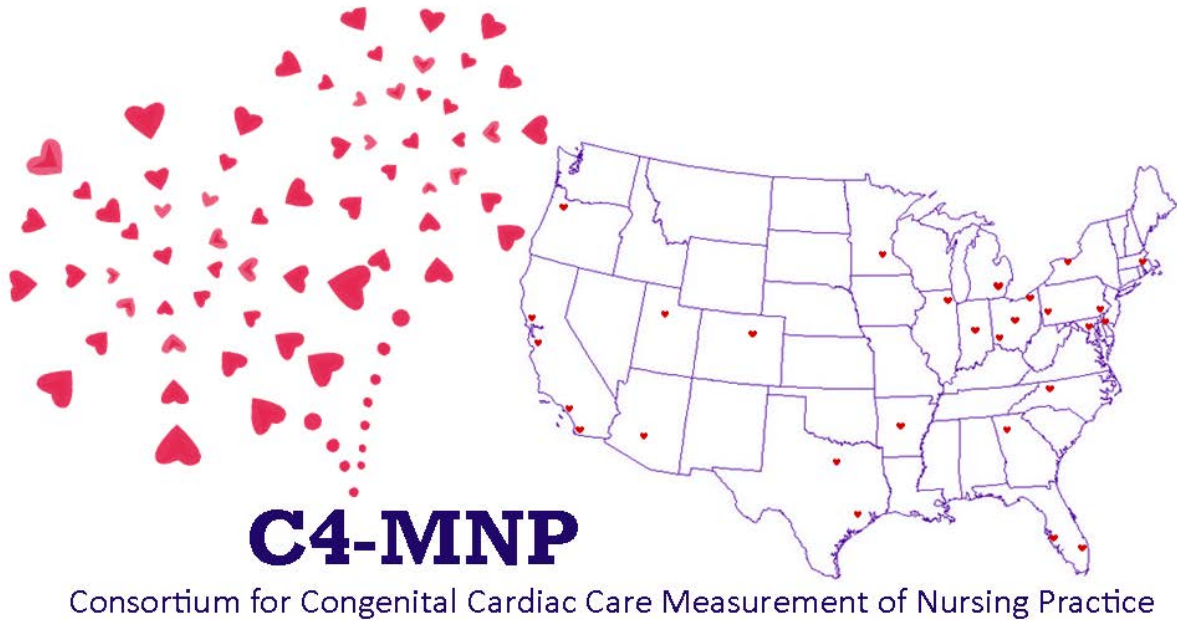# Consortium for Congenital Cardiac Care - Measurement of Nursing Practice

Phase III Pilot Testing: January 2016 – September 2016

Feasibility and Usability Assessment Results

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Dear Colleagues,

We are pleased to inform you that we have completed analysis of Phase III measure feasibility and usability data collected from the Consortium for Congenital Cardiac Care - Measurement of Nursing Practice (C4-MNP).

The goal of C4-MNP is to establish a national collaborative to identify nursing care actions for measurement in the highly complex pediatric cardiovascular care environment. Through the framework of the consortium, a national community of researchers, administrators, and clinicians has formed a broad network committed to rigorous measurement of the quality of care delivered by pediatric cardiovascular nurses.

The purpose of C4-MNP Phase III was to implement candidate quality measures for pilot testing and benchmarking in free-standing children's hospitals in the United States. The 10 measures that emerged from internal consensus and external review in Phase II were tested at a subset of nine participating sites over a six-month timeframe. A follow-up web-based survey with questions related to the feasibility and usability of each measure was disseminated to participating pilot sites. Below, please find the aggregate result report for the Phase III feasibility and usability assessment.

On behalf of the research team, I would like to extend our heartfelt appreciation for your continued commitment to this collaborative as we work to improve outcomes for pediatric cardiovascular patients and their families. I am confident that we will continue to generate new knowledge that will be important to our practice and to the overall field of pediatric cardiovascular nursing. Finally, we would like to recognize the Boston Children's Hospital Program for Patient Safety & Quality and the National Congenital Heart Defect Coalition for their generous support of this work.

Please let me know if you have any questions.

Sincerely,

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Executive Summary

Structure Measures:

Health of the Work Environment | Nursing Experience | BSN Education | Nurse Certification | Staff Turnover

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Key Findings
- Barriers to data collection included access to and accuracy of the information
- 100% of sites found the time burden to obtain the information feasible
    – Most Feasible: Health of the Working Environment
    – Least Feasible: Nurse Certification
- All sites agreed that the structure measures can be used internally for quality improvement
- Despite the difficulties in obtaining the nursing certification information, all sites agree that this information can confirm, change, or standardize practice at their sites
- All sites agreed that nursing turnover data has the potential to increase efficiency and improve patient outcomes at their sites

Recommendations
- Standardize tracking methods for structure measures
- Clarify definition of turnover for Staff Turnover measure

Clinical Measures:

Weight Gain | Feeding Safety | Early Warning Scores | Pain Scores Decreased | Device-Related Pressure Ulcers

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Key Findings
- Barriers to data collection included limitations in the EMR and confusion with measure definitions
- All sites found these measures could be used internally for quality improvement with the exception of one site indicating that the pain scores measure would not be used internally
- All sites also believe that utilization of early warning scores and device-related pressure ulcers have the potential to confirm, change, or standardize practice within their organization
- No sites reported clinical measures as lacking the potential to increase efficiency and improve patient outcomes at their site

Recommendations
- Standardize where clinical data is tracked by sharing best practices in EMRs
- Clarify definitions of adverse feeding events for Feeding Safety measure
- Clarify denominator (all patient days vs. cardiac patient days) for Early Warning Scores measure
- Clarify devices to include in device days for Device-related Pressure Injury measure

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Structure Measures:

Measure One: Health of the Work Environment

Measure Description

The total score reported for the health of the work environment, based on the AACN's Healthy Work Environment (HWE) assessment tool. Data were reported annually using the AACN's electronic HWE survey. Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Was the time burden feasible?

Time Burden	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0%

2. Approximately how much time was needed to collect and analyze the data for this measure?

Amount of Time	Respondents (N = 9)	
	# of Respondents	% of Respondents
≤1 day	4	44.4%
2-3 days	2	22.2%
4-5 days	1	11.1%
≥6 days	2	22.2%
Other	0	0.0%

3. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 9)	
	# of Respondents	% of Respondents
Extremely Feasible	5	55.6%
Very Feasible	4	44.4%
Moderately Feasible	0	0.0%
Slightly Feasible	0	0.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	8	88.9%
Neutral	1	11.1%
No	0	0.0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	7	77.8%
Neutral	2	22.2%
No	0	0.0%

Qualitative Feedback for Health of the Work Environment

1. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility.

    a. I think at the time this survey was initiated, our managers were relatively new to their roles and looking at data.

    b. Make sure whole interdisciplinary team is surveyed.

2. What challenges did you encounter when implementing this measure?

    a. Managers were concerned about the burden of this survey on their staff. Our institution had multiple surveys out in close proximity to this one.

    b. Staff completion of the survey was a challenge.

    c. Unclear that we could survey interdisciplinary staff, we only had nursing in our IRB.

    d. Not all staff respond to the survey.

    e. Reminding staff to read the e-mail and encourage them to complete the survey without coercion.

Measure Two: Overall Years of Nursing Experience

Measure Description

Nursing experience is a unit-level measure of the percentage of registered nursing staff providing patient care that has 0-2 years of any clinical experience. Data were reported annually based on the date of initial nursing licensure.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	6	66.7%
No	3	33.3%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 9)	
	# of Respondents	% of Respondents
Electronic Medical Records	0	0.0%
Human Resources Records	0	0.0%
Department/Unit Records	9	100%

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0.0%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
No*	3	37.5%

*Please briefly explain why the data was not readily available:
   a. Finding an accurate list of staff degrees and certifications was somewhat burdensome.
   b. This information relies on accurate input by a staff nurse who inputs into an excel spreadsheet.
   c. The information was kept in paper files in the Admin office. On occasion, we reached out to Human Resources for verification or additional support.

5. Was the time burden feasible?

Time Burden Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Time for Data	Respondents (N = 8)	
	# of Respondents	% of Respondents
≤1 day	2	25.0%
2-3 days	3	37.5%
4-5 days	1	12.5%
≥6 days	1	12.5%
Other*	1	12.5%

*Please specify 'Other' amount of time.
   a. Time to compile with feedback was a week-long process, but not full time.

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Extremely Feasible	1	12.5%
Very Feasible	5	62.5%
Moderately Feasible	2	25.0%
Slightly Feasible	0	0.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	1	12.5%
No	1	12.5%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	1	12.5%
No	1	12.5%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	1	12.5%
No	1	12.5%

Qualitative Feedback for Nursing Experience

1. What challenges did you encounter when implementing this measure?

   a. Difficult to find an accurate list from HR and/or historic unit-based records.

   b. As a CNS I do not have direct access to the file. Had to rely on secretary or others to access information.

   c. Verification of the source data required time because our organization does not have an automated process for this.

   d. A few gaps in unit records regarding length of previous nursing experience.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility.

   a. This prompted us to create an updated spreadsheet for better organization.

   b. This information is helpful when comparing overall unit nurses' experience and patient outcomes.

Measure Three: Bachelor of Science in Nursing (BSN) Education

Measure Description

BSN education is a unit-level measure of the percentage of registered nursing staff that is at least BSN-prepared. Data were reported annually.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

2. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
No	3	37.5%

3. What was the data source your site used for this measure?

Data Source	Respondents (N = 8)	
	# of Respondents	% of Respondents
Electronic Medical Records	0	0.0%
Human Resources Records	1	12.5%
Department/Unit Records	7	87.5%

4. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

5. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
No*	3	37.5%

*Please briefly explain why the data was not readily available:
   a. HR programs depend on manual entry by RN. As such, records were not always accurate.
   b. Some files had not been updated.
   c. This information was not kept electronically at the time of the survey.

6. Was the time burden feasible?

Time Burden Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

7. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Time for Data	Respondents (N = 8)	
	# of Respondents	% of Respondents
≤1 day	5	62.5%
2-3 days	1	12.5%
4-5 days	0	0.0%
≥6 days	2	25.0%

8. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Extremely Feasible	2	25.0%
Very Feasible	4	50.0%
Moderately Feasible	2	25.0%
Slightly Feasible	0	0.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
Neutral	2	25.0%
No	1	12.5%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
Neutral	2	25.0%
No	1	12.5%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	1	12.5%
No	1	12.5%

Qualitative Feedback for Bachelor of Science in Nursing (BSN) Education

1. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

    a. We mostly require BSN to work here so easy to capture.

2. What challenges did you encounter when implementing this measure?

    a. Not having direct access to the files, had to go to secretary who is part-time, to access information.

    b. This information is kept on an Excel spreadsheet that requires manual updates by the unit educator or manager.

    c. This information was not kept electronically at the time of the survey, but the organization has since moved to a one source verification and electronic system.

    d. HR programs depend upon manual entry by individual RN. As such, records were not always accurate.

    e. Some files had not been updated.

Measure Four: Nursing Certification

Measure Description

Nursing certification is a unit-level measure of the percentage of registered nursing staff providing patient care who is CCRN or CPN certified. Data were collected annually for registered nursing staff with at least 1800 hours of clinical experience. Clinical experience is calculated based on the date of initial nursing licensure. Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
No	3	37.5%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 8)	
	# of Respondents	% of Respondents
Electronic Medical Records	0	0.0%
Human Resources Records	1	12.5%
Department/Unit Records	7	87.5%

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

4. Were all of the data elements readily available (i.e., easy to access)?

Data Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	4	50.0%
No*	4	50.0%

*Please briefly explain why the data was not readily available:
   a. HR/Unit based records were not always accurate and/or readily available.
   b. Not all files were updated. Had to ask several staff to verify information.
   c. NP certification not tracked as well as AACN.
   d. This information was kept in the paper employee files at the time of the survey. We had to reach out to employees or Human Resources for verification and additional support. However, the organization has since moved this information electronically.

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 8)	
	# of Respondents	% of Respondents
≤1 day	3	37.5%
2-3 days	2	25.0%
4-5 days	0	0.0%
≥6 days	2	25.0%
Other*	1	12.5%

*Please specify 'Other' amount of time.
   a. Took time to compile.

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Extremely Feasible	1	12.5%
Very Feasible	3	37.5%
Moderately Feasible	3	37.5%
Slightly Feasible	0	0.0%
Not At All Feasible	1	12.5%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	1	12.5%
No	1	12.5%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

Qualitative Feedback for Nursing Certification

1. What challenges did you encounter when implementing this measure?

    a. Time consuming. Some certifications were listed, but expired. HR/Unit based records were not accurate and needed to be verified individually with each RN.

    b. Achieving buy-in from new managers. Managers not as familiar with importance of this information.

    c. This information is stored on an Excel spreadsheet. The accuracy relies on the educator or manager updating the document. Also, we did encounter instances when nurses did not inform leadership that they had achieved certification.

    d. This information was kept in the paper employee files at the time of the survey. We had to reach out to employees or Human Resources for verification and additional support.

    e. NP not tracked like AACN was

    f. HR records were not always accurate and/or readily available.

    g. Not all files were updated. Had to ask several staff to verify information.

Measure Five: Nursing Staff Turnover

Measure Description

Nursing staff turnover is a unit-level measure of the percentage of registered nursing staff that was not retained each calendar year. Data were reported annually.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	4	57.1%
No	3	42.9%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 8)	
	# of Respondents	% of Respondents
Electronic Medical Records	0	0.0%
Human Resources Records	4	50.0%
Department/Unit Records	3	37.5%
Other*	1	12.5%

*Please specify 'Other' data source.
   a. Unit manager.

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
No*	1	12.5%

*Please briefly explain why the data was not readily available:
   a. Clinical nursing director needed to be involved to get data from HR.

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 8)	
	# of Respondents	% of Respondents
≤1 day	2	25.0%
2-3 days	5	62.5%
4-5 days	0	0.0%
≥6 days	0	0.0%
Other*	1	12.5%

*Please specify 'Other' amount of time.
   a. Back and forth through records.

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Extremely Feasible	1	12.5%
Very Feasible	6	75.0%
Moderately Feasible	1	12.5%
Slightly Feasible	0	0.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	0	0.0%
No	1	12.5%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
Neutral	0	0.0%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
Neutral	0	0.0%
No	0	0.0%

Qualitative Feedback for Nursing Staff Turnover

1. What challenges did you encounter when implementing this measure?

   a. Not all records in an accessible file. I also think managers use different definitions of turn-over, sometimes it is expected as when staff are in school and pursuing education for a new role, or when staff shift to another position.

   b. Our organization does not document reason for leaving or transferring from a unit. We had to manually review each case, and in some instances contact the nurse to verify.

   c. HR unresponsive until director involved.

   d. There were some gaps in records regarding the nursing characteristics (experience, degree, certification, and turnover) on our step-down unit, which may impact the usability of that data. The CICU data was up to date and correct.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

   a. There were some gaps in records regarding the nursing characteristics (experience, degree, certification, and turnover) on our step-down unit, which may impact the usability of that data. The CICU data was up to date and correct.

Clinical Measures:

Measure Six: Weight Gain within 72 Hours of Discharge

Measure Description

Weight gain is a unit-level measure of the percentage of surgical inpatients aged ≤ 3 months who demonstrated an average weight gain of 0.015 - 0.02 kg/day, or a positive trend in weight, within 72 hours prior to discharge home. Data were reported monthly through chart review.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 8)	
	# of Respondents	% of Respondents
Electronic Medical Records	8	100%
Human Resources Records	0	0.0%
Department/Unit Records	0	0.0%

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	5	71.4%
No	2	28.6%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	5	71.4%
No*	2	28.6%

*Please briefly explain why the data was not readily available:
   a. Daily weights were not consistently performed on some patients.
   b. Did not always have daily weights, sometimes just had one a few days prior to the 72 hour mark and then another during the 72 hour mark

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	7	100%
No	0	0.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 7)	
	# of Respondents	% of Respondents
≤1 day	1	14.3%
2-3 days	4	57.1%
4-5 days	0	0.0%
≥6 days	2	28.6%

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 7)	
	# of Respondents	% of Respondents
Extremely Feasible	1	14.3%
Very Feasible	3	42.9%
Moderately Feasible	3	42.9%
Slightly Feasible	0	0.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	2	25.0%
No	0	0.0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	5	71.4%
Neutral	2	28.6%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
Neutral	0	0.0%
No	0	0.0%

Qualitative Feedback for Weight Gain within 72 Hours of Discharge

1. What challenges did you encounter when implementing this measure?

    a. Our medical records did not allow us to identify patients discharged according to age requirement, so had to manually track eligible patients for this measure.

    b. On some patients, weights were not recorded within the time frame required by the protocol.

    c. Daily weight compliance, inability to easily get report from Epic.

    d. Hard to navigate EMR at times for the discreet data points.

    e. Learning the most efficient way to collect data in the electronic medical record.

    f. Daily weights were not consistently performed on some patients.

    g. Did not always have daily weights, sometimes just had one a few days prior to the 72 hour mark and then another during the 72 hour mark.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

    a. I am concerned that our numbers for this measure make it challenging for the data to be meaningful. I also think it may be helpful to differentiate between neonates who have a corrective repair vs. palliative procedure, as I think they have different feeding issues and concerns.

    b. Would have been nice to have more data (daily).

Measure Description

Feeding safety is a unit-level measure of the rate of adverse feeding events in post-operative cardiac surgical inpatients aged ≤ 3 months. Data were reported monthly through chart review.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0.0%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 9)	
	# of Respondents	% of Respondents
Electronic Medical Records	8	88.9%
Human Resources Records	0	0.0%
Department/Unit Records	0	0.0%
Other*	1	11.1%

*Please specify 'Other' data source.
   a. Variance reporting and EMR.

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
No	1	12.5%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	3	37.5%
No*	5	62.5%

*Please briefly explain why the data was not readily available:
   a. Information is not in one document. Had to access multiple types of records in chart.
   b. We are unable to search by diagnosis in our EMR, and had to manually track this.
   c. This information was difficult to locate if there was not a medical diagnosis.

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
No	2	25.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 8)	
	# of Respondents	% of Respondents
≤1 day	1	12.5%
2-3 days	5	62.5%
4-5 days	1	12.5%
≥6 days	1	12.5%

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Extremely Feasible	2	25.0%
Very Feasible	1	12.5%
Moderately Feasible	3	37.5%
Slightly Feasible	2	25.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	7	77.8%
Neutral	2	22.2%
No	0	0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	2	25.0%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
Neutral	0	0.0%
No	0	0.0%

Qualitative Feedback for Feeding Safety

1. What challenges did you encounter when implementing this measure?

    a. Lack of way to query patients electronically to identify patients. As I do not routinely round, I had to go through all potentially eligible patients to ensure I did not miss something. I did learn more about the feeding practices of our intensivists, in the process.

    b. We noted variation in our practice of documentation and diagnosis.

    c. Definition of 'feeding safety' different here, unable to get a report from EMR, looking at variance reporting in combination with EMR - pulling/reading provider notes instead of discrete fields in Epic.

    d. Again, the information existed in 2 places which didn't always match.

    e. Patients may be treated for questionable NEC without it actually being documented NEC, so at times it was difficult to differentiate in the medical record.

    f. Finding the information.

    g. Information is not in one document. Had to access multiple types of records in chart.

    h. We are unable to search by diagnosis in our EMR, and had to manually track this.

    i. Not easily tracked in one place.

    j. Hard to track adverse events because information was in 2 different places - safety event reporting and EMR didn't always correlate.

    k. This information was difficult to locate if there was not a medical diagnosis. Otherwise we read physician notes.

    l. We have dietitians that round with the CICU and the cardiac step-down unit every day, so they are instrumental in monitoring and collecting data regarding growth and feeding intolerance. This may be more difficult at centers that do not have this valuable resource.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

    a. I think our electronic medical records, have great potential, but currently there is not a good mechanism to track patients and identify those who experience this problem.

    b. Re-look at definition.

    c. We have dietitians that round with the CICU and the cardiac step-down unit every day, so they are instrumental in monitoring and collecting data regarding growth and feeding intolerance. This may be more difficult at centers that do not have this valuable resource.

Measure Eight: Utilization of Early Warning Scores

Measure Description

Use of early warning scores is a unit-level measure of the rate of unplanned transfers to the CICU associated with code blue, resuscitation, or unprecedented need for escalation in care among patients on an acute cardiac care unit. Data were reported monthly through chart review of the unplanned transfer episode, including the early warning score (if one was in use) at time of transfer.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	8	88.9%
No	1	11.1%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 9)	
	# of Respondents	% of Respondents
Electronic Medical Records	4	44.4%
Human Resources Records	0	0.0%
Department/Unit Records	1	11.1%
Other*	4	44.4%

*Please specify 'Other' data source:
   a. Unit log of transfers
   b. Code database
   c. Internal QI database

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
No	2	25.0%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	5	62.5%
No*	3	37.5%

*Please briefly explain why the data was not readily available:
    a. No electronic report. I had to track patients manually and then verify in patient's chart.
    b. Our floor is a mixed unit and we were unable to select 'cardiac only' patient days.

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	7	100%
No	0	0.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 7)	
	# of Respondents	% of Respondents
≤1 day	2	28.6%
2-3 days	4	57.1%
4-5 days	0	0.0%
≥6 days	1	14.3%

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 7)	
	# of Respondents	% of Respondents
Extremely Feasible	2	28.6%
Very Feasible	4	57.1%
Moderately Feasible	0	0.0%
Slightly Feasible	0	0.0%
Not At All Feasible	1	14.3%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
Neutral	0	0.0%
No	0	0.0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
Neutral	2	25.0%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

<u>Qualitative Feedback for Utilization of Early Warning Scores</u>

1. What challenges did you encounter when implementing this measure?

    a. Manually tracking patients. This is important information and we should track it.

    b. We were unable to search electronically for escalation of care, but we do maintain a unit log of unplanned transfers to the ICU.

    c. Our floor/step-down is a mixed unit so we were unable to isolate our cardiac patients.

    d. No electronic report. I had to track patients manually and then verify information in patient's chart.

    e. Our acute care unit has now designated some beds as 'intermediate care' beds, with the intensive care service managing these beds. The Intensive Care Service does not use a rapid response model, but the acute care service does. Transfers back to the CVICU are not as 'clean' as they use to be.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

    a. Additionally, our acute care unit has now designated some beds as 'intermediate care' beds, with the intensive care service managing these beds. The Intensive Care Service does not use a rapid response model, but the acute care service does. Transfers back to the CVICU are not as 'clean' as they use to be.

Measure Description
Pain scores decreased is a unit-level measure of the percentage of documented pain scores ≥ 4 with a 30% or more decrease within 60 minutes. Data were reported monthly through chart review of all cardiovascular patients with any documented pain scores ≥ 4.
Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
No	1	12.5%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 8)	
	# of Respondents	% of Respondents
Electronic Medical Records	8	100%
Human Resources Records	0	0.0%
Department/Unit Records	0	0.0%

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	6	85.7%
No	1	14.3%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	6	85.7%
No*	1	14.3%

*Please briefly explain why the data was not readily available:
   a. Our institution's parameter for re-assessment of pain is different from the C4-MNP's parameter. We analyze the information differently.

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 7)	
	# of Respondents	% of Respondents
Yes	3	42.9%
No	4	57.1%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 7)	
	# of Respondents	% of Respondents
≤1 day	0	0.0%
2-3 days	3	42.9%
4-5 days	3	42.9%
≥6 days	0	0.0%
Other*	1	14.3%

*Please specify 'Other' amount of time.
   a. Unable to complete this measure.

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 7)	
	# of Respondents	% of Respondents
Extremely Feasible	0	0.0%
Very Feasible	2	28.6%
Moderately Feasible	2	28.6%
Slightly Feasible	2	28.6%
Not At All Feasible	1	14.3%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
No*	1	12.5%

*Please briefly explain why this measure cannot be used for internal QI.
   a. Do not use same scale of measurement.

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

Qualitative Feedback for Pain Scores Decreased within 60 Minutes

1. What challenges did you encounter when implementing this measure?

   a. I was able to generate an electronic report daily from our medical records. I found I had to collect the data daily and maintain a spreadsheet due to large number of entries. Patients fell off report when they were transferred to a unit that I was not tracking.

   b. Some interventions could not be counted because there was no reassessment within 60 minutes.

   c. No report from EMR, definition issues of pain/treatment, nurses didn't document pain scores post medication consistently, MAR administration doesn't pull to Epic pain scoring flowsheets so multiple clicks and quite a bit of work to go between the two places in the chart, some patients had numerous pain scores to review.

   d. It took a substantial amount of time to review all pain medications given and compare to the pain score before and after.

   e. This information was difficult to collect at the time. However, with the changes to our electronic medical record since this time I think it would be more feasible.

   f. Our institution's parameter for re-assessment of pain is different from the C4-MNP's parameter. We analyze the information differently.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

   a. This measure would probably benefit from additional work. I think pain is an important measure, but not sure that pain scores is the only outcome to assess. I also now realize that patients are not scored as high, when they are receiving neuromuscular blockade. I think we should also be concerned about pain, in this situation.

Measure Ten: Device-Related Pressure Ulcers

Measure Description

Device-related pressure ulcers is a unit-level measure of the rate of device-related pressure ulcers in cardiovascular inpatients. Data were reported monthly.

Link to C4-MNP quality measure specifications: https://c4mnp.childrenshospital.org/quality-measures/

Feasibility Assessment Results

1. Were the required data elements for this measure available in electronic health records or other electronic sources?

Data Elements	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0.0%

2. What was the data source your site used for this measure?

Data Source	Respondents (N = 9)	
	# of Respondents	% of Respondents
Electronic Medical Records	6	66.7%
Human Resources Records	0	0.0%
Department/Unit Records	0	0.0%
Other*	3	33.3%

*Please specify 'Other' data source.
   a. Incident reports.
   b. Other internal QI database.
   c. Although this information would be charted in the medical record, we utilized the electronic database of our skin team.

3. Were you able to collect all data elements required for this measure?

Data Collection	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

4. Were all of the data elements readily available (i.e., easy to access)?

Source Availability	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	6	75.0%
No*	2	25.0%

*Please briefly explain why the data was not readily available:
   a. I receive an electronic alert when a pressure injury is documented in electronic medical record, but only when bedside RN enters a stage. I think there is concern that if a bedside RN does not recognize an injury as a pressure injury or fails to document correctly, this measure can be underreported. This may be more of an institution issue and how pressure injuries are tracked.
   b. Pressure injuries are not itemized the same way in our institution and information was in different locations.

5. Was the time burden feasible?

Time Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	8	100%
No	0	0.0%

6. Approximately how much time was needed to collect and analyze the data for this measure? If the data for this measure was collected monthly, please answer for one month only.

Amount of Time	Respondents (N = 8)	
	# of Respondents	% of Respondents
≤1 day	5	62.5%
2-3 days	2	25.0%
4-5 days	0	0.0%
≥6 days	1	12.5%

7. Overall, how feasible was this measure?

Measure Feasibility	Respondents (N = 8)	
	# of Respondents	% of Respondents
Extremely Feasible	3	37.5%
Very Feasible	3	37.5%
Moderately Feasible	0	0.0%
Slightly Feasible	2	25.0%
Not At All Feasible	0	0.0%

Usability Assessment Results

1. Can results from this measure be used internally for quality improvement?

Quality Improvement	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
No	0	0.0%

2. Do you believe this measure has the potential to confirm, change, or standardize practice at your site?

Practice Change	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
Neutral	0	0.0%
No	0	0.0%

3. Do you believe this measure has the potential to increase the efficiency of care at your site?

Efficiency Change	Respondents (N = 9)	
	# of Respondents	% of Respondents
Yes	9	100%
Neutral	0	0.0%
No	0	0.0%

4. Do you believe this measure has the potential to improve patient outcomes at your site?

Outcome Change	Respondents (N = 8)	
	# of Respondents	% of Respondents
Yes	7	87.5%
Neutral	1	12.5%
No	0	0.0%

Qualitative Feedback for Device-Related Pressure Ulcers

1. What challenges did you encounter when implementing this measure?

   a. Difficulty in defining and identifying device days. Other devices, than those tracked, may also cause pressure injuries--such as PIVs, NIRS, and arterial lines.

   b. Several departments and information placement. Data was being collected according to different definitions and different purposes.

   c. There is not an easy way to locate pressure ulcers in the electronic medical record. We worked with our skin care team to identify if anyone had one in the prior month.

   d. I receive an electronic alert when a pressure injury is documented in EMR, but only when bedside RN enters a stage. I am concerned that if a bedside RN does not recognize an injury as a pressure injury or fails to document correctly, this measure can be underreported.

   e. Pressure injuries are not itemized the same way in our institution and information was in different locations.

2. Please provide any additional feedback about the pilot testing process, measure implementation, or feasibility and usability.

   a. We have a dedicated skin team for the CICU and cardiac step-down unit, they monitor and track this data already, so that may have made this metric easier to implement.