

DEVELOPING AN OPERATING ROOM TO POSTANESTHESIA CARE UNIT HANDOFF CHECKLIST: A DELPHI STUDY

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Background

- AANA and ASA have mandated a handoff between Anesthesia and PACU providers for patients who have received anesthesia
- Current lack of standardization results in poor patient outcomes
- There is a need for a standardized, evidence-based Post-Anesthesia Handoff checklist

Literature Review

- Handoff between anesthesia providers and PACU RNs is often inadequate and inconsistent
- Handoff tools act as cognitive aids to decrease human error and develop a shared situational awareness
- Compliance failures are related to a lack of leadership, differing situational awareness, and concerns of impedence to workflow

Purpose and Aims

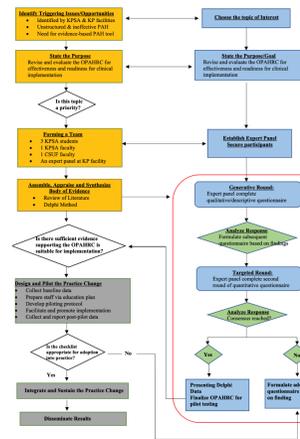
Purpose: To evaluate the effectiveness of the OPAHRC developed by Balajadia et al. (2021) and revise it for clinical implementation using the Delphi method at Kaiser Permanente West Los Angeles (KPWLA)

Aim: To promote patient safety by improving the quality of post anesthesia handoff, improving patient outcomes during the recovery period, and increasing satisfaction among anesthesia providers and PACU RNs

Methods

- Delphi analysis conducted with subject experts in anesthesia
- Surveys were completed at Kaiser Permanente West Los Angeles
- Purposive and snowball sampling techniques were used to recruit an expert panel (Goal of 10-15 members)
- Two survey rounds to evaluate and revise OPAHRC for clinical implementation
- Analysis via Qualtrics survey and Nvivo software

IOWA Model



OPAHRC

OR to PACU Anesthesia Handoff Report Checklist

Time-out

Patient sticker (Name, DOB/Ap, M/N)

Allergies:

Procedure:

Anesthesia provider:

Pertinent medical history:

Anesthesia technique:
 General anesthesia
 Monitored Anesthesia Care
 Peripheral nerve block
 Spinal

Intraoperative course:
 Difficult intubation:
 Intraoperative complications:

Intake:
 Fluids:
 Blood products:

Output:
 Urine:
 Stool:

Medications:
 Sedative:
 Analgesic:
 Antiemetic:
 Antibiotic:
 Reversal: Sugammadex
 Neostigmine

Pertinent labs:

Labs to recheck:

Postoperative orders entered:

High alert postoperative concern:

Do you have any questions or concerns?

Survey

Delphi Survey Template

Standardization of OR to PACU Anesthesia Handoff

Open-ended Questions
 Please answer the following questions using words, short phrases, and/or complete sentences. You can list as many answers as you wish, and the answers do not have to be in a particular order.
 Question 1: What are the essential elements in a thorough OR to PACU anesthesia handoff?
 Question 2: Please examine the attached OR to PACU Anesthesia Handoff Report Checklist and provide an assessment of its appropriateness for clinical implementation.

Standardization of OR to PACU Anesthesia Handoff

Likert-Scale Questions
 Please place an X in the box that best describes how important each item is in the OR to PACU Anesthesia Handoff. The numbers correspond to a response as below:
 1 - Very Important
 2 - Important
 3 - Neither important or not important
 4 - Not important
 5 - Irrelevant/Should not be included

Item	1	2	3	4	5
Patient identifying information (Name, Date of Birth, Medical Record Number)					
Allergies					
Procedure/Surgery					
Anesthesia technique					
Anesthesia provider					
Pertinent medical history					
Intraoperative course and complications					
Medications given					
Intake & output					
Labs					
Pertinent labs					
Labs needed to check					
Postoperative order entry					
High alert postoperative concern					
(Additional items generated from Round 1)					
(Additional items generated from Round 1)					
(Additional items generated from Round 1)					

Limitations

- Lack of heterogeneity within expert panel (sample group included only CRNAs)
- Buy-in from other perioperative departments, particularly physician anesthesiologist champion

Implications

- OPAHRC deemed thorough and logical for anesthesia workflow, however cited barriers consistent with literature review
- High response rate for both surveys indicative of recognized need for standardized and efficient handoff to ensure safe patient care
- High response rate also reflective of CRNAs' openness to potential piloting and adaptation of the OPAHRC into clinical practice
- High level of group consensus supported the suitability of OPAHRC for clinical pilot testing

Results

Content Analysis for Question 1

Content Analysis for Question 1: What are the essential elements in a thorough OR to PACU anesthesia handoff?

Category	Essential Elements
Patient Information	<ul style="list-style-type: none"> Identifying information Allergies Pertinent medical history Preferred language Psychosocial data if relevant (e.g., transportation arrangements)
Surgical and Anesthetic Information	<ul style="list-style-type: none"> Surgery performed Surgeon's name Type of anesthesia administered (General Anesthesia, MAC, Neuraxial, regional, etc.)
Intraoperative Considerations	<ul style="list-style-type: none"> Lines and drains placed Hemodynamic concerns Any significant surgical or anesthesia events or complications (difficult intubation, bleeding, transfusions, etc.)
Medications and Fluid management	<ul style="list-style-type: none"> Medications administered including analgesic, anti-emetic, reversal agents for paralytics, and responses to medications given Intake and Output (I/O) Estimated blood loss (EBL)
Postoperative considerations	<ul style="list-style-type: none"> Disposition (home, ICU, etc.) Follow up labs, vital signs of concern Opportunity for questions/concerns

First Round Demographic Data

Characteristic	n	%
Gender		
Male	6	33%
Female	11	61%
Do not wish to answer	1	6%
Age		
25-34	6	33%
35-44	2	11%
45-54	6	33%
>55	4	22%
Years of Experience		
<5 Years	4	22%
5-10 Years	6	33%
10-15 Years	3	17%
>15 Years	5	28%

Second Round Demographic Data

Characteristic	n	%
Gender		
Male	5	38%
Female	8	62%
Do not wish to answer	0	0%
Age		
25-34	3	23%
35-44	4	31%
45-54	2	15%
>55	4	31%
Years of Experience		
<5 Years	2	15%
5-10 Years	5	38%
10-15 Years	1	8%
>15 Years	5	38%

First Round Likert Results

Likert Scale Questions	Very Important	Important	Neutral	Not Important	Irrelevant/Should not be included	Total Responses	M	SD	Variance	Consensus Level
Patient Ident Info	12	4	1	0	1	18	1.56	1.01	1.02	89%
Allergies	16	2	0	0	0	18	1.11	0.31	0.1	100%
Procedure/Surgery	16	1	0	1	0	18	1.22	0.71	0.51	94%
Anesthesia Technique	14	4	0	0	0	18	1.22	0.42	0.17	100%
Anesthesia Provider	1	11	4	0	2	18	2.5	1.01	1.03	67%
Pertinent Medical History	14	4	0	0	0	18	1.22	0.42	0.17	100%
Intraoperative Course and Complications	18	0	0	0	0	18	1	0	0	100%
Medications Given: Analgesics	13	5	0	0	0	18	1.28	0.45	0.2	100%
Medications Given: Antiemetic	7	10	0	1	0	18	1.72	0.73	0.53	94%
Medications Given: Antibiotics	4	6	5	1	2	18	2.5	1.21	1.47	56%
Medications Given: Sedative	9	4	1	2	2	18	2.11	1.41	1.99	72%
Neuromuscular Reversal	4	9	2	2	1	18	2.28	1.1	1.2	72%
Intake & Output including EBL (Estimated Blood Loss)	11	7	0	0	0	18	1.39	0.49	0.24	100%
Lines/Vascular Access	7	8	1	2	0	18	1.89	0.94	0.88	83%
Pertinent Lab Result	7	9	1	1	0	18	1.78	0.79	0.62	89%
Labs Needed to Recheck	11	6	1	0	0	18	1.44	0.6	0.36	94%
Postoperative Order Entry	3	8	4	3	0	18	2.39	0.95	0.9	61%
High alert Postoperative Concerns	16	2	0	0	0	18	1.11	0.31	0.1	100%
Opportunity for Questions	13	4	0	0	1	18	1.44	0.96	0.91	94%

Second Round Likert Results

Likert Scale Questions	Very Important	Important	Neutral	Not Important	Irrelevant/Should not be included	Total Responses	M	SD	Variance	Consensus Level
A "time-out" for interrupted handoff	2	8	3	0	0	13	2.08	0.62	0.38	77%
Patient Ident Info	5	3	4	0	1	13	2.15	1.17	1.36	62%
Allergies	9	4	0	0	0	13	1.31	0.46	0.21	100%
Procedure/Surgery	9	3	0	1	0	13	1.46	0.84	0.71	92%
Anesthesia Technique	7	6	0	0	0	13	1.46	0.5	0.25	100%
Anesthesia Provider	1	7	3	1	1	13	2.54	1.01	1.02	62%
Pertinent Medical History	11	2	0	0	0	13	1.15	0.36	0.13	100%
Intraoperative Course and Complications	12	1	0	0	0	13	1.08	0.27	0.07	100%
Medications Given: Analgesics	7	6	0	0	0	13	1.46	0.5	0.25	100%
Medications Given: Antiemetic	2	9	2	0	0	13	2	0.55	0.31	85%
Medications Given: Antibiotics	0	8	4	1	0	13	2.46	0.63	0.4	62%
Medications Given: Sedative	4	3	7	1	1	13	1.92	0.83	0.69	85%
Neuromuscular Reversal	4	8	1	0	0	13	1.77	0.58	0.33	92%
Intake & Output including EBL (Estimated Blood Loss)	7	5	1	0	0	13	1.54	0.63	0.4	92%
Lines/Vascular Access	4	8	1	0	0	13	1.77	0.58	0.33	92%
Pertinent Lab Result	4	9	0	0	0	13	1.69	0.46	0.21	100%
Labs Needed to Recheck	6	6	1	0	0	13	1.62	0.62	0.39	92%
Postoperative Order Entry	1	8	2	0	2	13	2.54	1.15	1.33	69%
High alert Postoperative Concerns	10	3	0	0	0	13	1.23	0.42	0.18	100%
Opportunity for Questions	8	5	0	0	0	13	1.38	0.49	0.24	100%

Discussion

- OPAHRC deemed appropriate for clinical implementation with integration into EMR to decrease HIPAA violations
- Inclusion of "time-out" component due to 77% of participant recommendation
- Q1 reiterated importance of concise and thorough PAH
- Participants report concern that use of physical checklist may lead to inefficient workflow and redundancy (concerns are consistent with literature findings)

Recommendations

- No immediate plans for pilot testing and clinical implementation at KPWLA
- Future project groups continue to educate and advocate for a physician anesthesiologist led focus group at KPWLA to facilitate the implementation of a standardized handoff process
- Future project groups begin with identifying a stakeholders from all perioperative departments to ensure departmental buy-in and participation
- Future project groups utilize the Iowa Implementation for Sustainability Framework

References

