AAOS American Academy of Orthopaedic Surgeons
American Association of Orthopaedic Surgeons

Information Statement

Surgical Patient Safety

This Information Statement was developed as an educational tool based on the consensus opinion of the authors. It is not a product of a systematic review process. Readers are encouraged to consider the information presented and reach their own conclusions.

Despite technological advances in surgery, adverse events and patient harm continue to challenge the surgical community. Safety programs have been implemented in many surgical facilities (driven in part by mandatory event reporting), but the surgical community as a whole has not proposed uniform safety principles or standards.

The National Surgical Patient Safety Summit (NSPSS) is sponsored by the American College of Surgeons (ACS) and the American Academy of Orthopaedic Surgeons (AAOS) with support from the American Society of Anesthesiologists (ASA) and Association of periOperative Registered Nurses (AORN). Organizations representing surgical safety stakeholders (including surgery, anesthesia, nursing, surgical facilities, government agencies, payers, regulatory organizations and surgical education programs) were invited to participate. Work groups in four specific domains assessed the literature and proposed standards in these domains:

1. Key Safety Definitions and Processes
2. Essential Safety Behaviors, Human Factors, Organizational Culture
3. Safety Data and Performance Measurement
4. Safety Education (Individual, Team and Organization/Facility-based) Programs

Surgical safety is an “emergent” property of competent care, dependent on the ability of surgical team members to detect and manage safety threats by adapting their work to maintain adequate safety margins. Safety occurs within the context of the situation as well as the resources available.

Adverse surgical events (ASEs) are events during an episode of surgical care that directly or indirectly result in patient harm, whether temporary or permanent. The risk of ASEs is decreased by specific individual safety behaviors, teamwork skills and safety processes.

Surgical care is provided by a Multi-Team System (MTS) as described in the AHRQ Team STEPPS program. The ’Core Team’ includes the patient, the patient’s family, and the surgical professionals directly responsible for care of the patient. Other teams support the Core team. All teams share responsibility for safety throughout all phases of surgical care.

NSPSS believes that surgical patient safety is the highest priority for all surgical professional and other stakeholder organizations. Participants in NSPSS support the following proposed surgical safety standards as ‘core competencies’ to improve surgical patient safety and outcomes.

Work Group 1 – Key Safety Definitions and Processes

- **NSPSS recommends consistent use of standard definitions of safety terms as defined in the AHRQ Common Formats v 1.2 Users Guide [2013]**

- **NSPSS recommends adoption and regular use of the following standardized peri-operative safety processes by all surgical professionals and facilities as outlined in the Work Group 1 Report**

    - Surgical Shared-Decision Making utilizing AHRQ 'Universal Precautions' for Health Literacy
    - Informed Surgical Consent and Documentation
    - Surgical Site Identification and Marking
    - Operating Room Communication Safety Tools and the Safe Surgery Checklist
    - Surgical "hand off" Information Transfer Tools for safe transitions of care.

Work Group 2 - Essential Safety Behaviors, Human Factors and Organizational Culture

- **NSPSS identifies four levels of safety knowledge and skills needed for delivery of safe surgical care:**

    - ***Individuals*** - Surgical Team Members: Anesthesia, Nursing and Surgery

        - Technical Skills and Performance
            - Proficient psychomotor surgical skills
            - Sufficient surgical knowledge
            - Effective surgical decision-making

        - Non-Technical Skills
            - Communication, Leadership, Situation Awareness: use of facilitative communication and conversation "prompts" [*]) to maintain accurate 'shared mental models' – and to maintain open lines of communication
            - 'Emotional intelligence' (EI): surgical care professionals' social awareness, self-awareness, self-management and social skills
            - Personal Resilience: health care professionals are capable of personal stress recognition and self-management
            - Fatigue Management: surgical care professionals and organizations understand adverse effects (on short term memory, communication, and decision making) and implement strategies to successfully prevent or manage fatigue

    - ***Teams*** - Surgical Teams throughout the episode of care

        - Communication Skills: consistent use of structured communication tools for reliable information transfer and team performance throughout the episode of care

        - Teamwork and Leadership: situational leadership, based upon the unique skills and knowledge of surgical team members; mutual support and conflict resolution.

- ***Situations*** - Individual and Team management skills
  - Adaptive Behaviors and Skills: Understanding the gaps between "work as imagined" and "work as done". Normal process audits identify which work adaptations are effective and which may be hazardous - "normalization of deviance".

- ***Surgical Facilities and Delivery Systems*** – Hospitals, Ambulatory Surgery centers, Clinic/Office Procedure rooms

  - Culture of Safety: Organizational commitment - people, time, and resources - to build and maintain a culture that focuses on safety as a core organizational value.

  - Just and Restorative Culture: Insuring that safety systems are non-punitive but accountable. Facilities are committed to supporting not only the harmed patient but also the care givers involved - "second victims".

- **NSPSS recommends education and training in stress management and personal resilience for all health care professionals. Continuing education credit for stress management and personal wellness is recommended as a component of certification processes for surgeons, anesthesiologists, nurses and other healthcare professionals providing care to surgical patients.**

- **NSPSS recommends regular facility-based education and training for surgical teams (i.e. Team STEPPS, CRM) with ongoing performance assessment and appropriate re-training (including simulation-based learning) for students, health care professionals and surgical teams (crews) based on normal process audits.**

Work Group 3 - Surgical Data and Performance Measurement

- **NSPSS recommends regular and standardized collection and analysis of relevant safety data including "near misses" and ASEs.**

- **NSPSS recommends that all safety data be:**

  - ***Consistent*** - cannot be selective

  - ***Uniform*** - standard definitions

  - ***Usable and Accessible*** - Some safety events occur so infrequently that understanding and implementing effective prevention strategies is nearly impossible based upon single institution data

  - ***Collaborative*** - hospitals, care providers, etc., need to work together in a non-punitive way to learn from their peers.

- **NSPSS recommends adoption of the Clavien-Dindo classification for type and severity of patient harms.**

- **NSPSS recommends feasibility assessment of an encrypted Universal Patient Identifier (eUPI) permitting linkage of independent safety data registries.**

Work Group 4 – Safety Education Programs

- **NSPSS recommends development and dissemination of new safety education programs and products based upon the recommendations listed here. Goals of these new programs and products include**
    - **'Buy in'** and **Engagement** of surgeons and all other surgical team members
    - Equal emphasis on **improving 'Non-Technical' Skills** as well as Psycho-Motor Skills for all surgical team members
    - **Collaboration** among:
        - Surgical professional societies
        - ABMS boards, nursing and other surgical professional certification organizations
        - AAMC, ACGME, RRC, nursing and other surgical team member education credentialing organizations
        - Payers
        - Government regulatory organizations including CMS, AHRQ and NQF
        - Surgical facility accrediting organizations
- **NSPSS recommends incorporation of surgical safety knowledge and skills as 'core competencies'. Educational 'milestones' are needed for all surgical team member education curricula, as well as validated safety metrics and performance measures.**
- **The overriding goal of surgical education must be sustainable and real culture change driven by credible leadership, role modeling and coaching - 'what is permitted is promoted'.**
- **NSPSS recommends that all surgical facility accreditation organizations evaluate and update accreditation criteria to include these organizational and facility-based 'core competencies'.**

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