospective multicenter study	Sun, Y.; Wang, H.; Tang, Y.; Zhao, H.; Qin, S.; Xu, L.; Xia, Z.; Zhang, F.	2018	mixed population; >60% low-energy
Damage control orthopedics in patients with multiple injuries is effective, time saving, and safe	Taeger, G.; Ruchholtz, S.; Waydhas, C.; Lewan, U.; Schmidt, B.; Nast-Kolb, D.	2005	irrelevant comparison; fx vs non-fx
Negative pressure wound therapy versus conventional dressing for open fractures in lower extremity trauma	Tahir, M.; Chaudhry, E. A.; Zimri, F. K.; Ahmed, N.; Shaikh, S. A.; Khan, S.; Choudry, U. K.; Aziz, A.; Jamali, A. R.	2020	Article Retracted by Publisher
Methicillin-resistant Staphylococcus aureus in orthopaedic surgery	Tai, C. C.; Nirvani, A. A.; Holmes, A.; Hughes, S. P.	2004	No controlled comparisons; case series
Risk Factors for the Surgical Field Infections After the Osteosynthes of Tibia Diaphysis	Talic, A.; Dzankovic, F.; Papovic, A.; Omerhodzic, E.	2017	unclear fx cause
Critical path analysis for the management of fractured neck of femur	Tallis, G.; Balla, J. I.	1995	not target population; hip fx
The Ideal Implant for Mayo 2A Olecranon Fractures? An Economic Evaluation Ideal Implant Mayo 2A Olecranon Fracture (short form running title)	Tan, B. Y.; Pereira, M. J.; Ng, J.; Kwek, E. B.	2020	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Infection rates in Singaporeans with and without complicated diabetes after ankle fracture surgery	Tan, T. L.; Oh, J. Y.; Kwek, E. B.	2015	unclear fx cause
Outcomes after implementation of an open fracture clinical pathway	Tan, W. J.; Kwek, E. B. K.	2020	irrelevant topic; clinical pathway comparison
Comparison of Early and Delayed Open Reduction and Internal Fixation for Treating Closed Tibial Pilon Fractures	Tang, X.; Liu, L.; Tu, C. Q.; Li, J.; Li, Q.; Pei, F. X.	2014	fixation for closed fx
Percutaneous Reduction and Screw Fixation of Displaced Intra-articular Fractures of the Calcaneus	Tantavisut, S.; Phisitkul, P.; Westerlind, B. O.; Gao, Y.; Karam, M. D.; Marsh, J. L.	2017	fixation for closed fx
Timing of Open Reduction and Internal Fixation of Ankle Fractures	Tantigate, D.; Ho, G.; Kirschenbaum, J.; Backer, H.; Asherman, B.; Freibott, C.; Greisberg, J. K.; Vosseller, J. T.	2019	unclear fx cause
External fixation combined with delayed internal fixation in treatment of tibial plateau fractures with dislocation	Tao, X.; Chen, N.; Pan, F.; Cheng, B.	2017	<10 pts per group (open fx), fixation for closed fx
Intramedullary Fixation Versus Plate Fixation of Distal Fibular Fractures: A Systematic Review and Meta-Analysis of Randomized Controlled Trials and Observational Studies	Tas, D. B.; Smeeing, D. P. J.; Emmink, B. L.; Govaert, G. A. M.; Hietbrink, F.; Leenen, L. P. H.; Houwert, R. M.	2019	

Article Title	Authors	Year	Reason for Exclusion
Open reduction and internal fixation of tibial plafond fractures. Variables contributing to poor results and complications	Teeny, S. M.; Wiss, D. A.	1993	mixed population; 40% low-energy
A comparison of complications and union rates in intramedullary nailing of femoral shaft fractures treated with open versus closed reduction	Telgheder, Z. L.; Albanese, M. A.; Bloom, D. S.; Kurra, S.; Sullivan, M. P.	2020	fixation for closed fx
The operative management of displaced intra-articular fractures of the calcaneum: a two-centre study using a defined protocol	Tennent, T. D.; Calder, P. R.; Salisbury, R. D.; Allen, P. W.; Eastwood, D. M.	2001	very low quality
The cost and consequences of proximal femoral fractures which require further surgery following initial fixation	Thakar, C.; Alsousou, J.; Hamilton, T. W.; Willett, K.	2010	not target population; hip fx
The Gustilo-Anderson classification system as predictor of nonunion and infection in open tibia fractures	Thakore, R. V.; Francois, E. L.; Nwosu, S. K.; Attum, B.; Whiting, P. S.; Siuta, M. A.; Benvenuti, M. A.; Smith, A. K.; Shen, M. S.; Mousavi, I.; Obremskey, W. T.; Sethi, M. K.	2017	No factors of interest;
Surgical site infections following open reduction and internal fixation of ankle fractures	Thangarajah, T.; Prasad, P. S.; Narayan, B.	2009	not target population; low-energy fx

Article Title	Authors	Year	Reason for Exclusion
Surgical site infection complicating internal fixation of fractures: incidence and risk factors	Thanni, L. O.; Aigoro, N. O.	2004	unclear fx cause
Malreduction of tibial articular width in bicondylar tibial plateau fractures treated with circular external fixation is associated with post-traumatic osteoarthritis	Thiagarajah, S.; Hancock, G. E.; Mills, E. J.; McGregor-Riley, J. C.; Royston, S. L.; Dennison, M. G.	2019	irrelevant topic; RFs for OA
Antibiotics and compound finger fracture	Thomas, M.; Jones, S.	2000	review
Bone graft versus non-bone graft for treatment of calcaneal fractures: A protocol for meta-analysis	Tian, H.; Guo, W.; Zhou, J.; Wang, X.; Zhu, Z.	2021	
Wound drainage versus non-drainage for proximal femoral fractures. A prospective randomised study	Tjeenk, R. M.; Peeters, M. P.; van den Ende, E.; Kastelein, G. W.; Breslau, P. J.	2005	not target population; hip fx
Current bacterial speciation and antibiotic resistance in deep infections after operative fixation of fractures	Torbert, J. T.; Joshi, M.; Moraff, A.; Matuszewski, P. E.; Holmes, A.; Pollak, A. N.; O'Toole, R. V.	2015	no comparisons of interest
Immediate bone grafting and plating of the radial osteocutaneous free flap donor site	Torina, P. J.; Matros, E.; Athanasian, E. A.; Cordeiro, P. G.	2014	no comparison group
A prospective study of early soft tissue coverage of grade IIIB tibial fractures	Trabulsy, P. P.; Kerley, S. M.; Hoffman, W. Y.	1994	no comparison group

Article Title	Authors	Year	Reason for Exclusion
Resident Level Involvement Affects Operative Time and Surgical Complications in Lower Extremity Fracture Care	Traven, S. A.; McGurk, K. M.; Althoff, A. D.; Walton, Z. J.; Leddy, L. R.; Potter, B. K.; Slone, H. S.	2021	mixed population; >50% hip fx
Epidemiology of Trauma-Related Infections among a Combat Casualty Cohort after Initial Hospitalization: The Trauma Infectious Disease Outcomes Study	Tribble, D. R.; Krauss, M. R.; Murray, C. K.; Warkentien, T. E.; Lloyd, B. A.; Ganesan, A.; Greenberg, L.; Xu, J.; Li, P.; Carson, M. L.; Bradley, W.; Weintrob, A. C.	2018	mixed population; 22.9% have no fx
Osteomyelitis Risk Factors Related to Combat Trauma Open Tibia Fractures: A Case-Control Analysis	Tribble, D. R.; Lewandowski, L. R.; Potter, B. K.; Petfield, J. L.; Stinner, D. J.; Ganesan, A.; Krauss, M.; Murray, C. K.; Trauma Infectious Disease Outcomes Study, Group	2018	very low quality
Risk Factors for 30-Day Postoperative Complications Following Open Reduction Internal Fixation of Proximal Ulna Fractures	Trivedi, N. N.; Cohn, M. R.; Trehan, S. K.; Daluiski, A.	2016	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Locking versus non-locking neutralization plates for treatment of lateral malleolar fractures: A randomized controlled trial	Tsukada, S.; Otsuji, M.; Shiozaki, A.; Yamamoto, A.; Komatsu, S.; Yoshimura, H.; Ikeda, H.; Hoshino, A.	2013	unclear fx cause
How safe is the semi-sterile technique in the percutaneous pinning of supracondylar humerus fractures?	Turgut, A.; Onvural, B.; Kazimoglu, C.; Bacaksiz, T.; Kalenderer, O.; Agus, H.	2016	pediatric
Retrospective analysis of risk factors for deep infection in lower limb Gustilo-Anderson type III fractures	Ukai, T.; Hamahashi, K.; Uchiyama, Y.; Kobayashi, Y.; Watanabe, M.	2020	very low quality
AO external fixator in the management of open fracture of tibia	Ullah, S.; Kashif, S.; Ali, B.; Hakeem, A.; Ahmed, I.; Khan, M. A.	2016	case series
Intramedullary Fixation of Distal Fibula Fractures	Umbel, B. D.; Sharpe, B. D.; Reynolds, C.; Philbin, T. M.	2021	case series
Is Early Definitive Fixation of Bicondylar Tibial Plateau Fractures Safe? An Observational Cohort Study	Unno, F.; Lefaivre, K. A.; Osterhoff, G.; Guy, P.; Broekhuyse, H. M.; Blachut, P. A.; O'Brien, P.	2017	no comparison group
Economic advantages of performing orthopaedic surgical procedures in ambulatory surgical centres over hospital out-patient settings	Uppal, H.	2019	mixed population;

Article Title	Authors	Year	Reason for Exclusion
Major musculoskeletal injuries and applied treatments in the current conflicts in Syria	Uruc, V.; Ozden, R.; Duman, I. G.; Dogramaci, Y.; Yengil, E.; Karapinar, S.; Karakus, A.; Kalaci, A.	2014	case series
Treatment of distal tibial fractures: prospective comparative study evaluating two surgical procedures with investigation for predictive factors of unfavourable outcome	Vaienti, E.; Schiavi, P.; Ceccarelli, F.; Pogliacomi, F.	2019	fixation for closed fx
Known preoperative deep venous thrombosis and/or pulmonary embolus: to flap or not to flap the severely injured extremity?	Valerio, I.; Sabino, J.; Heckert, R.; Thomas, S.; Tintle, S.; Fleming, M.; Kumar, A.	2013	Irrelevant Topic: Deep Vein Thrombosis
Comparison of the 95-degree angled blade plate and the locking condylar plate for the treatment of distal femoral fractures	Vallier, H. A.; Immler, W.	2012	<10 pts per group (open fx), fixation for closed fx
Long-Term Quality of Life after Free Flap Upper Extremity Reconstruction for Traumatic Injuries	Van Bekkum, S.; De Jong, T.; Zuidam, M.; Mureau, M. A. M.	2020	<10 pts per group w/ high energy trauma
Results of plate fixation for humerus fractures in a large single-center cohort	van de Wall, B. J. M.; Ganzert, C.; Theus, C.; van Leeuwen, R. J. H.; Link, B. C.; Babst, R.; Beeres, F. J. P.	2020	No factors of interest;

Article Title	Authors	Year	Reason for Exclusion
Functional outcome and general health status after treatment of AO type 43 distal tibial fractures	van den Berg, J.; Monteban, P.; Roobroeck, M.; Smeets, B.; Nijs, S.; Hoekstra, H.	2016	irrelevant comparison; simple vs complex fx
Functional Outcomes After Temporary Bridging With Locking Plates in Lisfranc Injuries	van Koperen, P. J.; de Jong, V. M.; Luitse, J. S.; Schepers, T.	2016	<10 pts per group w/ high energy trauma
Blade-plate fixation for distal femoral fractures: a case-control study	Vandenbussche, E.; LeBaron, M.; Ehlinger, M.; Flecher, X.; Pietu, G.; Sofcot,	2014	fixation for closed fx
Sarcopenia is Associated with Nonunion of Open Tibia and Ankle Fractures	Vander Voort, W.; Davison, J.; Hendrickson, N.; Buckwalter, J.; Guetschow, B.; Glass, N.; Willey, M.	2020	very low quality
Cost Determinants in the 90-Day Management of Isolated Ankle Fractures at a Large Urban Academic Hospital	Varacallo, M. A.; Mattern, P.; Acosta, J.; Toossi, N.; Denehy, K. M.; Harding, S. P.	2018	unclear fx cause
Wound drains in proximal femoral fracture surgery: a randomized prospective trial of 177 patients	Varley, G. W.; Milner, S. A.	1995	patient population; unclear high energy
Ultrasound assessment of the efficacy of wound drains	Varley, G. W.; Milner, S.; Turner, G. M.; Crisp, A. J.; Szypryt, E. P.	1994	not target population; unknown if high energy

Article Title	Authors	Year	Reason for Exclusion
Degloving Soft Tissue Injuries of the Extremity: Characterization, Categorization, Outcomes, and Management	Velazquez, C.; Whitaker, L.; Pestana, I. A.	2020	no comparison group
The value of osteosynthesis in the treatment of bimalleolar fractures	Velkovski, G.	1995	fixation for closed fx
Gunshot Fractures of the Forearm: A Multicenter Evaluation	Veltre, D. R.; Tornetta, P., 3rd; Krause, P.; George, M. P.; Vallier, H.; Nguyen, M. P.; Reich, M. S.; Cannada, L.; Eng, M.; Miller, A. N.; Goodwin, A.; Mir, H. R.; Clark, C.; Sandberg, B.; Westberg, J. R.; Mullis, B. H.; Behrens, J. P.; Firoozabadi, R.	2021	No factors of interest;
Surgical Site Infection Rates in Seven Cities in Vietnam: Findings of the International Nosocomial Infection Control Consortium	Viet Hung, N.; Anh Thu, T.; Rosenthal, V. D.; Tat Thanh, D.; Quoc Anh, N.; Le Bao Tien, N.; Ngo Quang, N.	2016	no factor of interest
Outcome Analysis of Locking Plate Fixation in Proximal Humerus Fracture	Vijayvargiya, M.; Pathak, A.; Gaur, S.	2016	not target population; shoulder surgery

Article Title	Authors	Year	Reason for Exclusion
Costs and Complications of Single-Stage Fixation Versus 2-Stage Treatment of Select Bicondylar Tibial Plateau Fractures	Virkus, W. W.; Caballero, J.; Kempton, L. B.; Cavallero, M.; Rosales, R.; Gaski, G. E.	2018	unclear fx cause
Hypoalbuminemia is a risk factor for predicting early postoperative complications after proximal humerus fracture fixation	Vora, M.; Sing, D. C.; Yi, P. H.; Cheah, J. W.; Li, X.	2020	not target population; shoulder fx
Oral antimicrobials in compound fracture of the hand: comparison of dicloxacillin and ofloxacin	Waikakul, S.; Penkitti, P.; Nati, S.; Choreoncholwanich, K.	1996	mixed population; majority of injuries involve thumb and digits
Comparison of two-staged ORIF and limited internal fixation with external fixator for closed tibial plafond fractures	Wang, C.; Li, Y.; Huang, L.; Wang, M.	2010	fixation for closed fx
Incidence and predictors of surgical site infection after ORIF in calcaneus fractures, a retrospective cohort study	Wang, H.; Pei, H.; Chen, M.; Wang, H.	2018	mixed population; <80% high-energy
A Comparison of 30-Day Perioperative Complications for Open Operative Care of Distal Upper-Extremity Fractures Treated by Orthopedic Versus Plastic Surgeons: A Study of the National Surgical Quality Improvement (NSQIP) Database	Wang, J. H.; Du, J. Y.; Tu, L. A.; Brown, C. C.; Chepla, K.; Bafus, B. T.	2020	mixed population; more than 40% of one group contains finger fx

Article Title	Authors	Year	Reason for Exclusion
The role and effectiveness of adjunctive hyperbaric oxygen therapy in the management of musculoskeletal disorders	Wang, J.; Li, F.; Calhoun, J. H.; Mader, J. T.	2002	
Elastic nails for fibular fracture in adulttibiofibular fractures	Wang, Q.; Xu, H. G.; Zhang, Y. C.; Dong, L. J.	2015	no comparison group
Clinical effects and risk factors of far cortical locking system in the treatment of lower limb fractures	Wang, R.; Zhang, H.; Cui, H.; Fan, Z.; Xu, K.; Liu, P.; Ji, F.; Tang, H.	2019	mixed population; >20% low-energy
Lateral bone flap approach for displaced intra-articular calcaneus fractures	Wang, S.; Zhou, X.; Liang, J.; Liu, F.; Wang, B.	2019	no comparison group
Ipsilateral basicervical femoral neck and shaft fractures treated with long proximal femoral nail antirotation or various plate combinations: Comparative study	Wang, W. Y.; Liu, L.; Wang, G. L.; Fang, Y.; Yang, T. F.	2010	<10 pts per group (open and closed fx)
Comparison of the effectiveness and safety of intravenous and topical regimens of tranexamic acid in complex tibial plateau fracture: a retrospective study	Wang, Z.; Lu, Y.; Wang, Q.; Song, L.; Ma, T.; Ren, C.; Li, Z.; Yang, J.; Zhang, K.; Zhang, B.	2020	not target population; unknown if high energy
Role of early Ilizarov ring fixator in the definitive management of type II, IIIA and IIIB open tibial shaft fractures	Wani, N.; Baba, A.; Kangoo, K.; Mir, M.	2011	case series
Perioperative vitamin D levels correlate with clinical outcomes after ankle fracture fixation	Warner, S. J.; Garner, M. R.; Nguyen, J. T.; Lorich, D. G.	2016	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Antibiotic Management and Operative Debridement in Open Fractures of the Hand and Upper Extremity: A Systematic Review	Warrender, W. J.; Lucasti, C. J.; Chapman, T. R.; Ilyas, A. M.	2018	
Management strategies for bone loss in tibial shaft fractures	Watson, J. T.; Anders, M.; Moed, B. R.	1995	very low quality
Analysis of surgeon-controlled variables in the treatment of limb-threatening type-III open tibial diaphyseal fractures	Webb, L. X.; Bosse, M. J.; Castillo, R. C.; MacKenzie, E. J.; Leap Study Group	2007	very low quality
Limited open reduction and internal fixation of displaced intra-articular fractures of the calcaneum	Weber, M.; Lehmann, O.; Sagesser, D.; Krause, F.	2008	unclear fx cause
Lower extremity free flaps: a review	Wells, M. D.; Bowen, C. V.; Manktelow, R. T.; Graham, J.; Boyd, J. B.	1996	mixed etiology; 55% car accident
Comparison between Percutaneous Screw Fixation and Plate Fixation via Sinus Tarsi Approach for Calcaneal Fractures: An 8-10-Year Follow-up Study	Weng, Q. H.; Dai, G. L.; Tu, Q. M.; Liu, Y.; Lutchooman, V.; Hong, J. J.; Yu, Y.	2020	Doesn't address question of interest; fixation for closed fractures
Effect of Lymphedema Treatment for Management of Acute Pilon Fractures	Whatley, J. M.; Lalonde, J. A.; Greene, C. C.; Riche, K. B.; Tatum, D. M.	2017	irrelevant topic; edema management
A prospective randomised controlled trial of the fibular nail versus standard open reduction and internal fixation for fixation of ankle fractures in elderly patients	White, T. O.; Bugler, K. E.; Appleton, P.; Will, E.; McQueen, M. M.; Court-Brown, C. M.	2016	patient population; unclear high energy

Article Title	Authors	Year	Reason for Exclusion
The results of early primary open reduction and internal fixation for treatment of OTA 43.C-type tibial pilon fractures: a cohort study	White, T. O.; Guy, P.; Cooke, C. J.; Kennedy, S. A.; Droll, K. P.; Blachut, P. A.; O'Brien, P. J.	2010	no comparison group
The effect of timing of antibiotic delivery on infection rates related to open limb fractures: a systematic review	Whitehouse, M. R.; McDaid, C.; Kelly, M. B.; Moran, C. G.; Costa, M. L.	2017	
Predictors of diagnosis of ulnar neuropathy after surgically treated distal humerus fractures	Wiggers, J. K.; Brouwer, K. M.; Helmerhorst, G. T.; Ring, D.	2012	mixed population; >20% low energy
External fixation of tibial plafond fractures: is routine plating of the fibula necessary?	Williams, T. M.; Marsh, J. L.; Nepola, J. V.; DeCoster, T. A.; Hurwitz, S. R.; Bonar, S. B.	1998	mixed fx population
Role of Hypoalbuminemia as an Independent Predictor of 30-Day Postoperative Complications Following Surgical Fixation of Ankle Fractures	Wilson, J. M.; Kukowski, N. R.; Staley, C. A.; Bariteau, J. T.	2020	unclear fx cause
Hypoalbuminemia Is an Independent Risk Factor for 30-Day Mortality, Postoperative Complications, Readmission, and Reoperation in the Operative Lower Extremity Orthopaedic Trauma Patient	Wilson, J. M.; Lunati, M. P.; Grabel, Z. J.; Staley, C. A.; Schwartz, A. M.; Schenker, M. L.	2019	mixed population; 57% hip fx

Article Title	Authors	Year	Reason for Exclusion
Interlocking nailing for the treatment of femoral fractures due to gunshot wounds	Wiss, D. A.; Brien, W. W.; Becker, V., Jr.	1991	case series
Association between socioeconomic deprivation and surgical complications in adults undergoing ankle fracture fixation: a population-based analysis	Wolfstadt, J. I.; Pincus, D.; Kreder, H. J.; Wasserstein, D.	2019	unclear fx cause
Improving the care of patients with severe open fractures of the tibia: the effect of the introduction of Major Trauma Networks and national guidelines	Wordsworth, M.; Lawton, G.; Nathwani, D.; Pearse, M.; Naique, S.; Dodds, A.; Donaldson, H.; Bhattacharya, R.; Jain, A.; Simmons, J.; Hettiaratchy, S.	2016	insufficient data for target outcomes
Percutaneous Reduction and Fixation with Kirschner Wires versus Open Reduction Internal Fixation for the Management of Calcaneal Fractures: A Meta-Analysis	Wu, J.; Zhou, F.; Yang, L.; Tan, J.	2016	
Regression analysis of controllable factors of surgical incision complications in closed calcaneal fractures	Wu, K.; Wang, C.; Wang, Q.; Li, H.	2014	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Functional outcome of displaced intra-articular calcaneal fractures: a comparison between open reduction/internal fixation and a minimally invasive approach featured an anatomical plate and compression bolts	Wu, Z.; Su, Y.; Chen, W.; Zhang, Q.; Liu, Y.; Li, M.; Wang, H.; Zhang, Y.	2012	unclear fx cause; includes low energy causes but does not state how many
Outcomes of ankle fractures in patients with uncomplicated versus complicated diabetes	Wukich, D. K.; Joseph, A.; Ryan, M.; Ramirez, C.; Irrgang, J. J.	2011	unclear fx cause
Efficacy of Prophylactic Antibiotics in Simple Knee Arthroscopy	Wyatt, R. W. B.; Maletis, G. B.; Lyon, L. L.; Schwalbe, J.; Avins, A. L.	2017	not target population; knee arthroscopy
Operative treatment of fractures of the tibial plafond. A randomized, prospective study	Wyrsch, B.; McFerran, M. A.; McAndrew, M.; Limbird, T. J.; Harper, M. C.; Johnson, K. D.; Schwartz, H. S.	1996	mixed fracture
Open reduction and internal fixation with conventional plate via L-shaped lateral approach versus internal fixation with percutaneous plate via a sinus tarsi approach for calcaneal fractures - A randomized controlled trial	Xia, S.; Lu, Y.; Wang, H.; Wu, Z.; Wang, Z.	2014	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Administration of Tranexamic Acid Reduces Postoperative Blood Loss in Calcaneal Fractures: A Randomized Controlled Trial	Xie, B.; Tian, J.; Zhou, D. P.	2015	unclear fx cause
Comparison of suture button fixation and syndesmotic screw fixation in the treatment of distal tibiofibular syndesmosis injury: A systematic review and meta-analysis	Xie, L.; Xie, H.; Wang, J.; Chen, C.; Zhang, C.; Chen, H.; Zheng, W.	2018	
Postoperative outcomes of tranexamic acid use in geriatric trauma patients treated with proximal femoral intramedullary nails: A systematic review and meta-analysis	Xing, F.; Chen, W.; Long, C.; Huang, F.; Wang, G.; Xiang, Z.	2020	
Prolonged surgical duration, higher body mass index and current smoking increases risk of surgical site infection after intra-articular fracture of distal femur	Xu, H.; Yu, L.; Li, Y.; Gong, Z.	2019	unclear fx cause; includes low energy but does not state how many
Evaluating the use of antibiotic prophylaxis during open reduction and internal fixation surgery in patients at low risk of surgical site infection	Xu, S. G.; Mao, Z. G.; Liu, B. S.; Zhu, H. H.; Pan, H. L.	2015	unclear fx cause
Safety and efficacy of tranexamic acid with epinephrine for prevention of blood loss following surgery for trochanteric femoral fractures	Xu, X.; Xie, L.; Yu, H.; Hu, Y.	2020	not target population; hip fx

Article Title	Authors	Year	Reason for Exclusion
An efficacy analysis of surgical timing and procedures for high-energy complex tibial plateau fractures	Xu, Y. Q.; Li, Q.; Shen, T. G.; Su, P. H.; Zhu, Y. Z.	2013	fixation for closed fx
Treatment of isolated type I open fractures: is emergent operative debridement necessary?	Yang, E. C.; Eisler, J.	2003	case series
Metaphyseal dissociation fractures of the proximal tibia. An analysis of treatment and complications	Yang, E. C.; Weiner, L.; Strauss, E.; Sedlin, E.; Kelley, M.; Raphael, J.	1995	no comparison of interest
Early complications of preoperative external traction fixation in the staged treatment of tibial fractures: A series of 402 cases	Yang, J. Z.; Zhu, W. B.; Li, L. B.; Dong, Q. R.	2020	no comparison group
Application of damage control orthopedics in 41 patients with severe multiple injuries	Yang, J.; Gao, J. M.; Hu, P.; Li, C. H.; Zhao, S. H.; Lin, X.	2008	case series
Administration of Tranexamic Acid in Proximal Humeral Fractures	Yang, Y. Y.; Qin, H.; Zheng, X.; Hu, B.; Zhang, M.; Ma, T.	2020	not target population; shoulder surgery
Postoperative Reoperations and Complications in 32,307 Ankle Fractures With and Without Concurrent Ankle Arthroscopic Procedures in a 5-Year Period Based on a Large U.S. Healthcare Database	Yasui, Y.; Shimozono, Y.; Hung, C. W.; Marangon, A.; Wollstein, A.; Gianakos, A. L.; Murawski, C. D.; Kennedy, J. G.	2019	irrelevant topic; performing concurrent procedures during fixation

Article Title	Authors	Year	Reason for Exclusion
Comparison of intramedullary nail and plate fixation in distal tibia diaphyseal fractures close to the mortise	Yavuz, U.; Sökücü, S.; Demir, B.; Yildirim, T.; Özcan, Ç; Kabukçuoglu, Y. S.	2014	unclear fx cause; 16% open fx
Clinical experience of biliary T tube of immobilization of peri-pin membrane in tibial Gustilo III fracture treated with vacuum sealant drainage combined with an external fixator	Ye, H.; Lin, S.; Zhu, J.; Jiang, L.	2020	not target population; unknown if high energy
Healing process after rigid plate fixation of humeral shaft fractures revisited	Yi, J. W.; Oh, J. K.; Han, S. B.; Shin, S. J.; Oh, C. W.; Yoon, Y. C.	2013	unclear fx cause
Tibial fracture treated by minimally invasive plating using a novel low-cost, high-technique system	Yin, B.; Chen, W.; Zhang, Q.; Wang, J.; Su, Y.; Xu, G.; Zhang, Y.	2012	mixed population; includes closed and open fx but does not describe how many
New scoring system predicting the occurrence of deep infection in open tibial fractures: preliminary report	Yokoyama, K.; Itoman, M.; Nakamura, K.; Uchino, M.	2007	No factors of interest;
New scoring system predicting the occurrence of deep infection in open upper and lower extremity fractures: efficacy in retrospective re-scoring	Yokoyama, K.; Itoman, M.; Nakamura, K.; Uchino, M.; Nitta, H.; Kojima, Y.	2009	no factors of interest

Article Title	Authors	Year	Reason for Exclusion
Immediate versus delayed intramedullary nailing for open fractures of the tibial shaft: a multivariate analysis of factors affecting deep infection and fracture healing	Yokoyama, K.; Itoman, M.; Uchino, M.; Fukushima, K.; Nitta, H.; Kojima, Y.	2008	insufficient data for target factors
Immediate internal fixation for open fractures of the long bones of the upper and lower extremities	Yokoyama, K.; Shindo, M.; Itoman, M.; Yamamoto, M.; Sasamoto, N.	1994	case series
Risk factors for deep infection in secondary intramedullary nailing after external fixation for open tibial fractures	Yokoyama, K.; Uchino, M.; Nakamura, K.; Ohtsuka, H.; Suzuki, T.; Boku, T.; Itoman, M.	2006	very low quality
Radiological and Clinical Effectiveness of a Novel Calcaneal Fracture Brace after Intra-articular Calcaneal Fracture Surgery	Yoo, C. H.; Kang, C.; Hwang, D. S.; Hwang, J. M.; Lee, G. S.; Park, Y. C.	2018	no outcomes of interest
Open tibial fractures in major trauma centres: A national prospective cohort study of current practice	Young, K.; Aquilina, A.; Chesser, T. J. S.; Costa, M. L.; Hettiaratchy, S.; Kelly, M. B.; Moran, C. G.; Pallister, I.; Woodford, M.; Mtc,	2019	very low quality
Complications of internal fixation of tibial plateau fractures	Young, M. J.; Barrack, R. L.	1994	fixation for closed fx

Article Title	Authors	Year	Reason for Exclusion
Complications after intramedullary nailing of femoral fractures in a low-income country	Young, S.; Banza, L. N.; Hallan, G.; Beniyasi, F.; Manda, K. G.; Munthali, B. S.; Dybvik, E.; Engesaeter, L. B.; Havelin, L. I.	2013	irrelevant comparison; follow-up vs no follow-up
Risk factors for infection after 46,113 intramedullary nail operations in low- and middle-income countries	Young, S.; Lie, S. A.; Hallan, G.; Zirkle, L. G.; Engesaeter, L. B.; Havelin, L. I.	2013	unclear fx cause
Comparison of lateral approach versus anterolateral approach with Herbert screw fixation for isolated coronal shear fractures of humeral capitellum	Yu, T.; Tao, H.; Xu, F.; Hu, Y.; Zhang, C.; Zhou, G.	2019	mixed population; >50% low-energy
Factors associated with the outcome of open tibial fractures	Yusof, N. M.; Khalid, K. A.; Zulkifly, A. H.; Zakaria, Z.; Amin, M. A.; Awang, M. S.; Ahmad, A. C.; Akter, S. F.	2013	very low quality
Early complications of surgery in operative treatment of ankle fractures in those over 60: A review of 186 cases	Zaghloul, A.; Haddad, B.; Barksfield, R.; Davis, B.	2014	unclear fx cause

Article Title	Authors	Year	Reason for Exclusion
Treatment of distal tibia fractures without articular involvement: a systematic review of 1125 fractures	Zelle, B. A.; Bhandari, M.; Espiritu, M.; Koval, K. J.; Zlowodzki, M.; Evidence-Based Orthopaedic Trauma Working, Group	2006	
The Fate of the Uninsured Ankle Fracture: Significant Delays in Treatment Result in Increased Risk of Surgical Site Infection	Zelle, B. A.; Johnson, T. R.; Ryan, J. C.; Martin, C. W.; Cabot, J. H.; Griffin, L. P.; Bullock, T. S.; Ahmad, F.; Brady, C.; Shah, K.	2020	mixed population; 58% low-energy
Minimally invasive versus extensile lateral approach for sanders type II and III calcaneal fractures: A meta-analysis of randomized controlled trials	Zeng, Z.; Yuan, L.; Zheng, S.; Sun, Y.; Huang, F.	2018	
External fixation with supercutaneous calcaneal locking plate for displaced intra-articular calcaneal fractures	Zhang, G.; Jiang, X.; Wang, M.	2012	case series
Prophylactic Closed Suction Drainage Is Irrelevant to Accelerated Rehabilitation after Open Reduction and Internal Fixation for Closed Distal Femur Fractures	Zhang, J. Z.; Zhao, K.; Li, J. Y.; Meng, H. Y.; Zhu, Y. B.; Zhang, Y. Z.	2020	fixation for closed fx
Clinical efficacy and prognosis factors of open calcaneal fracture: a retrospective study	Zhang, X.; Liu, Y.; Peng, A.; Wang, H.; Zhang, Y.	2015	no comparison group

Article Title	Authors	Year	Reason for Exclusion
Single-incision approach improves wound healing and bone union for treating mid-to-lower segment of Tibiofibular fracture	Zhang, Y.; Zhuang, Y.; Wang, B.; Xu, H.; Chen, J.; Lin, S.	2015	irrelevant topic; incision type
Risk factors for increased postoperative drainage of calcaneal fractures after open reduction and internal fixation: An observational study	Zhang, Z.; Wang, Z.; Zhang, Y.; Qiu, X.; Chen, Y.	2018	unclear fx cause
A meta-analysis of external fixation versus open reduction and internal fixation for complex tibial plateau fractures	Zhao, X. W.; Ma, J. X.; Ma, X. L.; Jiang, X.; Wang, Y.; Li, F.; Lu, B.	2017	
Application of medial column classification in treatment of intra-articular calcaneal fractures	Zheng, G.; Xia, F.; Yang, S.; Cui, J.	2020	Doesn't address question of interest; fixation for closed fractures
Clinical study on repair of metacarpal bone defects using titanium alloy implantation and autologous bone grafting	Zheng, Y.; Wang, J.; Chang, B.; Zhang, L.	2020	Irrelevant Topic: Open MetaCarpal Bone Defects
Surgical Outcomes of Articular Surface Crush Injury of Hawkins III Talus Neck and Medial Malleolus Fracture	Zheng, Y.; Zhang, J. D.; Shen, J. J.; Li, X. S.; Huang, J. F.	2021	<20 total pts
Locking versus Non-locking Neutralization Plates with Limited Excision and Internal Fixation for Treatment of Extra-articular Type a Distal Tibial Fractures	Zhou, K. H.; Chen, N.	2017	fixation for closed fx

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Prevention of Surgical Site Infection After Ankle Surgery Using Vacuum-Assisted Closure Therapy in High-Risk Patients With Diabetes	Zhou, Z. Y.; Liu, Y. K.; Chen, H. L.; Liu, F.	2016	patient population; unclear high energy
Incidence and predictors of surgical site infection after distal femur fractures treated by open reduction and internal fixation: a prospective single-center study	Zhu, C.; Zhang, J.; Li, J.; Zhao, K.; Meng, H.; Zhu, Y.; Zhang, Y.	2021	no comparison group
Foot and ankle reconstruction: an experience on the use of 14 different flaps in 226 cases	Zhu, Y. L.; Wang, Y.; He, X. Q.; Zhu, M.; Li, F. B.; Xu, Y. Q.	2013	no comparison group
Incidence and risks for surgical site infection after adult tibial plateau fractures treated by ORIF: a prospective multicentre study	Zhu, Y.; Liu, S.; Zhang, X.; Chen, W.; Zhang, Y.	2017	mixed population; >20% low-energy
A comparative study of free and pedicle flaps for lower extremity wounds	Zook, E. G.; Russell, R. C.; Asaadi, M.	1986	not target population; unknown if high energy
Comparison of minimally invasive percutaneous plate osteosynthesis with open reduction and internal fixation for treatment of extra-articular distal tibia fractures	Zou, J.; Zhang, W.; Zhang, C. Q.	2013	fixation for closed fx
Factors influencing infection rates after open fractures of the radius and/or ulna	Zumsteg, J. W.; Molina, C. S.; Lee, D. H.; Pappas, N. D.	2014	very low quality

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Timing of definitive fixation of severe tibial plateau fractures with compartment syndrome does not have an effect on the rate of infection	Zura, R. D.; Adams, S. B., Jr.; Jeray, K. J.; Obremskey, W. T.; Stinnett, S. S.; Olson, S. A.; Southeastern Fracture Consortium, Foundation	2010	mixed population; not target comparison; wound is from fasciotomy