I∞PASS®
PATIENT SAFETY INSTITUTE

HAWAII PACIFIC HEALTH

Standardizing Communication for NICU Nurses to Enhance Quality of Patient Care

HAWAI'I PACIFIC HEALTH | KAPI'OLANI
PALI MOMI
STRAUB
WILCOX

Hospitals:
4

Clinic Locations
Statewide:
70

Nurses:
1,800

Healthcare
Professionals:
7,000

The case for leveraging
the health information and
technology infrastructure
of I-PASS to enhance patient safety
and workflow efficiency

Identifying Challenges in Patient Safety:
Effective Communication During Handoffs

Preventable medical errors caused by poor communication continue to plague healthcare organizations. A 2016 Johns Hopkins report calculated that more than 250,000 patient deaths per year are due to medical errors, with poor communication being the leading cause. Communication lapses during care transitions occur among all provider types, but they acutely affect one group: patients.

Hawaii Pacific Health (HPH) is a healthcare network comprised of four hospitals, 70 clinic locations statewide, and 7,000 healthcare professionals covering Hawaii and the Pacific Region. When HPH leaders sought ways to improve the organization's quality and safety behaviors, they evaluated the communication workflow among certain physician groups. Based on their findings of fragmented care, HPH implemented I-PASS, an evidence-based handoff solution tailored to physicians. Their experience showed that I-PASS allowed HPH's physicians to streamline their workflows and enhance care delivery. Buoyed by the success of the physician groups, leaders felt confident this methodology could be expanded to other departments. The following use case describes how HPH implemented I-PASS among nurses within the neonatal intensive care units (NICUs), and how I-PASS resulted in improvements in patient safety and workflow efficiency.

Bridging Communication:
Observation, Assessment, and Analysis

Prior to implementing I-PASS, the HPH NICU was utilizing an antiquated, disorganized, and disjointed communication system, which led to suboptimal handoffs with lengthy shift reports that resulted in significant overtime. A close look at baseline practices revealed that handoff communication among the NICU nurses had fallen below the national 75% baseline adherence standard for most components within the I-PASS mnemonic. The unit also fell below the national average on I-PASS qualitative communication components, including prioritizing key information, providing a to-do list, and utilizing high-quality contingency plans. Communication inefficiency was at the core of these low scores. Information was unclear, incomplete and not being communicated in a timely fashion, resulting in a lack of understanding of patient conditions among incoming nurses at shift change.

When nurses were surveyed about their handoff process, **less than 10% responded that they were "always" prepared** to care for patients with the information received during handoffs.

10%
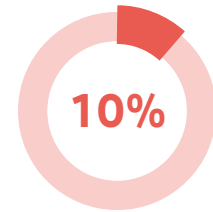
Furthermore, when nurses were surveyed about their handoff process, less than 10% responded that they were "always" prepared to care for patients with the information received during handoffs. This indicates that more than 90% were either operating with limited patient knowledge or had to find core information themselves—which was taking valuable time away from patient care.

There were also missed opportunities to enhance quality and safety efforts. For example, handoffs were being performed outside the patient's room. An optimal handoff occurs at the bedside, creating an opportunity for the incoming nurse to see the patient, check equipment functionality, and engage with the patient and family members.

To learn more about the NICU nursing staff's satisfaction with existing EHR tools related to handoff, HPH leaders conducted a survey and found that 44% of respondents were less than satisfied with the information provided on the report sheet. This dissatisfaction stemmed from having to transfer knowledge from the EHR to paper, hearing about outdated patient information (prompted on the paper "brain"), and spending too much time discussing the handoff report. The tools were also prone to transcription errors and were open to individual interpretation. HPH's NICU nurses needed standardized communication tools that integrated seamlessly with their EHR and created structure across the department.

Implementation Plan:
Shifting from Paper to Digital

To develop a successful I-PASS implementation plan, HPH assembled the right team and successfully gained the support of leadership and key stakeholders. Then they set out to build a team that would commit to learning, testing, and modifying. HPH's I-PASS governance team consisted of a core group that included a NICU unit-based practice committee; NICU nurse educator; IT informatics nurses; Dr. Shilpa Patel, Pediatric Hospitalist and HPH Associate Chief Quality Officer; Tracy Methered, RN, Coordinator for Clinical Improvement and Nurse Informatics Liaison; Cathye Sataraka, RN, Clinical Medical Informatics Specialist and Project Manager; and Marsha Durbin, Director of Patient Experience, with input provided by unit leaders, educators, patient safety specialists, patient experience personnel, IT specialists, and most importantly, frontline NICU nurses.

With I-PASS champions in place, the core HPH I-PASS team mapped out an implementation plan comprising the following steps:

1
Understand the I-PASS Bundle **content and functionality**

2
Develop a baseline process and workflow, and test the structure of the tool

3
Train I-PASS observers

4
Train NICU nurses across the unit

5
Gather post-implementation observations and feedback, and retrain where necessary

During this planning phase, the team knew that to sustain meaningful behavioral change they needed to develop a handoff system that was tested, structured, and optimized specifically for the workflow and needs of the NICU nurses.

I-PASS Handoff Prototype:
Test, Iterate, and Repeat

To accomplish their goal, the core team worked with IT specialists to develop and implement a PDSA (Plan-Do-Study-Act) approach that would enable efficiency in decision-making. To start, the team observed nurses as they utilized their existing handoff tools. Through their workflow analysis, they saw that the nurses were using various aspects of the patient chart and often were transcribing information from the chart to paper or trusting their memory to retain the information they had read in the chart.

In their preliminary EHR design, IT took highlights from reports and combined them into an "at-a-glance" view so that the information was accessible on one page. However, they quickly learned that the at-a-glance approach was not comprehensive enough given that nurses were still navigating to other areas in the EHR to gather information and were utilizing paper as the central source for transcribing information. The archaic paper model needed to become a digital interface.

For the second EHR design iteration, the core handoff team wanted to hear directly from the NICU nurses about the patient information they viewed as most important for a handoff report. A consensus process was utilized before creating a new design. Using the information gathered from the second design session, the core handoff team developed a new EHR layout that featured the following.

Handoff Tool: Smart technology allowed for content to be pulled from the EHR directly into the handoff report, displaying information the NICU nurses felt was the most important. This eliminated the need to rewrite existing information onto paper and removed the possibility of transcription errors.

I-PASS Handoff Report: This displayed the written portion of the I-PASS mnemonic. Customization of the I-PASS handoff report allowed nurses to match this written section to the ways they give their verbal handoffs—discussing their patients' conditions from head to toe.

Updated At-a-Glance Report: This combined multiple reports (including the handoff report) onto one screen, highlighting information such as orders, meds, labs, and flowsheet data.

Once this was in place, project nurse teams tested the updated tools by using them during handoffs on two patients, then giving feedback on their experience to the core handoff team. The platform was adjusted based on this feedback, and the nurses were able to see within hours to days how their suggested changes improved the handoff report.

In addition to changes in the configuration of written reports, the NICU nurses altered their handoff structure and began giving handoffs at the bedside instead of in hallways, as they had done previously. During early implementation, IT specialists were in patient rooms during handoffs to provide support, observe the tool in action, and hear comments and feedback from the nurses.

Results:
Shifting from Paper to Digital

Before implementation began, at baseline, HPH's adherence standard for most components within the I-PASS mnemonic fell well below the 75% standard. After implementation of the new handoff structure, adherence to all components within the I-PASS mnemonic were well above the 75% standard. Across the board, HPH saw dramatic improvements in meaningful patient safety and quality metrics. Illness Severity rose from 3.3% adherence to 92.3% (89% improvement), Patient Summary rose from 58.3% adherence to 97.7% (39.4% improvement), Action List rose from 30% adherence to 91.9% (61.9% improvement), Situation Awareness rose from 13.3% adherence to 76.8% (63.5% improvement), and Synthesis by Receiver rose from 8.3% adherence to 84.2% (75.9% improvement).
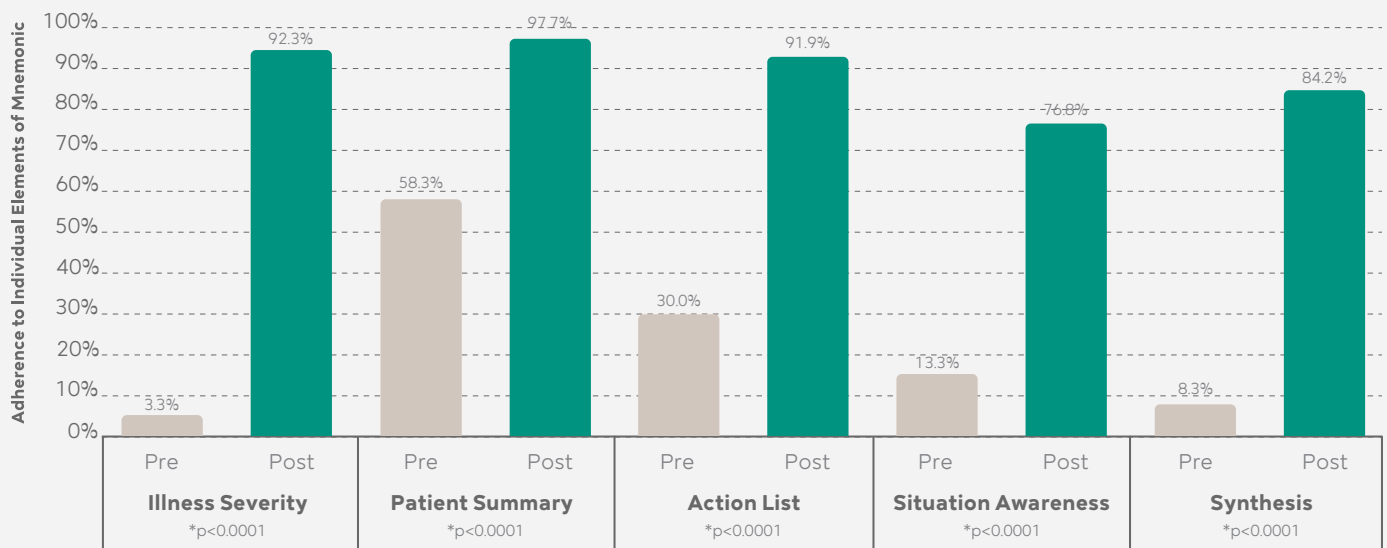
"After implementation of the new handoff structure, **adherence to all components within the I-PASS mnemonic** were well above the 75% standard. "

75%+
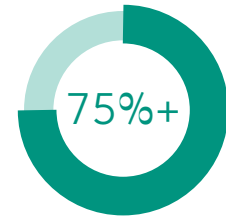
Adherence to Elements of I-PASS Mnemonic:

Pilot Unit Pre- and Post-Implementation Handoff: KMCWC NICU

(Pre: Feb 2018 n=60) (Post: Sept 2018 - June 2019 n=256)

Adherence to Individual Elements of Mnemonic

	Illness Severity *p<0.0001	Patient Summary *p<0.0001	Action List *p<0.0001	Situation Awareness *p<0.0001	Synthesis *p<0.0001
Pre	3.3%	58.3%	30.0%	13.3%	8.3%
Post	92.3%	97.7%	91.9%	76.8%	84.2%

*Significant difference comparing pre and post

Increased adherence to the I-PASS handoff bundle also led to a significant reduction in major and minor harm events. Harm reduction didn't just drop slightly, it improved dramatically.

Minor harm numbers decreased by 93.5% (3.06 to 0.20) per 1,000 hours worked.

Major harm numbers decreased by 86.1% (0.72 to 0.10) per 1,000 hours worked.

Another dramatic improvement was in the reduction of medication errors. Medication errors related to communication were reduced by 20.4% (0.44 to 0.35) per 1,000 dispenses. And this is in a unit with a mature bar-coding system.

An additional objective with implementing I-PASS was to reduce avoidable overtime occurrences. Over the course of 19 months, HPH measured the overtime occurrences through each phase of implementation and found that at the end of 19 months overtime decreased by 70%, saving HPH over $200K in overtime costs.

KMCWC NICU Report Overtime Occurences

Pre-Implementation: Nov 2016 - Feb 2017

Wash-In: Apr - Jul 2018

Post-Implementation: Aug - Nov 2018; Dec 2018 - Mar 2019; Apr - Jun 2019

Total Overtime Occurrences

1,579
1,387
890
661
390

Pre: n = 1,579   **Wash-in:** n = 1,387   **Post-Audit 1:** n = 890   **Post-Audit 2:** n = 661   **Post-Audit 3:** n = 390

Measured Overtime Occurrences

Meaningful Results:
Award-Winning Success

News of the NICU nurses' successful I-PASS implementation quickly spread across HPH's hospital system. With a process in place to enhance patient care, lower the number of medical errors, and decrease overtime occurrences, HPH expanded the use of I-PASS for nurses across other specialties, including its pediatric service lines, women's service line, med-surge units, ICUs, perioperative care, catherization labs/endoscopy departments, and the emergency department.

To date, HPH has trained more than 1,800 nurses and plans to expand the offering to physicians and respiratory therapists. By developing a structured handoff program that allows for continuous learning and growth, HPH has been able to create a meaningful and sustainable cultural change that benefits NICU nurses, patients, and the organization. In fact, the project was so successful that HPH was awarded the HIMSS Davies Enterprise Award for its achievement in utilizing health information technology to improve clinical outcomes.

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By the Numbers:
HPH Success with I-PASS

Increase in adherence to all I-PASS components:

+89%	+39.4%	+61.9%	+63.5%	+75.9%
Illness Severity adherence	**Patient Summary** adherence	**Action List** adherence	**Situation Awareness** adherence	**Synthesis** adherence

Decrease in harm events, errors, and overtime:

-93.5%	-86.1%	-20.4%	-70%	-$200k
Minor Harm Numbers*	**Major Harm** Numbers*	**Medication Errors** per 1,000 dispenses	**Overtime** occurences	**Overtime** costs

*   per 1,000 hours worked

About I-PASS

The I-PASS Patient Safety Institute is a clinical leader in patient safety, enabling a standard of care for patient handoffs and closed-loop communication. Founded by clinicians in 2016, the I-PASS Institute leverages expert mentorship paired with technology and digital tools to scale the I-PASS methodology. The I-PASS Institute's solution, the I-PASS Bundle, consists of three core technical components — I-PASS Training, I-PASS Assessment and Improvement, and I-PASS eVIEW. When all three platforms are used in unison and with the guidance of an expert coach, institutions are able to reduce patient harm caused by miscommunication. Currently implemented in more than 100 institutions, the organization's clients span high-reliability organizations, from pediatrics and residency programs to nursing and transition of care with families.

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