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Improving OR to PICU Handoffs for the Congenital Heart Surgical Program

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Improving OR to PICU Handoffs for the Congenital Heart Surgical Program

A Multidisciplinary Project : PICU Attendings, Nurses, CNA's, Pharmacists, Respiratory Therapists, Pediatric Cardiologists, Congenital Heart Surgeon and Pediatric Cardiac Anesthesia Attendings

Plan

Problem/Impact Statement

In 2006, The Joint Commission mandated that every hospital have a handoff plan because the transitions of care was identified as an "high risk" time in patient care. The OR to PICU handoffs involve changes in many categories:

- Change in patient location
- Change in equipment or movement of equipment
- Information was needed to be shared
- Portions of the care team were changing
- Report needed to be multidisciplinary
- Standardized report template was mandatory

Scope

Our initial survey and time study showed that our admission process was cumbersome, inefficient and slow. We identified and focused on three areas for improvement and evaluated the process by IRB approved surveys which allow for rapid performance change with each PDCA cycle.

Time Focused:

- Time to completion of patient transition which included placing the patient on the PICU ventilator and titrating settings to appropriate tidal volumes, peak pressures and oxygen saturations. Connecting the patient to the cardiac monitor and connecting and calibrating the pressure monitors for the central and arterial lines. Verifying accuracy and continuing administration of all inotropes, vasopressors and sedatives.
- Time at which verbal report could begin
- Time at which receiving team could perform first physical exam
- Time at which essential lab results returned
- Time at which summary of plan of care could be presented by PICU Attending
- Time at which Anesthesia and Surgical teams could leave the room

Role Focused:

- Multidisciplinary process was emphasized. All roles were updated and clarified.
- All teams were paged at the 45min arrival mark to ensure their presence on patient's PICU arrival
- Anesthesia and surgical teams were educated about the handoff process
- Primary nurse and helper nurse 2 and CNA were all given clearly defined roles
- Pediatric pharmacist added to essential admission staff
- PICU physician and Cardiology teams waited until transition period was completed by OR and PICU nursing before entering the room to examine patient
- PICU team responsible for summarizing and verbalizing initial plan of care so all team members could agree or modify plan

Environment Focused:

- Limit disruptions during handoffs including all side conversations
- Emphasize patient as the focus during handoff
- Reorganize room preparation so that all necessary equipment including blood tubes are available prior to patient arrival

Do

Goal/Objective

Our goal was to focus on the OR to PICU admission process to improve the efficiency of communication and handoff and to expedite early physical examination, and obtainment of laboratory and imaging studies.

Baseline Time Goals:

- 0-5 minutes – Transitions of ventilator, monitor, continuous infusions, EPIC
- 5-10 minutes – Report from CT PA, cardiologist, anesthesia
- 10-15 minutes – Assessments by intensivists, nursing and respiratory therapy

Blinded satisfaction surveys obtained.

Study

Evaluation Tool

OR to PICU Handoff Checklist

Equipment available prior to arrival

Yes	No	
		Transducer arterial and central
		Bedside monitor set up
		Ventilator and or oxygen set up
		Suction ready

Personnel present for admission

Yes	No	
		Respiratory therapist
		RN 1
		RN 2
		CNA
		Cardiologist
		Pediatric Intensivist
		PICU resident(s)
		Congenital surgeon
		Congenital surgery APP

Times

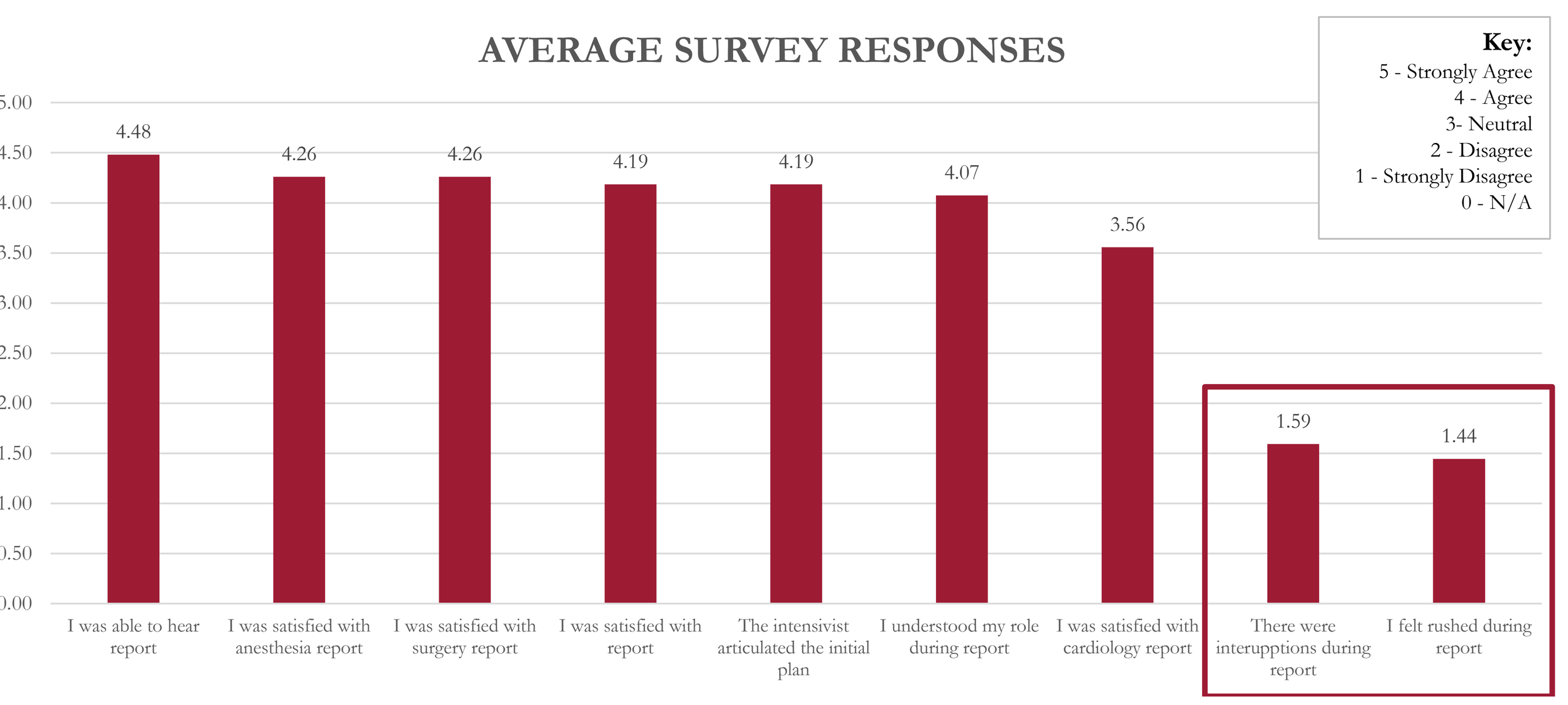
	Patient arrival
	Report begins
	Report complete
	RN 1 exam
	RT exam
	PICU exam
	Cardiology exam
	Congenital surgery exam
	Labs sent
	CXR obtained
	ECG obtained

Process

Yes	No	
		Reported interrupted
		If yes, how many times _____
		Report well organized
		Room quiet during report
		Anesthesia report
		Congenital surgery report
		Congenital cardiology report
		Intensivist articulated initial plan

Survey Results

Survey Number 1 Results:



Survey Number 2 Results:

- 14% thought the "Amount of time before the x-ray was done" was too long
- 11% thought the "Amount of time to place the patient on PICU monitors" was too long
- 11% thought the "Amount of time until I examined the patient" was too long
- 11% thought the "Amount of time before the ECG was done" was too long
- 7% thought the "Amount of time before labs were sent" was too long
- 4% thought the "Amount of time for verbal report" was too long

Study

Hand Off Time Study Results

Times	GOAL TIME	1/22/2020	2/4/2020	2/11/2020	2/14/2020	2/25/2020	3/10/2020	3/24/2020	undated	6/2/2020	6/16/2020	8/26/2020	9/8/2020	9/15/2020
Patient Arrival	0-5 min.	0	0	0	0	0	0	0	0	0	0	0	0	0
Report Begins	0-5 min.	7	9	5	4	4	6	4	8	7	5	7	4	6
Report Complete	0-5 min.	12					14	20	12		6	15	13	12
PICU Exam/Assessment	5-10 min.	3	5			6	17	10	15	13	12	18	5	8
Cardiology Exam	5-10 min.		16	5	8	6		10	18		6		6	8
Congenital Surgery Exam	5-10 min.											34	35	14
RN 1 Exam	10-15 min.				12		16	16	18	3	7	2	13	13
RT Exam	10-15 min.						4	15	15	1		8	12	6
Labs Sent	15-20 min.	35	30				28	21	33	23		62	24	
CXR Obtained	15-20 min.	30	25	15	15	13	22	30	20	20		38	15	13
ECG Obtained	15-20 min.	49	25	15	15	13	33	25	18	13		60	15	28

Act

Outcomes

In general we were able to improve our process so that the admission process was felt to be more timely and efficient. Our latest surveys show general satisfaction from most of the providers.

Multiple tangential improvements occurred during this process and should be acknowledged.

- Safe administration of bolus sedation and analgesic medications in the setting of continuous medication infusions.
- Timely medication double checks by nurses and verification by pharmacists
- Timely transfer of patient information in EPIC from the OR format to the PICU format
- Addition of administration guidelines of continuous infusions to the order set in accordance with the new The Joint Commission recommendations
- Streamline of the ordering choices of vasoactive and inotropic drips to provide increased safety
- Prevention of hypernatremia in our very young patients by adding the option of D5W as a carrier solution
- Modification of our arterial line care and maintenance to prevent arterial line loss
- Development of specific order sets:
  - Intubation
  - Paralytic drugs
- Multidisciplinary Educational Opportunities:
  - Lectures given by MMC team as well as Cardiologist from Boston Children's Hospital
  - Hand on training:
    - Open Chest Cart
    - Cardiac Blitz – hands on training every 6 months
  - Journal Club
  - Cardiac Corner – educational cardiac bulletin board
- Creation of an issues notebook for timely recording of ongoing concerns

Next Steps

We are continuing this process to ensure efficiency, patient safety and staff satisfaction as we move toward caring for the increasingly complex cardiac patient and as we commence our pediatric ECMO program.