Quality and Safety Series

Data Plan

OBJECTIVES

- Describe the importance of a data plan in the quality improvement (QI) process.

- Identify key elements of a data plan.

- Discuss the use of a data plan.

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Why Do We Need Data?

Data measure the **quality**, **efficiency**, and **value** of care we provide.

- Identify opportunities for improvement.

- Measure effectiveness of interventions.

- Improve patient and population health outcomes.

- Identify disparities and improve health equity.

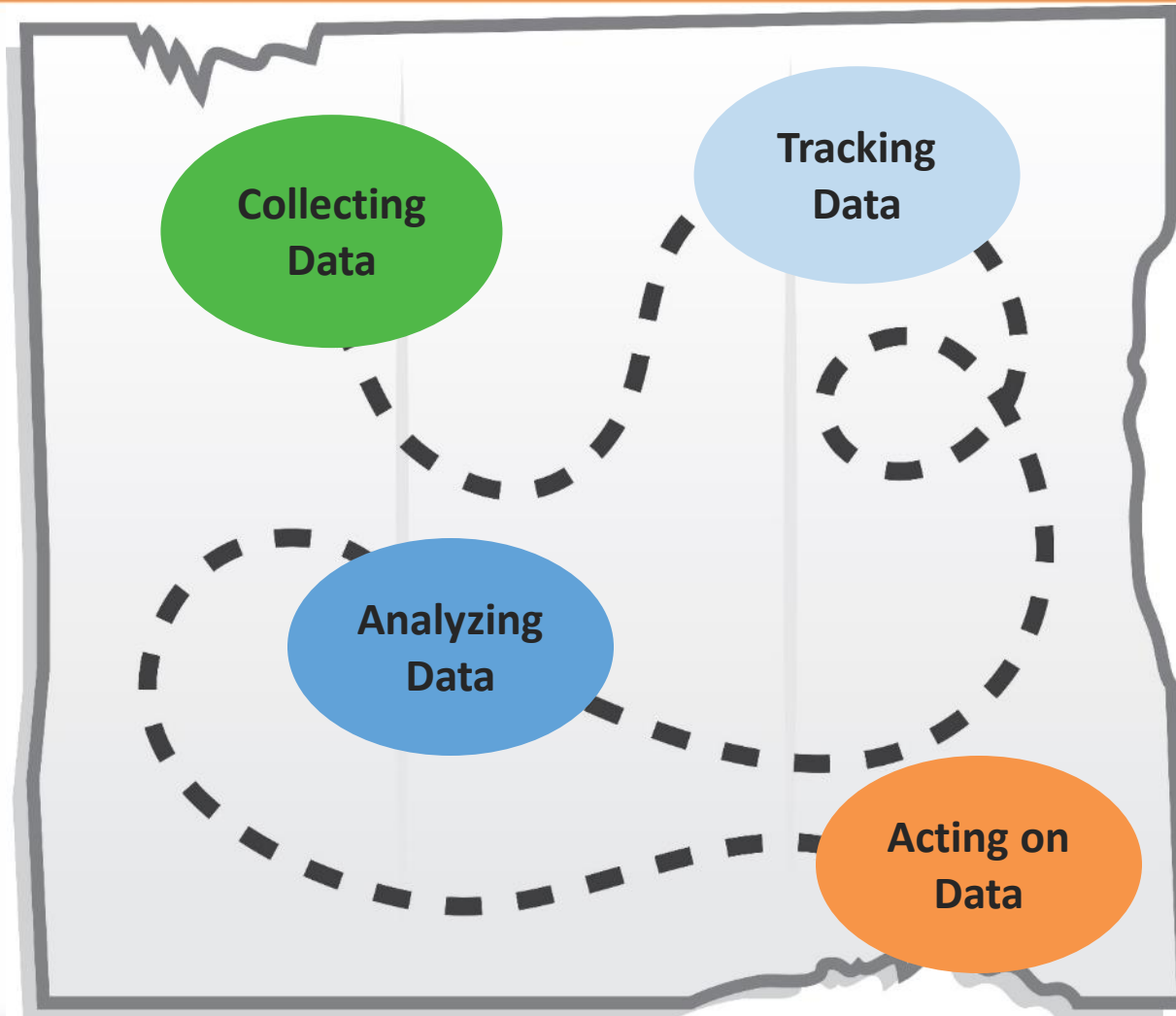*"If you can't measure it, you can't change it."*
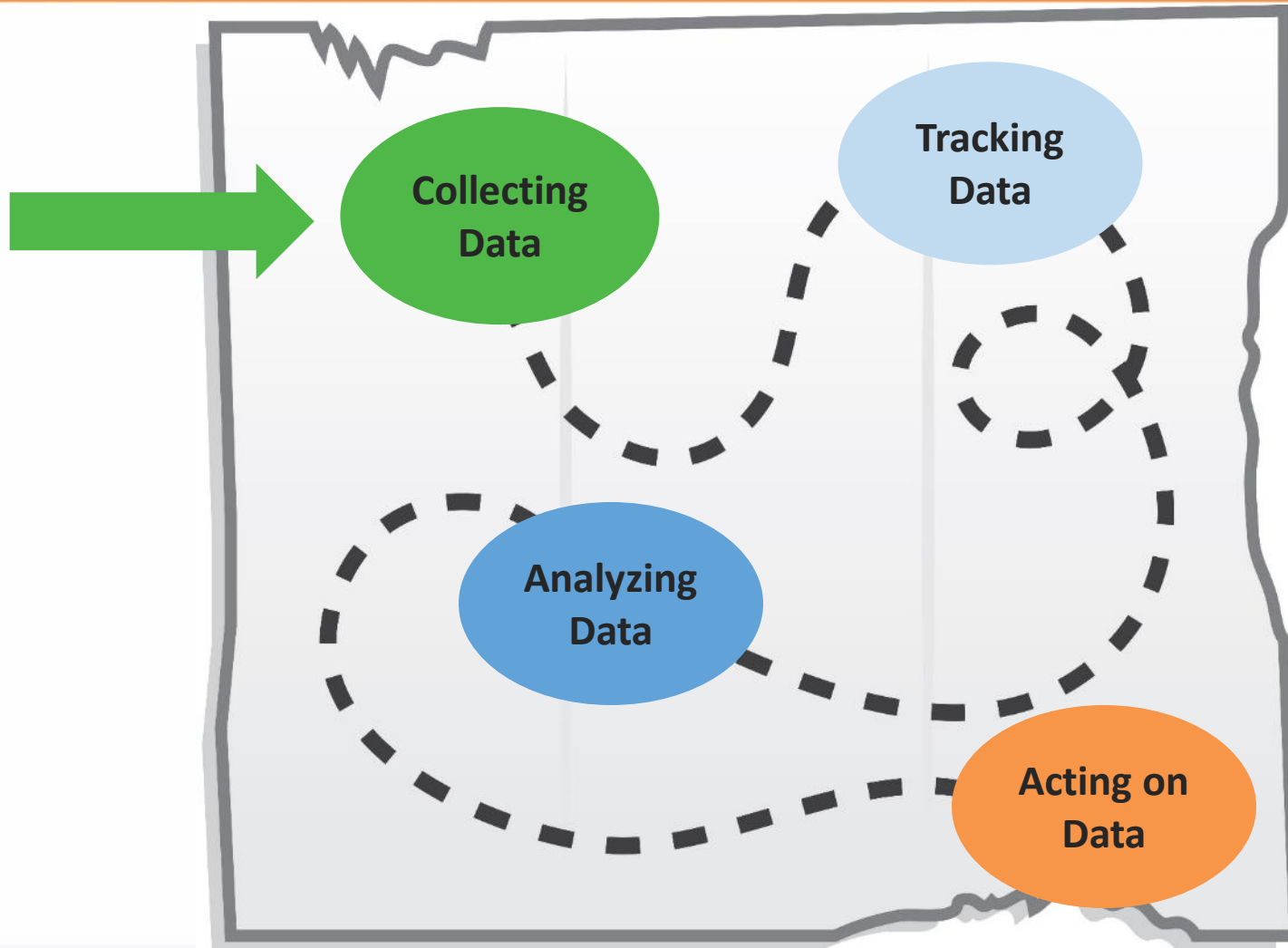
— Peter Drucker

What Is a Data Plan?

"A well thought out approach to collecting both baseline data as well as data that can provide clues to root causes."

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Data Journey

Data Journey

Types of Measures

Structural Measures

Assesses the context or framework in which care is delivered.
Does your hospital use e-prescribing for controlled substances?

Process Measures

Accesses a step in the care of a patient.
Percentage of patients prescribed opioids at discharge through e-prescribing.

Outcome Measures

Assesses the effectiveness of care or the result of care.
Rate of opioid-related adverse drug events.

Balance Measures

Assesses for unintentional outcome(s).
Decreased opioid prescribing results in an increase in patient pain rates.

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Types of Quantitative Data

- **Discrete data**—include only integers, such as counts.
  - Number of patients
  - Number of infections

- **Continuous data**—include measures on numbers on a scale or continuum.
  - Time to discharge
  - Length of stay
  - Patient weight

Data Source

Electronic Health Record

Abstracted Measures

- Look for existing data sources.
  - Discrete data versus narratives
- Access available, existing reports.
  - Complexity of new report
- Establish an automated process.
- Abstracted measures are more labor intensive.
- Always weigh the data burden.
- Consider who will collect, monitor, and analyze data.
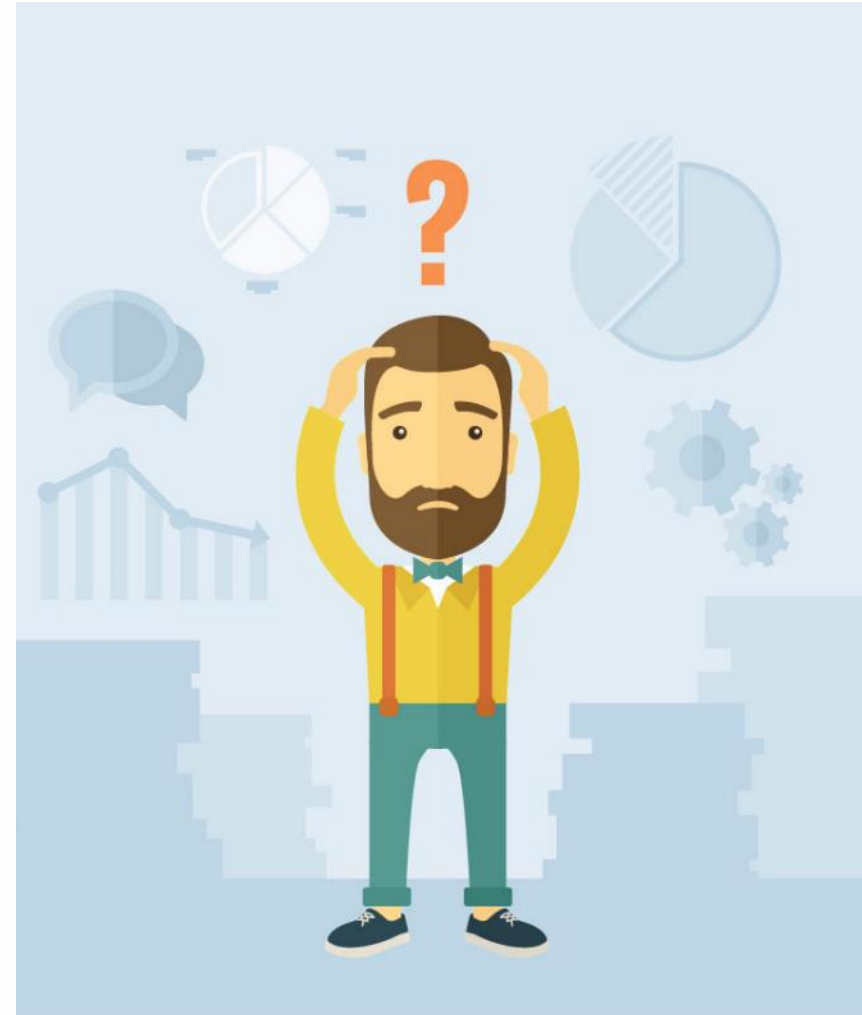- Do not make it too complex—will others understand?

What to Measure

Select measures that directly tie to the outcome you are trying to achieve.

Use **outcome measure**(s) to monitor **success**.

Use **process measure**(s) to monitor **compliance**.

Consider using the CTQ (critical to quality) tree to identify key measures.
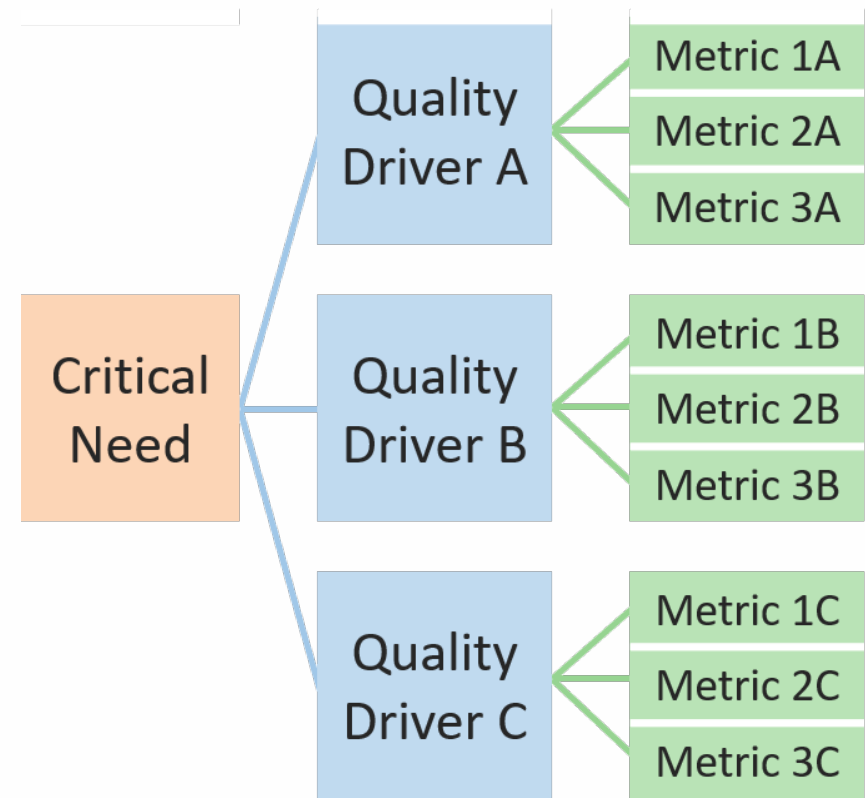
Why Use a CTQ Tree?

- To assist in developing a data collection plan.

- To identify key metrics.

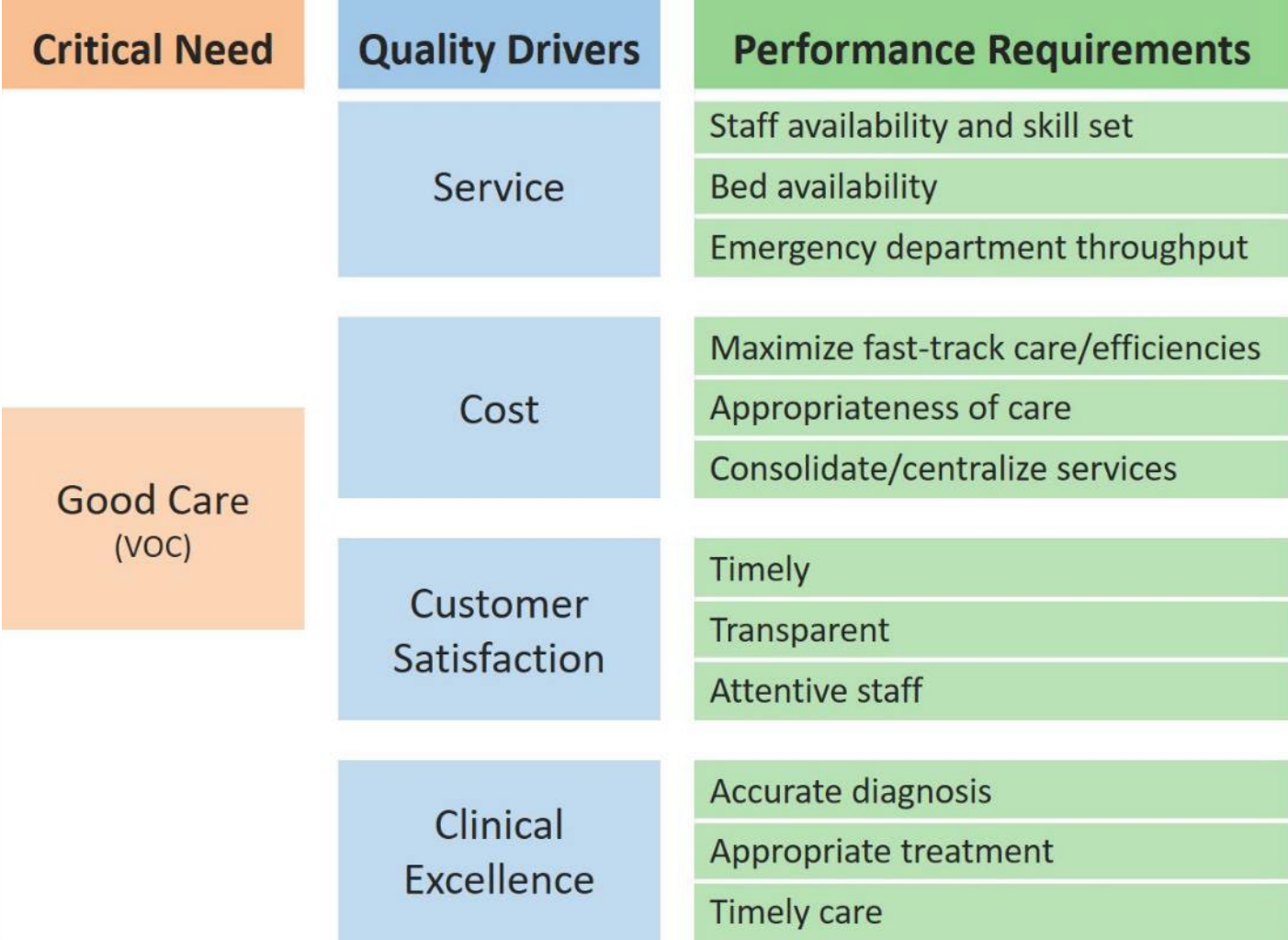- To ensure you are meeting the needs of your customers.

Refer to #9 Voice of the Customer—Quality and Safety Series. https://www.hsag.com/hqic/quality-series

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Components of the CTQ Tree

- **Critical need**
  - VOC
  - Customer's expectation
  - General

- **Quality driver**
  - Factor to meet customer's expectation or need

- **Performance requirement**
  - Metric to measure the quality driver

Critical Need → Quality Driver A → Metric 1A, Metric 2A, Metric 3A

Critical Need → Quality Driver B → Metric 1B, Metric 2B, Metric 3B

Critical Need → Quality Driver C → Metric 1C, Metric 2C, Metric 3C

#9 Voice of the Customer—Quality and Safety Series. https://www.hsag.com/hqic/quality-series

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CTQ Tree: Example 2

Critical Need	Quality Drivers	Performance Requirements
Good Care (VOC)	Service	Staff availability and skill set
		Bed availability
		Emergency department throughput
	Cost	Maximize fast-track care/efficiencies
		Appropriateness of care
		Consolidate/centralize services
	Customer Satisfaction	Timely
		Transparent
		Attentive staff
	Clinical Excellence	Accurate diagnosis
		Appropriate treatment
		Timely care

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Definitions

Measure Definition: A standardized, clear, and concise definition that provides the details of what is being measured.

"Time of ED registration to time of discharge in minutes."

Operational Definition: Provides the details on collecting and recording data—the who, what, when, and where.

"Daily report that will be automatically generated from the electronic medical record (EMR) and disseminated to the ED manager and quality director."

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Baseline Data—Baselining

Baseline data, or baselining, is the measurement of outcome or performance prior to an intervention.

- Confirm that data reflect the current state.

- Use the measure definition.

- Ensure there are enough data points.

- Watch for seasonal impacts.

https://www.whatissixsigma.net/baseline-measurement/#:~:text=Baseline%20Measurement%20or%20Base%20lining,improvement%20or%20change%20initiative%20is.

Sampling

- Most often used with abstracted measures
- Decreases data collection burden
- Used when target population is very large
- Must have a large enough sample size to represent the population
  - Power or type II errors
  - Confidence level—at least 95%
  - Can use a sample size calculator
- Sampling method
  - Simple, random sampling where each case is chosen by chance from the eligible population
  - Can use a random sampling calculation in Excel
  - Can use a randomizer tool

Entire Population

Sample Population

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Putting It All Together

Data Collection Plan

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A data collection plan is a document that communicates the details of the who, what, when, where, and how of each measure that will be used to support a quality improvement project. Having a well thought out and purposeful plan to collect meaningful data that will serve as a baseline, measure progress, and monitor sustainability is critical to the success of a quality improvement initiative. A key consideration is to identify already existing and readily available sources of data to decrease the burden of measure abstraction.

Tip: Include someone from IT or electronic medical record (EMR) report team who is familiar with the system, data, and reporting capabilities.

Measure Name	Measure Type -Outcome -Process -Balance	Data Type -Continuous -Discrete	Data Source	Measure Definition	Operational Definition Who/What/When/Where	Established Baseline	Sampling Methodology	Responsible Party
ED Throughput	Process Measure	Continuous (Time)	EMR	Time of ED registration to time of discharge in minutes	Daily report that will be automatically generated from the EMR and disseminated to the ED manager and quality director	CY 2020	100% Sampling	ED Manager

Access HSAG #14 Data Collection Plan: https://www.hsag.com/hqic/quality-series/

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Thoughtful Planning on the Front End

- Take your time and think through details.
- Engage a multi-disciplinary team.
- Include subject matter experts (EHR and IT).*
- Consider collecting test data for a small period of time to identify any barriers.
- When you think you have it right, review it again!

Lack of thoughtful and thorough planning on the front end leads to confusion, barriers, and rework on the back end!

*EHR = electronic health record, IT = information technology

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Key Take-Aways

- A data plan is a standardized, clear, and concise blueprint that provides the details of the what, why, when, where, how, and who of what is being measured for a QI project.

- Identify both process and outcomes data so adherence and success can be measured.

- Consider data burden when identifying measures to be used.

- Take your time and thoughtfully work through a data management plan to avoid confusion and barriers; rework after the project begins.

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Thank you!

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