EMSC NPRQI Collaborative

Data Interpretation

October 21, 2026

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Acknowledgements

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The NPRQI is housed at the Dell Medical School at The University of Texas at Austin. The University of Texas IRB has reviewed this initiative in full and determined the project to be exempt from human subject research.

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Before We Begin

- Please submit all questions using the Q&A feature during the session.
- To support engagement, we encourage you to turn on your camera when asking a question.
- At the end of today's session, please take a moment to complete the feedback survey. Your input helps us improve future sessions.
- For follow-up questions after the event, contact us at collaboratives@emscimprovement.center.

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Session Objectives

Today we will move from data to decisions

- **Collect**: Build a sustainable data strategy
- **Compare:** Put performance in context
- **Interpret:** Look for patterns and change
- **Explore:** Dig deeper into your results
- **Act:** Use what you learn to guide QI

Data in Quality Improvement

Measuring what matters to improve care

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Why Is Data So Important?

Before You Begin

- Confirms there is a real problem to solve
- Identifies blind spots you may not see
- Establishes a baseline for comparison

During Your QI Journey

- Track whether interventions improve performance
- Shows if changes are leading to better outcomes
- Helps determine if you should adopt, adapt, or abandon a change

"Without data you're just another person with an opinion." W. Edwards Deming

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Types of Data in QI

Structural (Hospital-Level) Data: Focuses on systems and infrastructure

- Equipment
- Policies and protocols
- Staffing and training
- Captured in your NPRP assessment

Patient-Level Data: Focuses on delivery and outcomes

- Care processes: Did the patient receive recommended care?
- Outcomes: Did that care lead to improved results?

For this Collaborative: We will focus on patient-level data to understand clinical performance and measure improvement.

Challenges with Patient-Level Data in QI

Collecting and using patient-level data requires:

- Identifying appropriate performance measures
- Extracting relevant data from patient charts
- Converting individual data points into meaningful performance metrics
- Interpreting results accurately

Patient-Level Data is powerful, but it requires structures, tools, and consistency.

Building Your Data Strategy

Sampling, Baseline, and Measurement Planning

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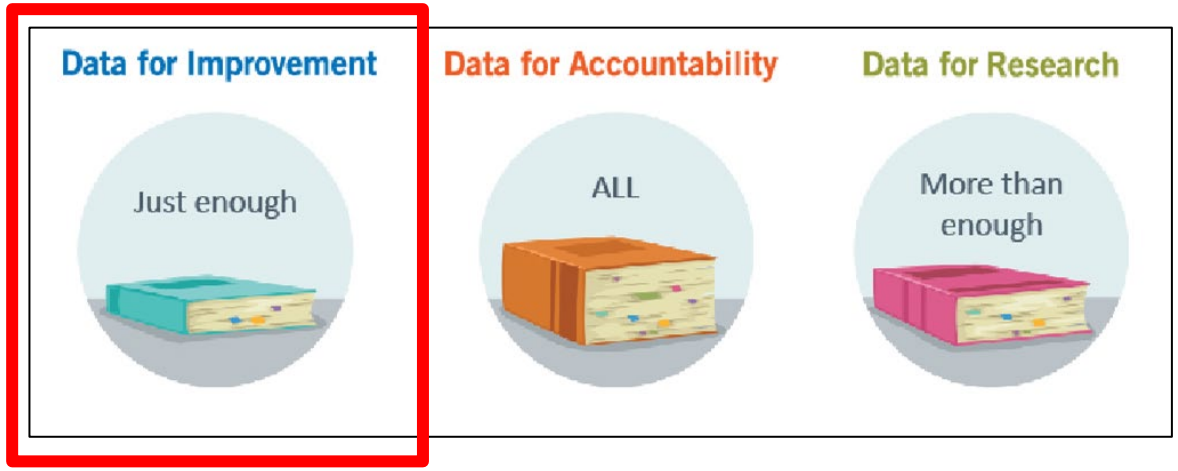
Data Sampling in QI

Data Sampling Provides:

- **Efficiency**: It is faster and requires less effort than collecting data on an entire population.
- **Feasibility**: It allows you to draw meaningful conclusions from a smaller, manageable dataset.
- **Simplicity**: It's a practical approach, similar to how you would taste your meal as you are preparing it to check seasoning first, rather than eating the whole dish.



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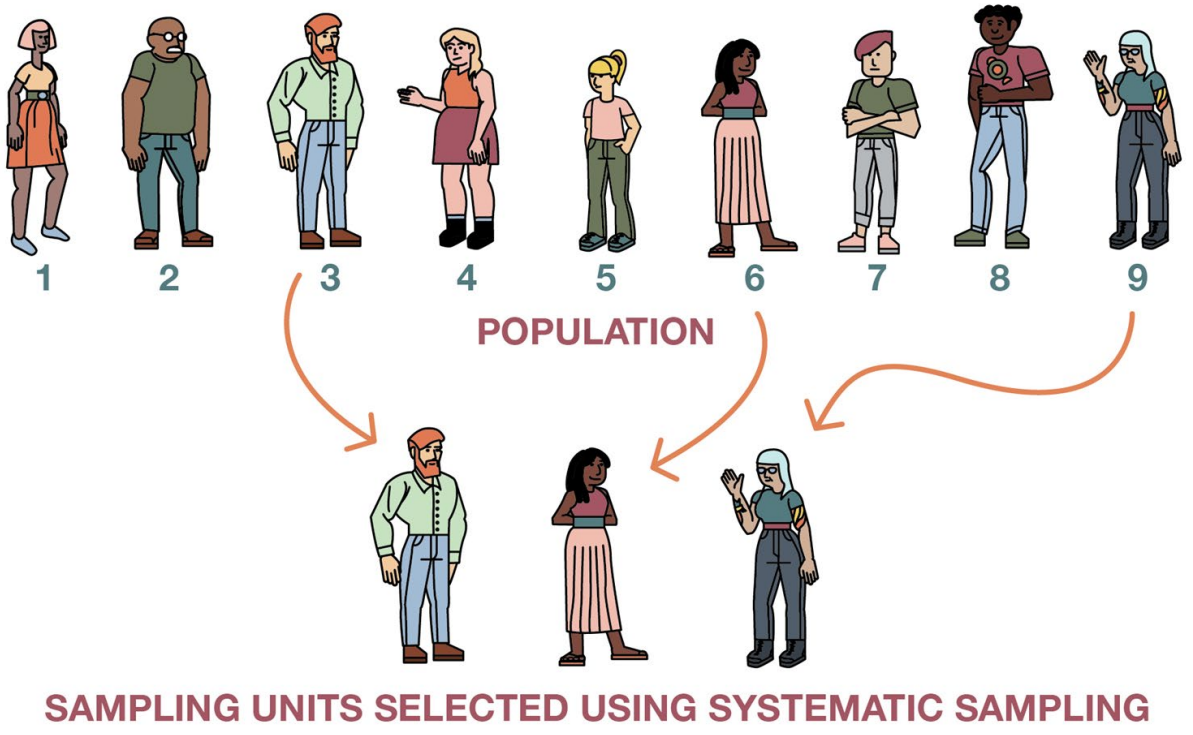
How to Sample Data Systematically

1. Create a chronological list of all pediatric visits (<18 years).
2. Determine total monthly pediatric volume.
3. Decide how many charts you can realistically enter each month.
4. Select every “nth” patient.

Example:
If you see 100 pediatric patients per month and can review 20 charts → Review every 5th patient.



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Before You Start Entering Data

- Generate a list of all pediatric visits (<18 years).
    - Charts may go back as far as January 1, 2026
    - Organize by date and time.
- Determine your sampling strategy
- Develop Subject IDs and maintain a secure ID log (Do not use patient MRNs)

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Keeping Track of Patients

Maintaining a Secure Patient Log

- Link MRN or DOB to the Subject ID in NPRQI

Subject ID Format

- First Initial + Last Initial + 4 digits

BUNDLE(S)	User Name	SUBJECT ID	MRN	Date of Birth	Date of Visit
	Liza Hinojosa	LH0001	83998763	xx/yy/zzzz	xx/yy/zzzz
	Liza Hinojosa	LH0002	48299861	xx/yy/zzzz	xx/yy/zzzz
	Liza Hinojosa	LH0003	99811722	xx/yy/zzzz	xx/yy/zzzz
	Liza Hinojosa	LH0004	47936502	xx/yy/zzzz	xx/yy/zzzz
	Liza Hinojosa	LH0005	30184412	xx/yy/zzzz	xx/yy/zzzz
	Alice Smith	AS0001	12938274	xx/yy/zzzz	xx/yy/zzzz
	Alice Smith	AS0002	12305123	xx/yy/zzzz	xx/yy/zzzz
	Alice Smith	AS0003	85773922	xx/yy/zzzz	xx/yy/zzzz
	Alice Smith	AS0004	92018347	xx/yy/zzzz	xx/yy/zzzz
	Alice Smith	AS0005	48392713	xx/yy/zzzz	xx/yy/zzzz

Collecting Baseline Data

Baseline Data Requirements:

- Enter at least 30 charts
- May span days, weeks or months depending on volume
- Reflect performance before improvement efforts begin

Why Baseline Matters:

- Establishes your starting point
- Shows the size of the performance gap
- Provides evidence of impact
- Helps tell your improvement story to ED leadership

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What Should You Work On?

Now that baseline data is collected, select your focus:

- Review baseline data
- Identify gaps in performance
- Choose one NPRQI measure as collaborative target

Your Goal:

- Improve performance by **at least 10% from baseline**

Interpreting Your Baseline Data

Using Benchmarking to Guide Your Focus

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Why Use Benchmarking?

When Reviewing NPRQI performance, remember:

- “Perfect” performance is rarely attainable.
- Isolated numbers don’t tell the full story.

Benchmarking allow you to:

- Compare your performance to similar EDs
- Identify realistic opportunities for improvement
- Prioritize areas where change is achievable
- Establish informed target performance goals

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Benchmarking Your Performance

Clinical Bundle	Time (Year, Quarter, Month)	Patient Age Group	Patient Triage Level
Assessment and Transfer	All	All	All

#	Measure	Record	Your Performance	National	Cohort
1	% of pediatric patients with weight documented in kilograms only	50,650	68.0%	72.5%	98.2%
2	% of pediatric patients with pain assessed	50,650	83.1%	85.0%	91.5%
3	Median ED length of stay	49,647	130.0 minutes	130.0 minutes	187.5 minutes
4	% of high acuity pediatric patients with vital signs RE-assessed	28,461	87.6%	90.9%	92.4%
5	Median time from triage to first intervention	19,217	44.0 minutes	41.0 minutes	51.5 minutes
6	% of transferred pediatric patients who met site-specific transfer criteria	5,826	99.2%	100.0%	100.0%
7	Median time from triage to transport	5,690	305.0 minutes	259.0 minutes	337.5 minutes
8	% of transferred pediatric patients who were discharged from the receiving ED	582	21.9%	21.8%	-

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Understanding NPRQI's Benchmarks

- **National Performance:** Median Performance of all EDs that enter data in NPRQI

- **Cohort Performance:** Median Performance of EDs with the same annual pediatric volume as you

Using Benchmarking to Identify Your Focus

When NOT to Choose a Measure:

- Performance is already > 90%
- You are significantly outperforming national and cohort averages
- **Note**: High performance areas require maintenance, but not collaborative focus.

Choose a Measure That:

- Demonstrates a clear performance gap
- Shows opportunity for measurable improvement
- Has local stakeholder buy-in and support
- Is feasible given staff capacity and resources

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What is Your Goal?

- Aim for Measurable Progress
- Improve your Performance on one NPRQI Measure by 10%

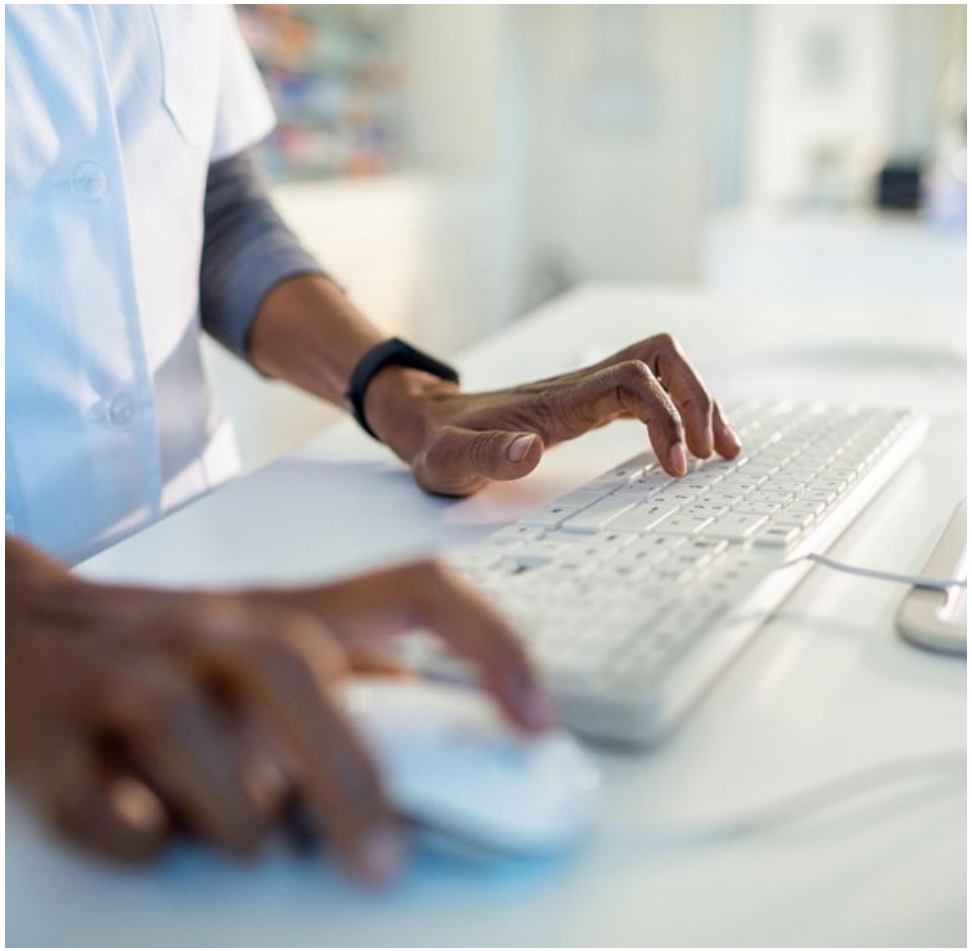
NPRQI Data Commitment

Data Entry Threshold:

- Minimum of 10 patient charts to ensure patient confidentiality before performance displayed

Ongoing Data Entry

- Data entered at regular intervals
- Sole discretion of ED
- We recommend a minimum of 10 charts per quarter so that you can see your performance over time.



Interpreting Your Performance

Using Your Performance to Guide Your QI

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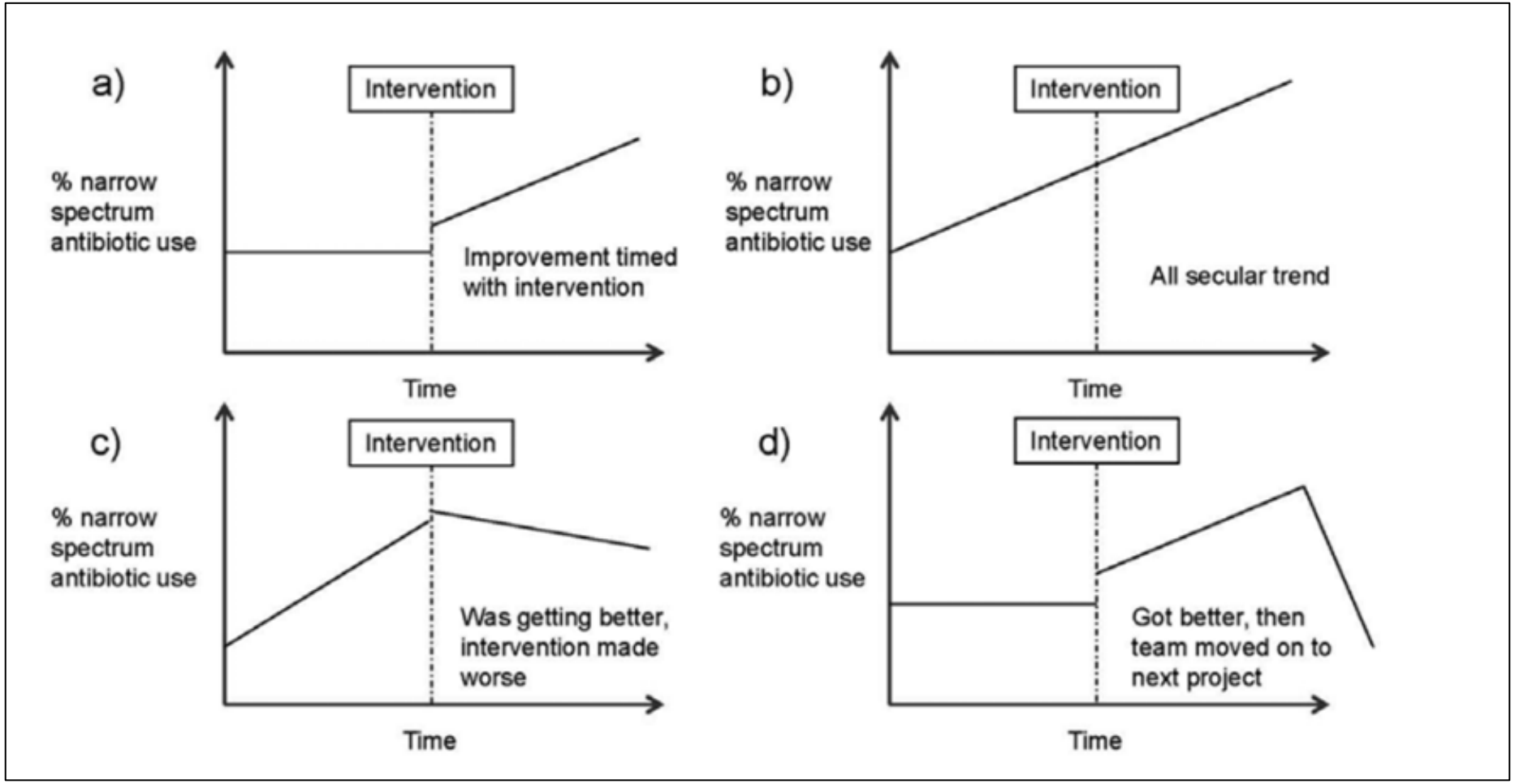
Limitations of Pre-Post Measurements



Brady et al, Displaying QI Data, JPIDS 2017

What is a Run Chart?

- Simple visualization tool to graph your measure over time
- Interventions are annotated on the chart
- Can be used to depict variation, as well as trends in data over time

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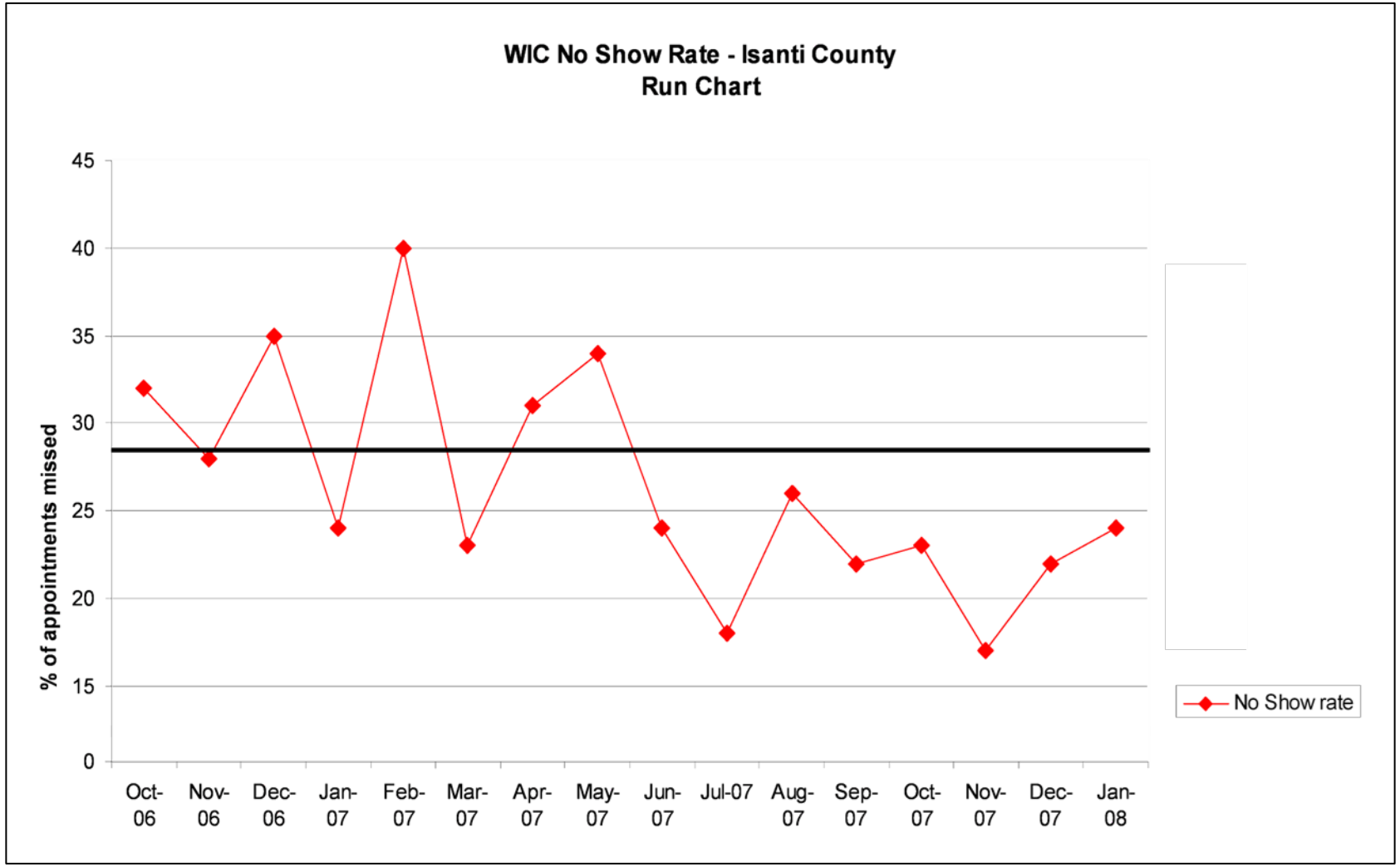
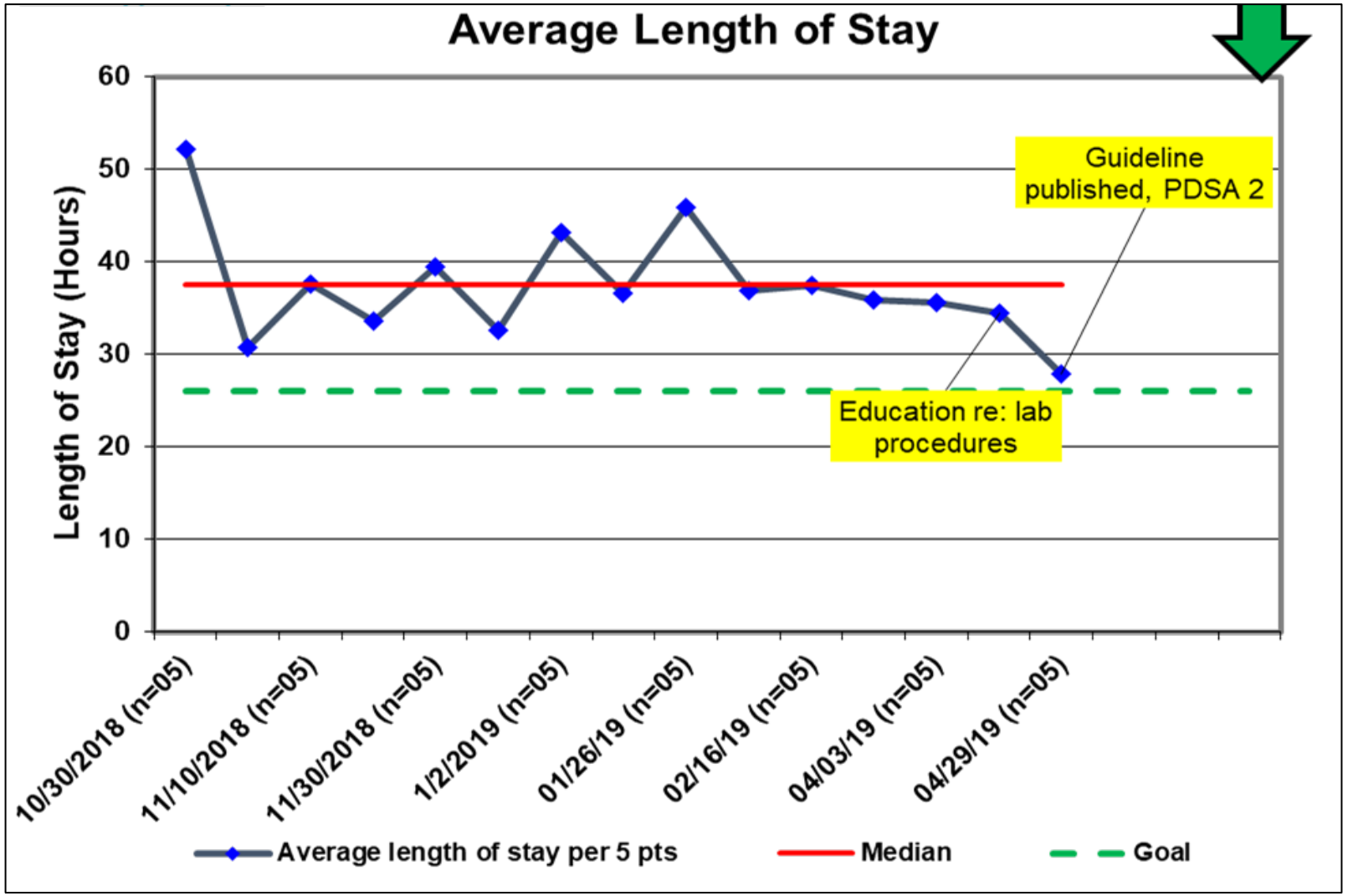
Basic Components of a Run Chart

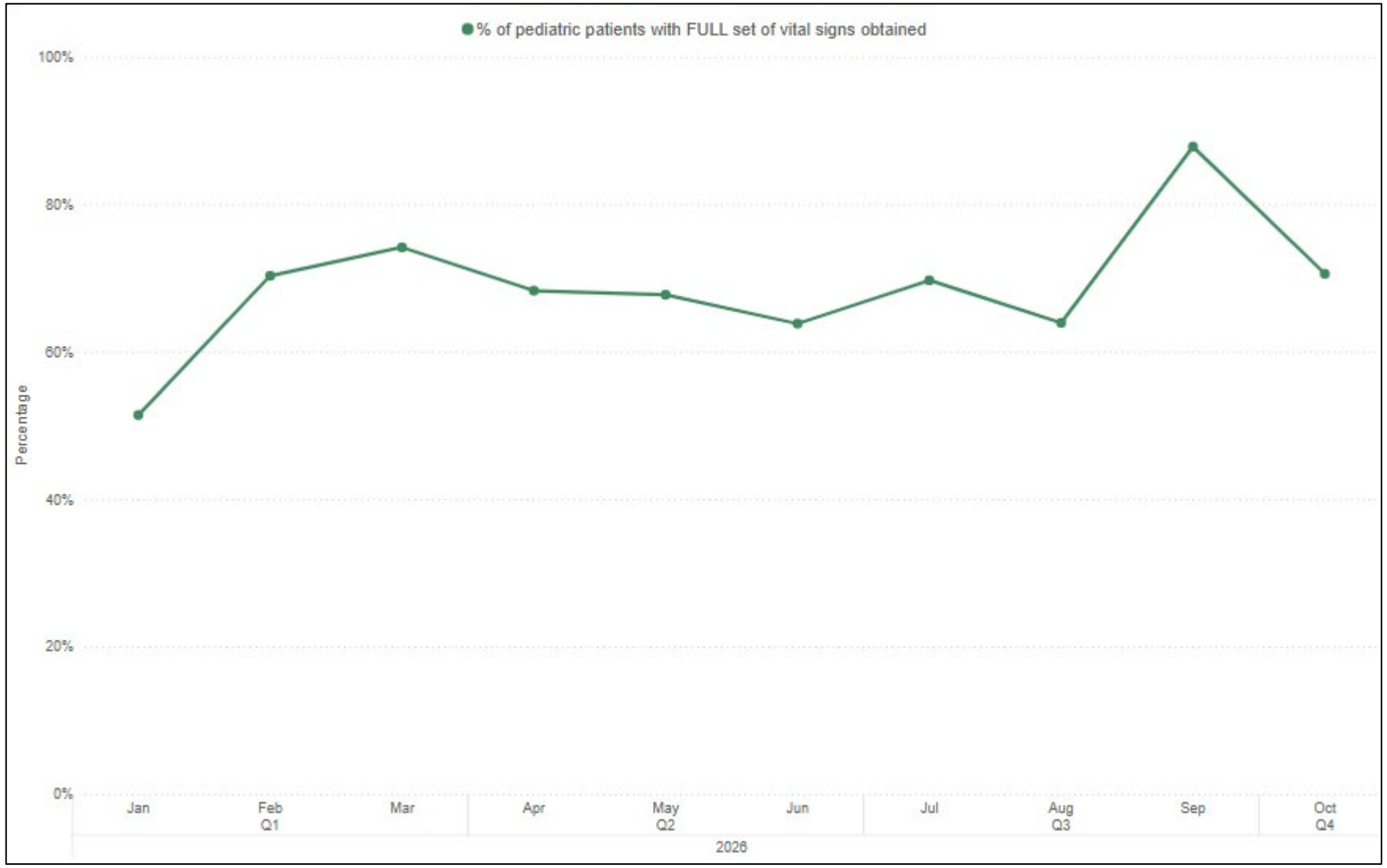


https://www.health.state.mn.us/communities/practice/resources/phqitoolbox/runchart.html

Run Chart Example



NPRQI Run Chart Example



Filter to Find the Story in Your Data

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Using Filters to Better Understand Your Performance

Start with All Patients

- View overall performance across the selected clinical bundle.
- Establish your baseline results.

Select a Population of Interest:

- Use filters such as age group, triage level, and time period.
- Focus on the patients most relevant is your improvement efforts.

Compare the Results:

- Observe how performance changes after filtering.
- Identify groups driving strong weak performance.

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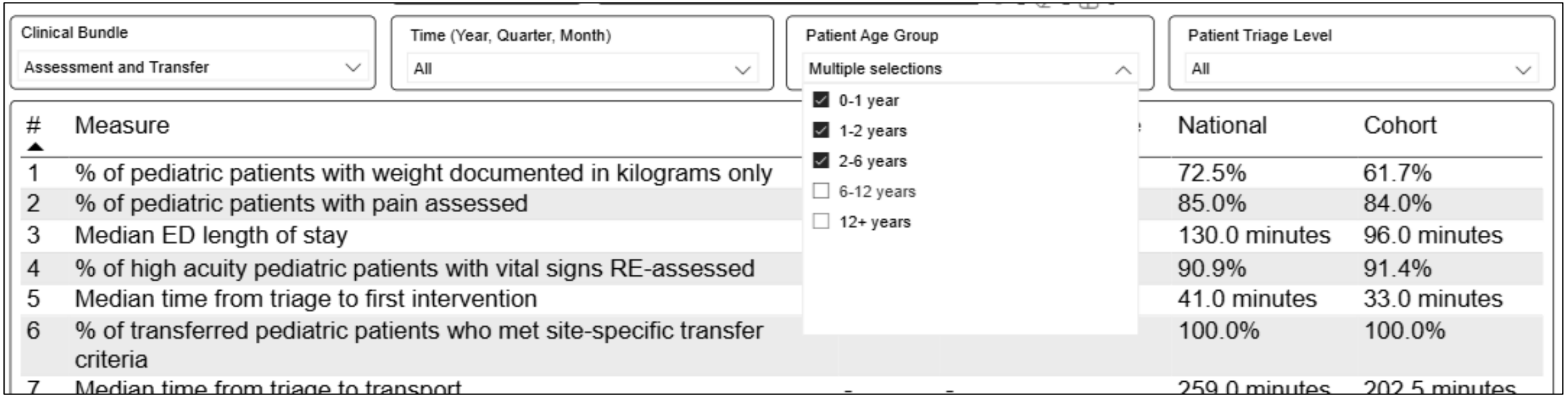
All Patients

Clinical Bundle	Time (Year, Quarter, Month)	Patient Age Group	Patient Triage Level
Assessment and Transfer	All	All	All

#	Measure	Record	Your Performance	National	Cohort
1	% of pediatric patients with weight documented in kilograms only	48	0.0%	72.5%	61.7%
2	% of pediatric patients with pain assessed	48	81.3%	85.0%	84.0%
3	Median ED length of stay	48	69.0 minutes	130.0 minutes	96.0 minutes
4	% of high acuity pediatric patients with vital signs RE-assessed	24	87.5%	90.9%	91.4%
5	Median time from triage to first intervention	14	23.5 minutes	41.0 minutes	33.0 minutes
6	% of transferred pediatric patients who met site-specific transfer criteria	-	-	100.0%	100.0%
7	Median time from triage to transport	-	-	259.0 minutes	202.5 minutes
8	% of transferred pediatric patients who were discharged from the receiving ED	-	-	21.8%	23.5%

Population of Interest



#	Measure	National	Cohort
1	% of pediatric patients with weight documented in kilograms only	72.5%	61.7%
2	% of pediatric patients with pain assessed	85.0%	84.0%
3	Median ED length of stay	130.0 minutes	96.0 minutes
4	% of high acuity pediatric patients with vital signs RE-assessed	90.9%	91.4%
5	Median time from triage to first intervention	41.0 minutes	33.0 minutes
6	% of transferred pediatric patients who met site-specific transfer criteria	100.0%	100.0%
7	Median time from triage to transport	259.0 minutes	202.5 minutes

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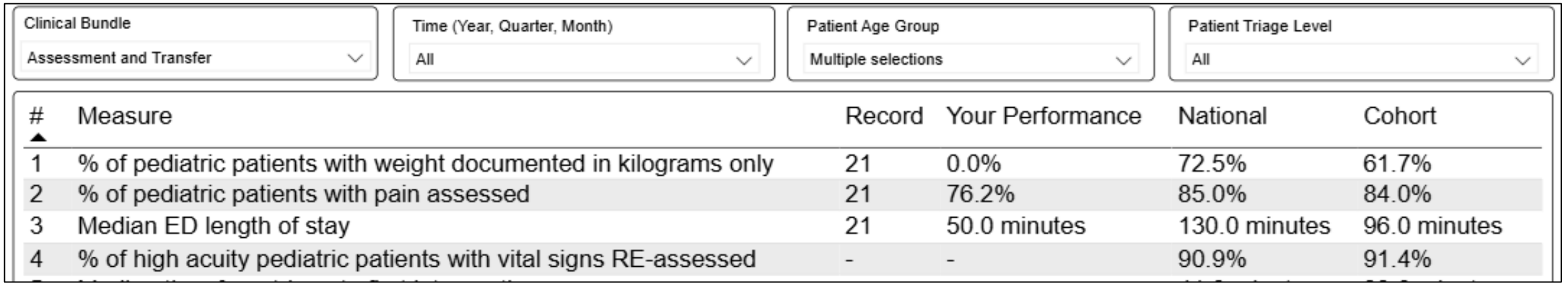
Compare the Results



Clinical Bundle	Time (Year, Quarter, Month)	Patient Age Group	Patient Triage Level
Assessment and Transfer	All	Multiple selections	All

#	Measure	Record	Your Performance	National	Cohort
1	% of pediatric patients with weight documented in kilograms only	21	0.0%	72.5%	61.7%
2	% of pediatric patients with pain assessed	21	76.2%	85.0%	84.0%
3	Median ED length of stay	21	50.0 minutes	130.0 minutes	96.0 minutes
4	% of high acuity pediatric patients with vital signs RE-assessed	-	-	90.9%	91.4%

NOTE: Use filters to move from “How are we doing overall?” to “Which patient groups are performing well, and where should we focus improvement efforts?

What Changed

- Records Decreased from 48 to 21 patients
- Pain assessment performance changed from 81.3% to 76.2%

What Does This Tell Us?

- Performance can vary significantly across patient populations.
- Filters help identify where improvement opportunities exist.
- Comparing filtered results to National and Cohort benchmarks provides additional context.
- Small sample sizes should be interpreted cautiously.

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Use the Platform to Investigate What You're Seeing

NPRQI tools can help you move from a result to a better question.

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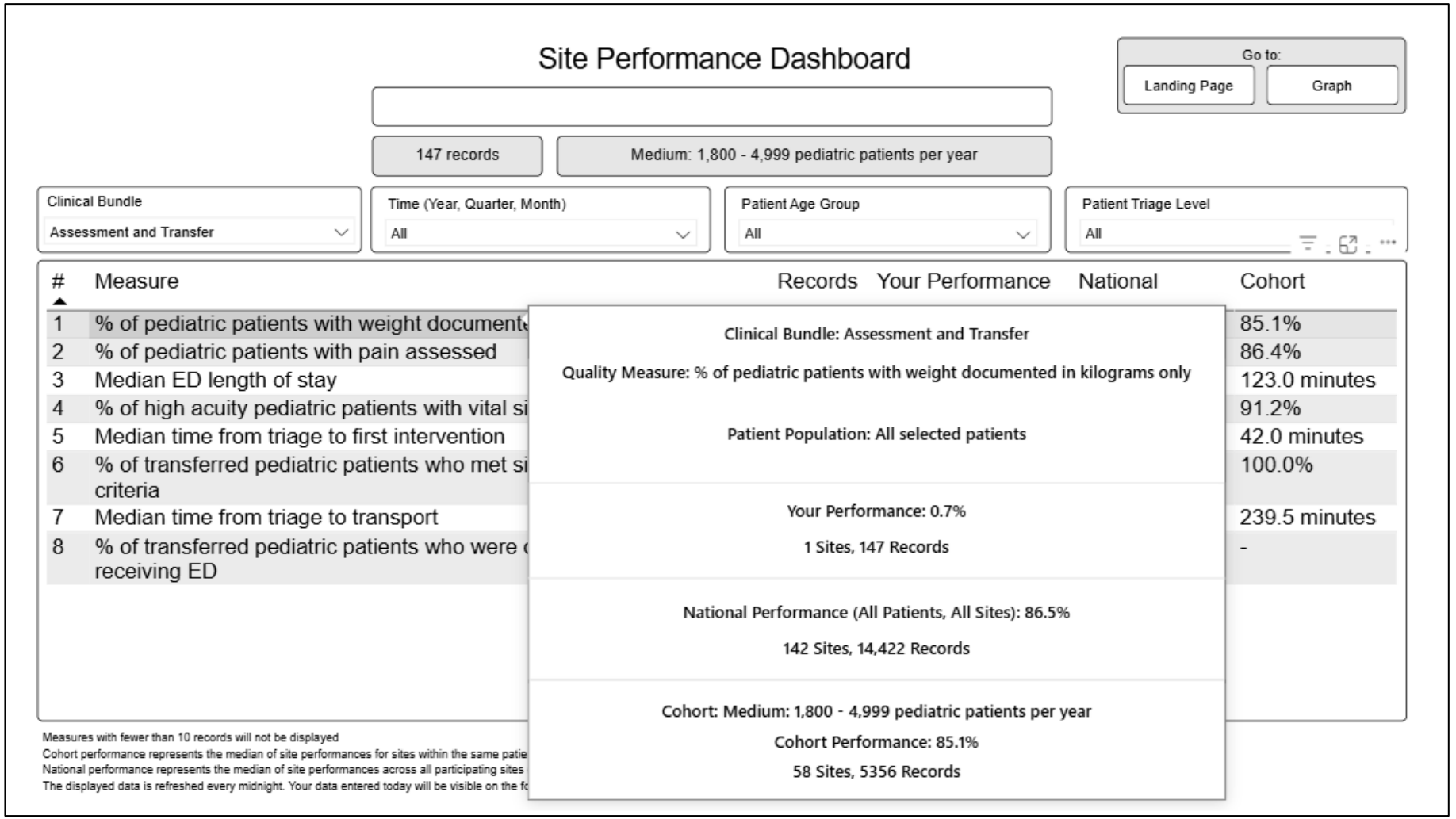
Advanced Feature: Hover View



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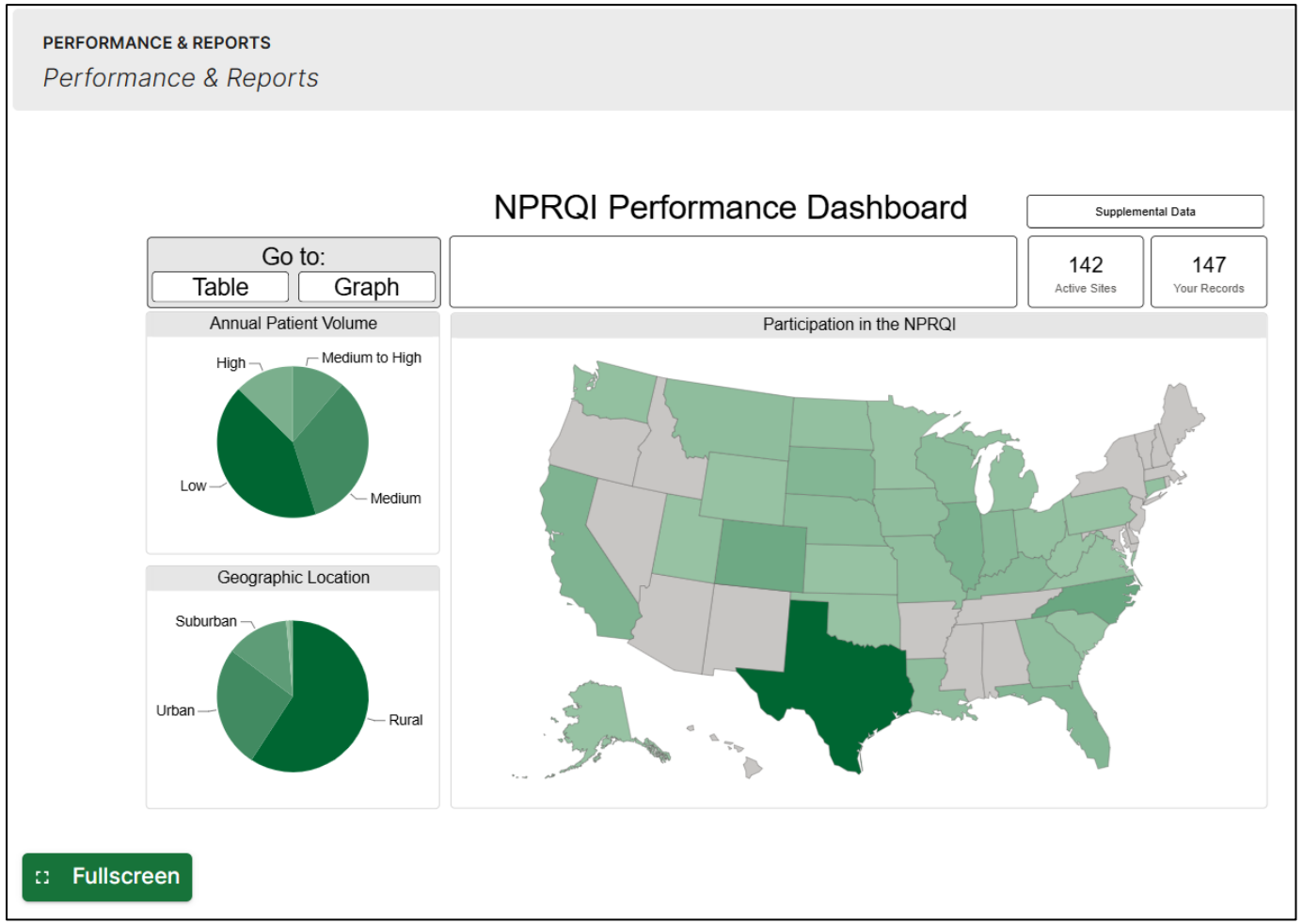
Advanced Feature: Supplemental Data



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Advanced Feature: Supplemental Data

Supplemental Data

Clinical Bundle: Vitals Assessed

Go to: Landing Page

Intermediate Measure	Your All Time Performance	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Your 2026 Performance
% of pediatric patients with blood pressure assessed	80.7%	82.0%	79.3%	84.6%	-	80.7%
% of pediatric patients with heart rate assessed	98.6%	100.0%	98.8%	92.3%	-	98.6%
% of pediatric patients with mental status assessed	26.2%	22.0%	25.6%	46.2%	-	26.2%
% of pediatric patients with pain assessed	69.0%	72.0%	68.3%	61.5%	-	69.0%
% of pediatric patients with pulse oximetry assessed	97.2%	98.0%	98.8%	84.6%	-	97.2%
% of pediatric patients with respiratory rate assessed	97.2%	96.0%	98.8%	92.3%	-	97.2%
% of pediatric patients with temperature assessed	92.4%	96.0%	92.7%	76.9%	-	92.4%

Supplemental Data

Clinical Bundle: Pain

Go to: Landing Page

Intermediate Measure	Your All Time Performance	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Your 2026 Performance
% of pediatric patients with moderate to severe pain who had a reduction in pain score	32.2%	38.1%	28.6%	-	-	32.2%
% of pediatric patients with pain reassessed	33.8%	32.0%	35.4%	30.8%	-	33.8%
% of pediatric patients with pain who received an analgesic	49.2%	52.4%	45.7%	-	-	49.2%
Median time from triage to analgesics for patients with pain	28.0 minutes	23.0 minutes	33.0 minutes	-	-	28.0 minutes

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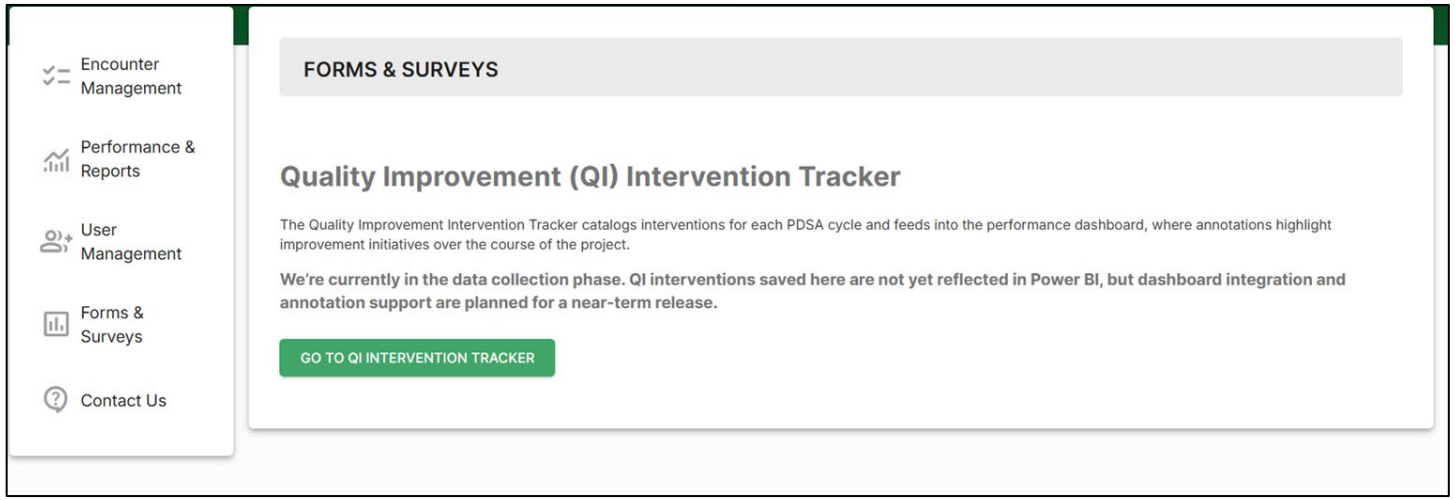
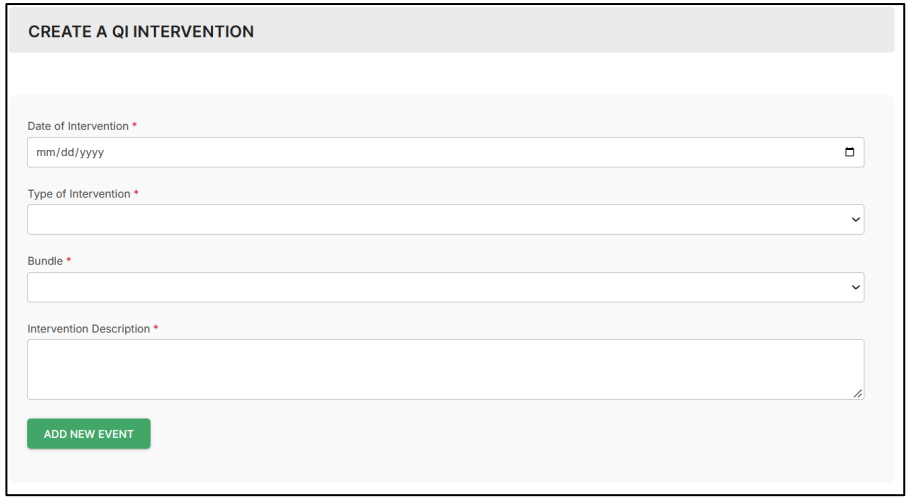
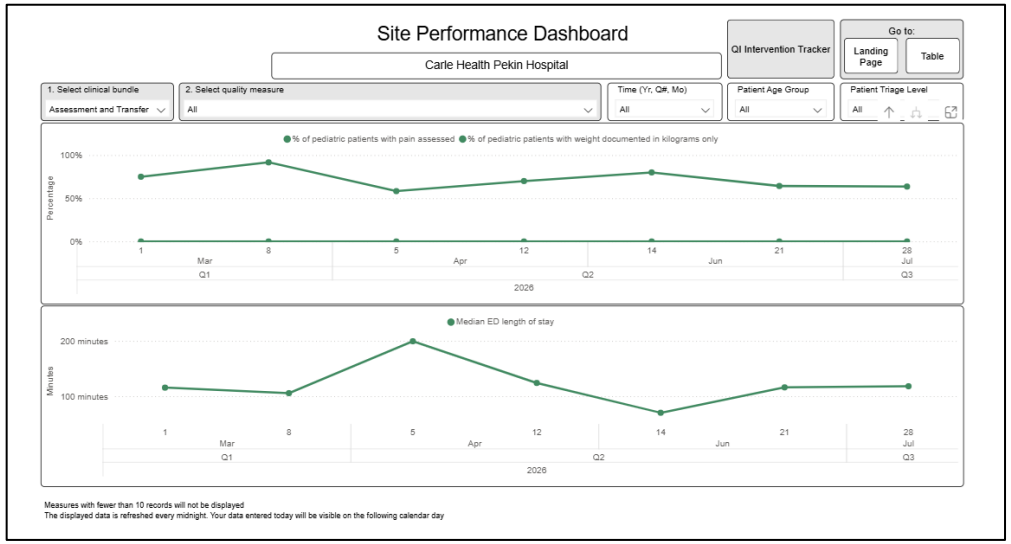
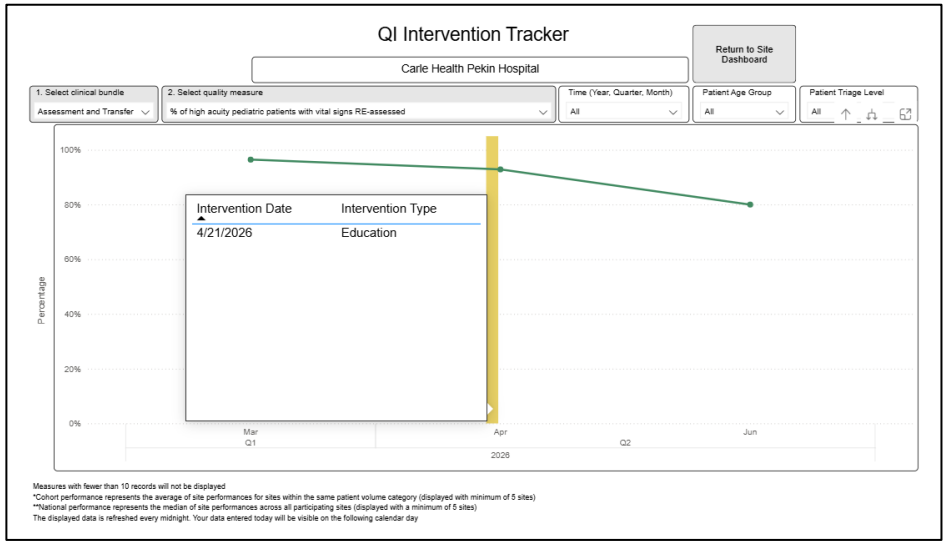
Example QI Tracker









Turn Your Data Into Your Next QI Decision

What are we seeing?

- Describe the pattern or gap.

What might explain it:

- Bring the data back to your team and workflow.

What should we test next?

- Choose a change that addresses the likely cause.

How will we know if it worked:

- Continue measuring performance.

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Resources and Support

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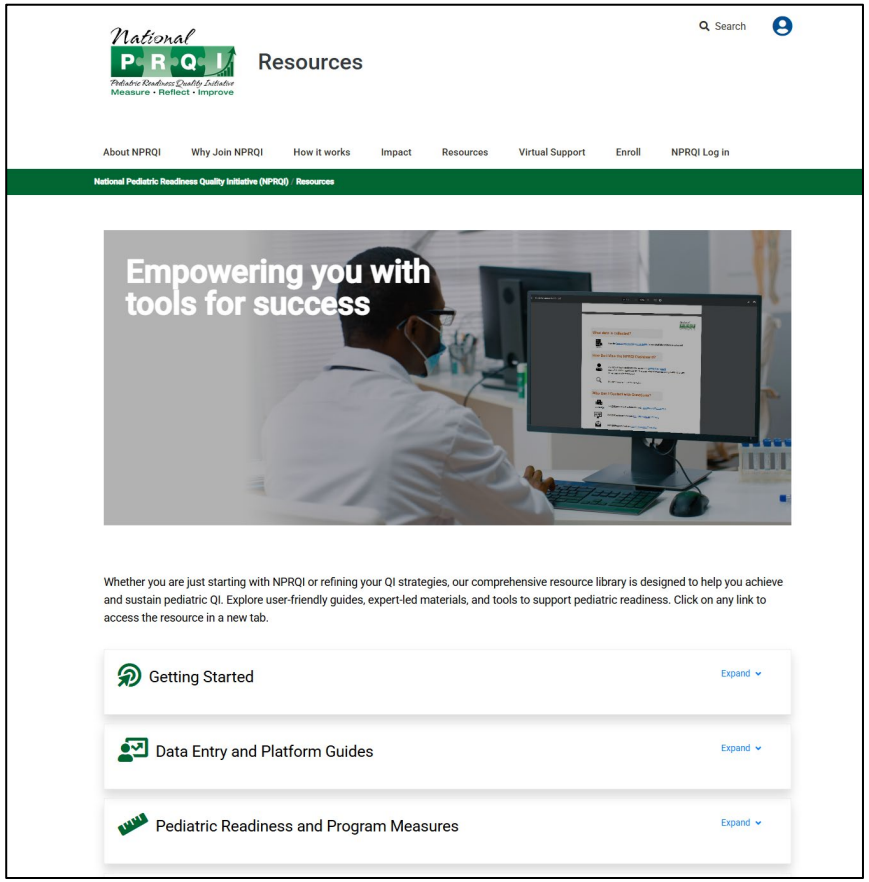
NPRQI Resources

- **NPRQI Website:** Your central access point for everything NPRQI
- **Resource Page:** Tools and guidance to support using NPRQI
- **How To Create a Chart:** This video will show you how to enter data by creating a chart in the platform
- **How To Edit or Delete a Chart:** This video will show you how to edit or delete a chart in the platform
- **Office Hours:** Live support and Q&A opportunities



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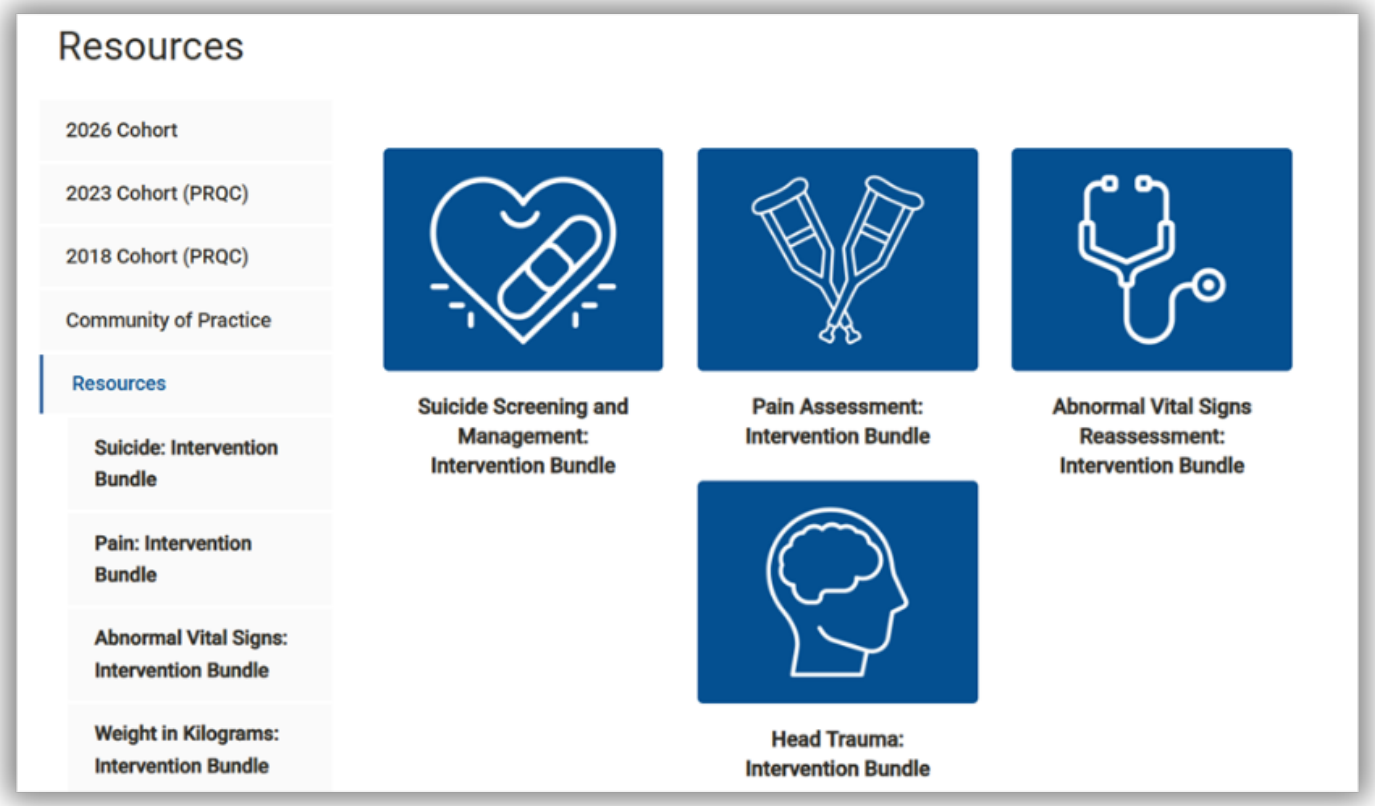
Collaborative Resources

- **Intervention Bundles:** Tools and guidance to support implementation
- **Collaborative Hub**: Centralized materials and references
- **Office Hours:** Live support and Q&A opportunities



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Opportunities to Connect

- **Monthly Collaborative Sessions:** 3rd Tuesday of each month at 11:00 am CT

- **One-on-One Support:** Schedule time with the EMSC NPRQI team for questions.

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Questions?

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Thank You!

We appreciate your commitment and partnership, and your work makes these initiatives possible.

- Questions and feedback
- Please take a moment to complete the feedback survey.
- Watch for our weekly email reminders.
- For follow-up questions, please contact us at collaboratives@emscimprovement.center.

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