Appendix 3. Delphi Round 2 Surveys

Default Question Block

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Dear attendees of the Anesthesia Patient Safety Foundation 2017 Stoelting Conference on Perioperative Handoffs:

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In this next round of the Delphi, we are asking you to review only the statements for your assigned group, indicating **whether you agree with these statements**. (You will have the opportunity to modify the statements at the conference in your small group.) We are also asking you to indicate whether you agree with 75% as the threshold for "consensus".

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Warm regards,
APSF Stoelting Conference Planning Committee

You have been assigned to the breakout group discussing handoff process elements, behaviors, and attitudes.

Despite differences in handoff types, settings and participants, there are common process elements that should be present in every handoff (excluding short breaks). Also, certain behaviors and attitudes are conducive to effective handoff communication.

Please indicate the degree to which you agree with the following statements about handoff processes, behaviors, and attitudes.

Overall Process Elements

	Agree	Agree with modification	DO NOT agree
1. The handoff should have a structured or standardized process.	○	○	○
2. All participants should have had handoff education and training.	○	○	○
3. Interruptions and distractions should be minimized during the handoff.	○	○	○
4. The handoff process should be audited, with feedback for clinicians.	○	○	○
5. The handoff should be documented, with use of an EMR if available.	○	○	○

Information Transfer Elements

	Agree	Agree with modification	DO NOT agree
6. Information transfer between giver and receiver should be standardized, with use of a checklist or cognitive aid.	○	○	○
7. The receiving provider should read-back critical information and verbally synthesize what was heard during the handoff in order to establish a mutually shared understanding.	○	○	○
8. Information transfer should be thorough yet concise, summarizing patient- and case-specific information.	○	○	○
9. The handoff should include anticipatory guidance and contingency planning for events that may occur.	○	○	○

	Agree	Agree with modification	DO NOT agree
10. The handoff should include an action plan for tasks that need to be completed.	○	○	○
11. A written or electronic patient summary with relevant information should be used to assist with handoff communication.	○	○	○

Additional process elements

	Agree	Agree with modification	DO NOT agree
12. Adequate time should be allotted for the handoff, with an explicit opportunity for the receiver to ask questions.	○	○	○
13. All relevant team members should be present, with introductions and clear team roles.	○	○	○
14. Participants should use clear, consistent, organized communication, with use of closed-loop and two-way communication as appropriate.	○	○	○
15. Participants should plan and prepare for the handoff prior to its commencement with appropriate knowledge of the patient.	○	○	○

Behaviors and attitudes

	Agree	Agree with modification	DO NOT agree
16. During a handoff, all involved should be fully attentive and engaged, cooperative, patient, and actively listening to the handover of the patient until the person accepting responsibility feels they are ready to do so.	○	○	○

	Agree	Agree with modification	DO NOT agree
17. Communication during handoffs should be clear, concise, and interactive.	○	○	○
18. During a handoff, participants should read back critical numerical values and acknowledge all critical items.	○	○	○
19. During a handoff, participants should strive to allow one person to speak at a time.	○	○	○
20. During a handoff, participants should have the opportunity to raise questions and concerns.	○	○	○

	Agree	Agree with modification	DO NOT agree
21. During a handoff, the leader should establish a tone that allows for open, blame-free communication,	○	○	○
22. During a handoff, all participants should act with mutual respect and practice positive teamwork, establishing role clarity, willingness to collaborate, and equality of value of others' information.	○	○	○
23. During a handoff, all participants should be receptive to questions and concerns.	○	○	○
24. During a handoff, all participants should be mindful, self-aware, curious and seeking tacit knowledge,	○	○	○
25. During a handoff, all participants should strive to balance thoroughness and brevity to seek optimal use of time.	○	○	○

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You have been assigned to the breakout group discussing handoff measurements and metrics.

Measurements, or metrics, are important to measure the effectiveness of any given process. Consider the following metric types:

- Process metrics
- Patient outcome metrics
- Provider metrics
- Organizational metrics
- Implementation metrics

Please indicate the degree to which you agree with the following statements about handoff measurements and metrics.

Patient outcomes

In order to measure handoff effectiveness...

	Agree	Agree with modification	DO NOT agree
1. ... **outcomes related to patient perception** (e.g. satisfaction, perceptions of communication, care quality, and responsiveness) should be measured.	○	○	○
2. ...**morbidity** (including major adverse cardiac events, kidney injury, and complications) and **mortality** should be measured.	○	○	○
3. ...**hospital quality indicators** (e.g. preventable adverse events, perioperative glucose control, time to extubation, length of stay) should be measured.	○	○	○

Process outcomes

In order to measure handoff effectiveness...

	Agree	Agree with modification	DO NOT agree

	Agree	Agree with modification	DO NOT agree
4. ...**information-related process outcomes** (e.g. information omissions or inclusions, completeness/thoroughness, "saves" or "pickups" during handoff, relevance of handoff to patient care, overall communication quality, clarifications needed after handoff) should be measured.	○	○	○
5. ...**team and participant-related process outcomes** (e.g. presence of handoff participants, patient/family participation in handoffs, team effectiveness, interruptions) should be measured.	○	○	○
6. ...**efficiency- and time-related process outcomes** (e.g. handoff duration, time spent in clarification, efficiency, diagnostic test redundancy, timely medication administration, delays in treatment, delayed orders) should be measured.	○	○	○
7. ...**safety-related process outcomes** (e.g. medication errors, near misses, non-routine events, change in care plan due to missing/wrong information, missed orders) should be measured.	○	○	○

Provider outcomes

In order to measure handoff effectiveness...

	Agree	Agree with modification	DO NOT agree
8. ...**provider perceptions of handoffs and handoff processes** (e.g. satisfaction, acceptance, perception of effectiveness, attitudes) should be measured.	○	○	○

	Agree	Agree with modification	DO NOT agree
9. ...**provider wellness outcomes** (e.g. workload, stress/burnout, morale) should be measured.	○	○	○
10. ...**whether/how well providers know patients** whose care has been handed off should be measured.	○	○	○

Implementation outcomes

In order to measure handoff effectiveness...

	Agree	Agree with modification	DO NOT agree
11. ...**outcomes related to the uptake and use of evidence-based handoff processes** (e.g acceptability, integration, uptake, adoption/willingness to adopt, penetration, reporting, fidelity) should be measured.	○	○	○
12. ...**outcomes related to the ability to adhere to evidence-based handoff practices** (e.g. feasibility, sustainability, ability of EMR to support handoff) should be measured.	○	○	○

Organizational outcomes

In order to measure handoff effectiveness...

	Agree	Agree with modification	DO NOT agree
13. ...**outcomes related to organizational support of evidence-based handoff practices** (e.g. handoff expectations, feedback, training outcomes) should be measured.	○	○	○

	Agree	Agree with modification	DO NOT agree
14. ...**organizational outcomes related to safety** (e.g. safety climate, psychological safety) should be measured.	○	○	○
15. ...**organizational outcomes related to efficiency, spending, and staffing** (e.g. hospital throughput, cost of care, retention, turnover) should be measured.	○	○	○
16. ...**professionalism outcomes** (e.g. professionalism, commitment to team, commitment to safe care) should be measured.	○	○	○

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Warm regards,
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You have been assigned to the breakout group discussing research questions.

The evidence base for handoff design, implementation, and effectiveness is limited. What are the most important research questions that relate to perioperative handoffs?

Please indicate the degree of importance of the following research questions concerning

perioperative handoffs. Consider which questions are important to gain knowledge for the purpose of improving perioperative handoffs.

Research questions

	Very important	Somewhat important	Not important
What factors impact handoff failure and success?	○	○	○
What are the best practices for conducting safe and effective handoffs?	○	○	○
What is the impact of handoffs on process, intermediate and patient outcomes?	○	○	○
What are the best practices for training for effective handoffs?	○	○	○
How should handoff quality be assessed?	○	○	○
Should handoffs be standardized and if so, how?	○	○	○
What is the relationship between team function and handoff safety and effectiveness?	○	○	○
What is the relationship between information technology (IT) and handoff success or failure?	○	○	○
Should checklists be used for conducting safe and effective handoffs and if so, what are best practices in using them?	○	○	○
What are the current practices in conducting handoffs?	○	○	○

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You have been assigned to the breakout group discussing education and training (including mnemonics).

What are the essential characteristics of effective handoff education/training?

Please indicate the degree to which you agree with the following statements about handoff education and training.

Education / training

	Agree	Agree with modification	DO NOT agree
Handoff education and training should be dedicated, standardized, with a standardized curriculum and standardized tool (cognitive aid) for all healthcare workers, tailored to provider need.	○	○	○
Handoff education and training should impart the value of an effective handoff and should help learners understand the consequences of a poor handoff.	○	○	○
Team training is essential for effective handoffs, and should include leadership training, assertiveness training, and help learners with strategies to address barriers.	○	○	○
Handoff training should include experiential learning, including regular, repeated simulation to practice role playing handoffs, to use deliberate practice and repetition, allowing students to reflect and debrief and to receive feedback.	○	○	○
Handoff education and training should include ongoing observation, real-time coaching, and feedback.	○	○	○
Handoff education and training should occur early in training and early in one's institutional career (e.g., orientation).	○	○	○

	Agree	Agree with modification	DO NOT agree
Leadership should define elements of good handoffs and best practice, and should model effective handoffs to demonstrate good performance.	○	○	○
Handoff education and training should include assessment of competency.	○	○	○
The development of the handoff education and training program should be inclusive of all stakeholders.	○	○	○
Handoff education and training should be multi-modal, including the use of technology (online, videos, problem based learning).	○	○	○
Handoff education and training should focus on the essential and not be burdensome.	○	○	○
Handoff education and training should include feedback about handoff performance.	○	○	○

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You have been assigned to the breakout group discussing handoff implementation best practices.

To implement effective handoffs, specific strategies and tactics are needed and may involve expertise and resources at the provider, unit, hospital, and health system level. What strategies should be used for handoff process implementation?

Please indicate the degree to which you agree with the following statements about handoff implementation best practices.

Audit and feedback

	Agree	Agree with modification	DO NOT agree
1. Trained observers should routinely audit handoffs and provide feedback to its participants.	○	○	○
2. Clinicians should commit to improving handoff communication as an explicit social expectation in their respective codes of conduct.	○	○	○

Iterative process

	Agree	Agree with modification	DO NOT agree
3. An iterative approach should be used, with tests of change and a successful pilot, before system-wide implementation of a new handoff process.	○	○	○

Systems approach

	Agree	Agree with modification	DO NOT agree
4. A core set of elements should be tailored to a unit's needs as part of a system-wide approach to handoff redesign.	○	○	○
5. A clinical unit's policy should codify its handoff processes and education requirements.	○	○	○
6. Clinical units should apply quality improvement principles (e.g. project charter, needs and stakeholder analysis, implementation team) to system-wide handoff redesign.	○	○	○

Design

	Agree	Agree with modification	DO NOT agree
7. Inter-professional teams (when appropriate) should collectively design a reliable method for information transfer in a manner that promotes team work.	○	○	○

Executive leadership

	Agree	Agree with modification	DO NOT agree
8. The business case for handoff redesign should be made to hospital executives when funding is sought for system-wide implementation.	○	○	○
9. Executive buy-in should include vocal/visible support and funding (e.g. for subject matter experts, nonclinical time) for handoff redesign.	○	○	○

Stakeholders

	Agree	Agree with modification	DO NOT agree
10. All stakeholders (e.g. physicians, nurses, technicians, staff and administration) should be engaged early in the process to elicit buy-in, concerns and barriers.	○	○	○

Champions

	Agree	Agree with modification	DO NOT agree
11. Site leads and unit-based champions should be identified, trained and mentored to ensure their respective peers understand the intent and purpose of the redesign effort.	○	○	○

Organizational

	Agree	Agree with modification	DO NOT agree
12. Hospital/health systems should provide unit-based teams with guidance by subject matter experts to support the handoff redesign process.	○	○	○
13. Access to subject matter expertise in quality improvement, education, team training, human factors, information technology, data analytics and project management should be provided when redesigning handoffs.	○	○	○

Messaging

	Agree	Agree with modification	DO NOT agree
14. Needs, results and lessons learned should be messaged to all the stakeholders involved in handoff redesign and its implementation.	○	○	○

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You have been assigned to the breakout group discussing patient and family engagement in handoffs.

Patients and their families can help to ensure providers have relevant, complete information for the patient's optimal care. How and when should patients and/or their families be engaged in perioperative handoffs?

Please indicate the degree to which you agree with the following statements about patient and family engagement in handoffs.

Patient and family engagement

	Agree	Agree with modification	DO NOT agree
1. Patient and family presence for and participation in handoffs should be specific to setting and acuity.	○	○	○
2. Families should be present for PACU discharge.	○	○	○
3. Patients and families should be included in the handoff postoperatively when care is transitioned beyond the immediate perioperative setting.	○	○	○
4. Patients and families should be included in nursing shift handoffs.	○	○	○
5. Families should be able to make recommendations for next steps in plan of care.	○	○	○
6. Patients and families should have a mechanism to communicate any issues through a patient hotline or quality improvement reporting system.	○	○	○
7. For pre-operative handoffs, patients (as they are able) and families should be present and should participate.	○	○	○
8. For intraoperative handoffs (excluding short breaks), patients (as they are able) and families should be present and should participate.	○	○	○
9. For OR to PACU handoffs, patients (as they are able) and families should be present and should participate.	○	○	○

	Agree	Agree with modification	DO NOT agree
10. For OR to ICU handoffs, patients (as they are able) and families should be present and should participate.	○	○	○

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