Leadership Webinar 5:
The Value of Measurement in Improvement Work

January 23, 2018

Clear

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Learning Objectives

1. **Compare Uses of Data and Measurement**

   - Different purposes for performance measurement

   - Examples of measurement for quality improvement

2. **Introduce Tools for Measurement**

3. **Understand Measurement for the Clear Initiative**

   - Measurement Strategy for Clear

   - Data Collection Template

4. **Prepare you for Reporting Progress**

   - Submitting Monthly Reports
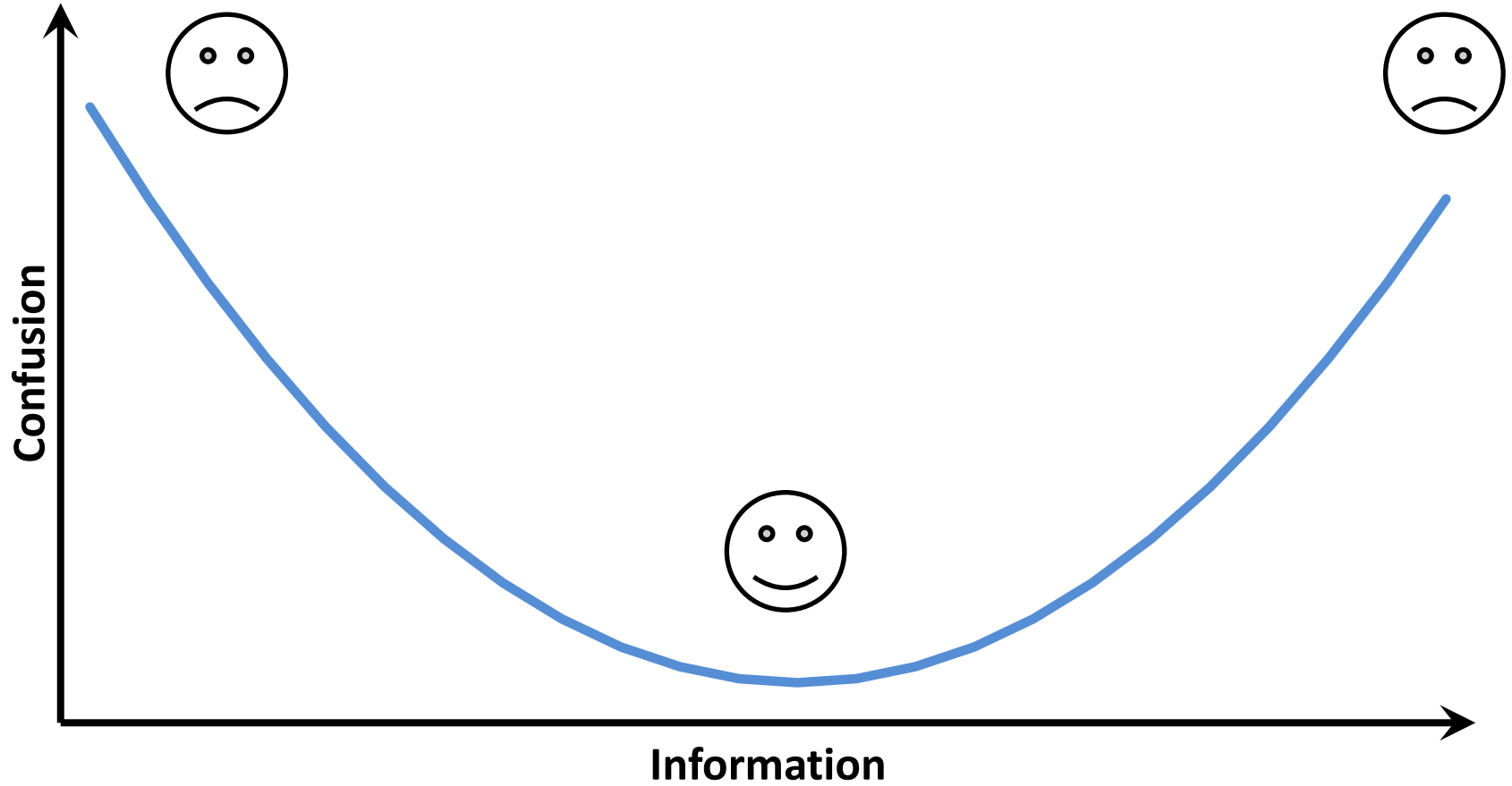
   - Baseline Measurement & Next Steps

1. MEASUREMENT FOR IMPROVEMENT

A Common Challenge

"The data are wrong… The data are too old… These results might not be statistically significant… We need to focus on this *outlier* or *trend*…"

Measurement should be used to speed things up, not slow things down.

Confusion versus Information

Data for Improvement, Accountability, Research

Aspect	Improvement	Accountability	Research
Measurement Aim			New knowledge
Methods (Test observability)			Test blinded or controlled
Bias			Design to eliminate bias
Sample Size			"Just in case" data
Flexibility of hypothesis			Fixed hypothesis
Testing strategy			One large test
Determining if a change is an improvement			Hypothesis tests (T-tests, F-tests, Chi-square), p-value
Confidentiality of the data			Research subjects' identities protected

Data for Improvement, Accountability, Research

Aspect	Improvement	Accountability	Research
Measurement Aim		Comparison, choice, reassurance, spur for change	
Methods (Test observability)		No test, evaluate current performance	
Bias		Measure and adjust to reduce bias	
Sample Size		Obtain 100% of available and relevant data	
Flexibility of hypothesis		No hypothesis	
Testing strategy		No tests	
Determining if a change is an improvement		No focus on change	
Confidentiality of the data		Data available for public consumption	

Data for Improvement, Accountability, Research

Aspect	Improvement	Accountability	Research
Measurement Aim	Improvement of care process, system, and outcomes		
Methods (Test observability)	Test observable		
Bias	Accept consistent bias		
Sample Size	"Just enough" data, small sequential samples		
Flexibility of hypothesis	Flexible hypothesis; changes as learning takes place		
Testing strategy	Sequential tests		
Determining if a change is an improvement	Run charts or control charts (Statistical Process Control methods)		
Confidentiality of the data	Data used only by those involved in improvement		

The Three Faces of Performance Measurement

Aspect	Improvement	Accountability	Research
Measurement Aim	Improvement of care process, system, and outcomes	Comparison, choice, reassurance, spur for change	New knowledge
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Sample Size	"Just enough" data, small sequential samples	Obtain 100% of available and relevant data	"Just in case" data
Flexibility of hypothesis	Flexible hypothesis; changes as learning takes place	No hypothesis	Fixed hypothesis
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Focus on Measuring for Improvement

Useful for understanding:

- Where we started at the beginning of the project (baseline)
  - i.e. describing the current situation or problem
- How the system changes over time
  - i.e. viewing weekly performance
- When we have reached our target

Not useful for:

- Accountability or Judgment
  - Performance measurement on executive dashboards or to external agencies
- Research
  - Producing new knowledge that is generalizable and reproducible
  - Findings are not focused on practical use or applicability

Measurement Share & Tell!

What are some things we measure? Use examples from work or in our everyday lives.

What is the purpose of measurement?

Key Challenges to Consider

Mismatched measurement strategies create chaos:

- Research and Improvement
  - Dismiss data because it's not "research-level quality"
  - Costly and may slow down improvement work

- Accountability and Improvement
  - Data collected may be too crude and specific
  - Data may not be timely enough
  - May encounter resistance or gaming

2. TOOLS FOR MEASUREMENT

Tools for Displaying Data

At the beginning of a project (exploratory phase):

- Frequency Plot

- Pareto Chart

- Scatterplot

Throughout project (testing phase):

- Run Chart

- Control Chart

Frequency Plot (Histogram)

Frequency Plot: Time of Day of Falls
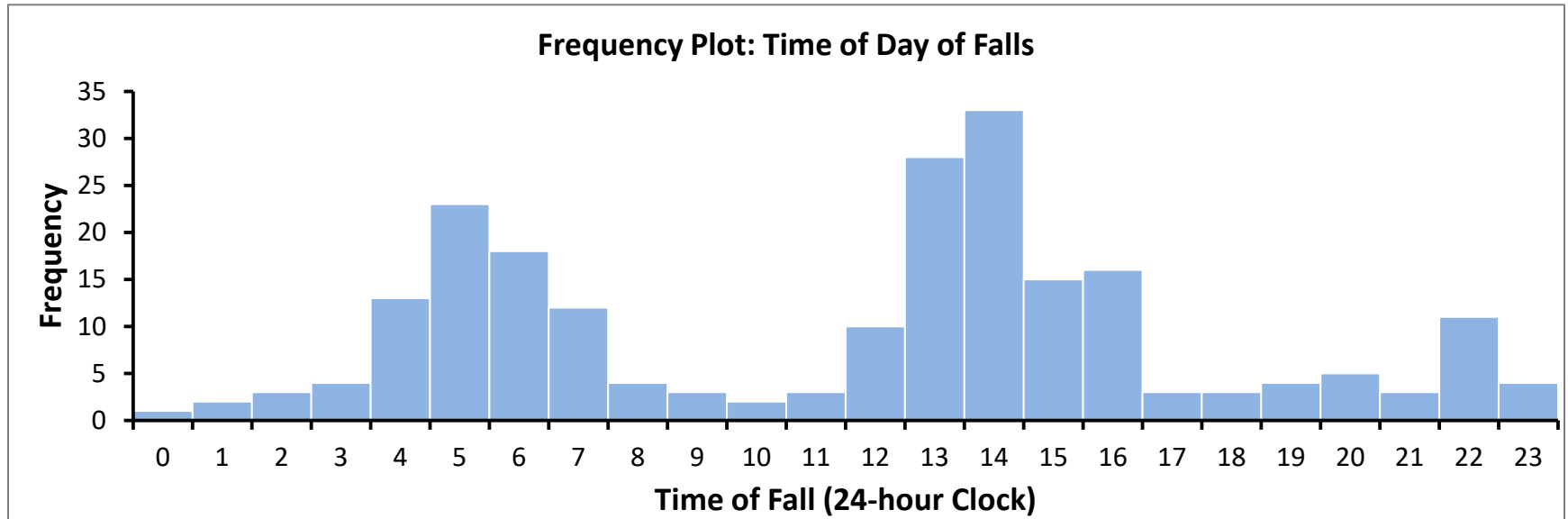
What is this data display used for?

-   Shows distribution of data such as location, spread, and shape measure
-   Variable is a continuous measure (i.e. time)
-   Often most useful after examining a run chart for stability

Example:

What time of day are residents falling?

Are there patterns indicating when residents are at most risk?

Pareto Plot

Pareto Chart: Adverse Drug Events (ADEs) by Medication
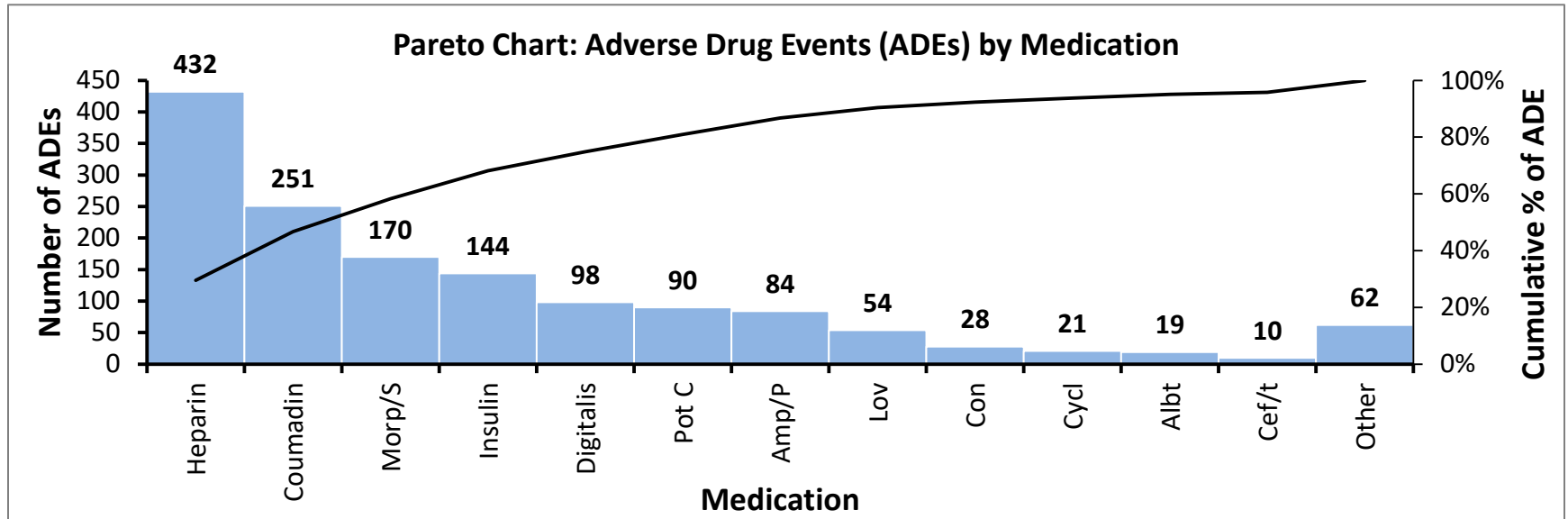
What is this data display used for?
- Shows frequency of categories
- Can show greatest opportunity for improvement or why something is happening
- Variable is categorical or qualitative

Example:
What medications are associated with adverse drug events (ADEs)?
Which drugs should we focus on if we want to reduce ADEs?

Scatterplot

Scatterplot: Outpatient satisfaction and Time with Provider (r=0.95)
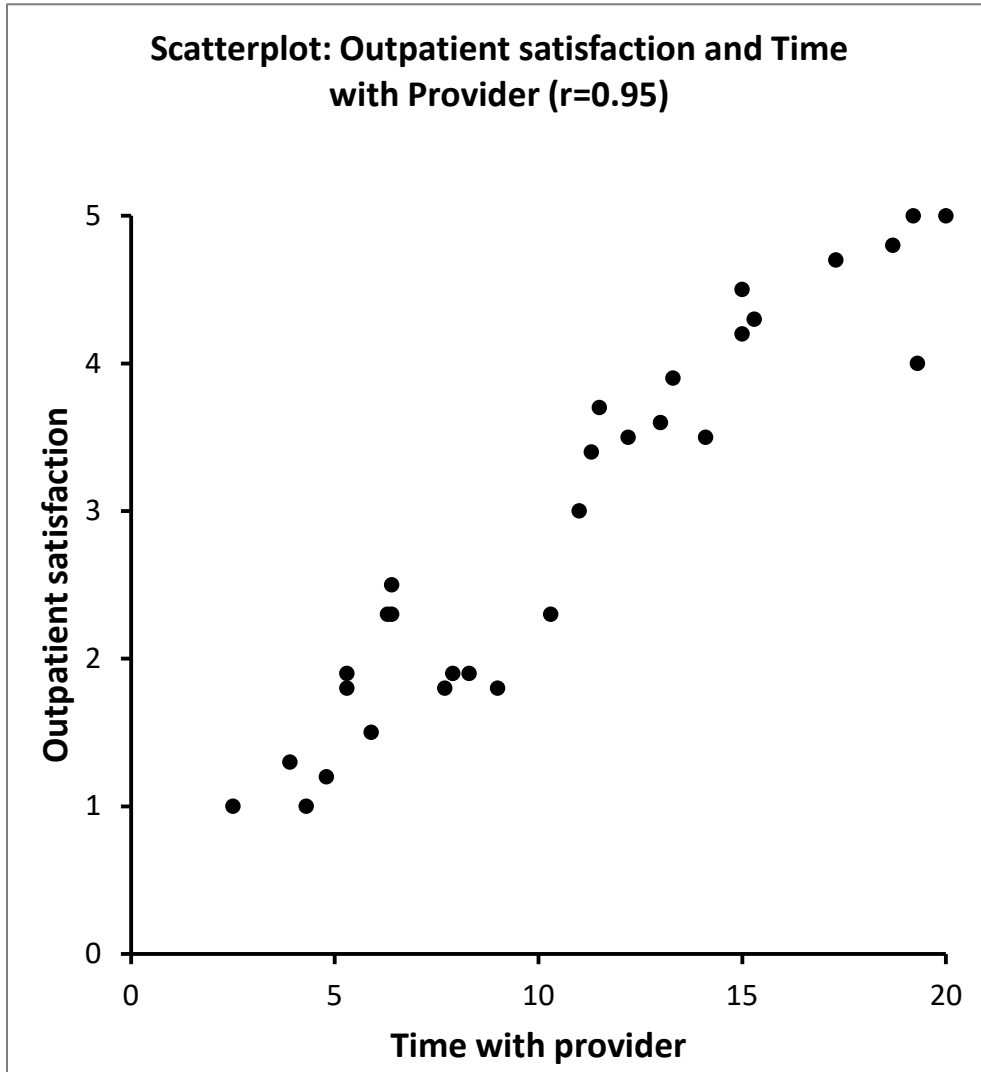
What is this data display used for?

- Shows relationship between two continuous variables
- Will show relationships (if one exists) or associations between variables
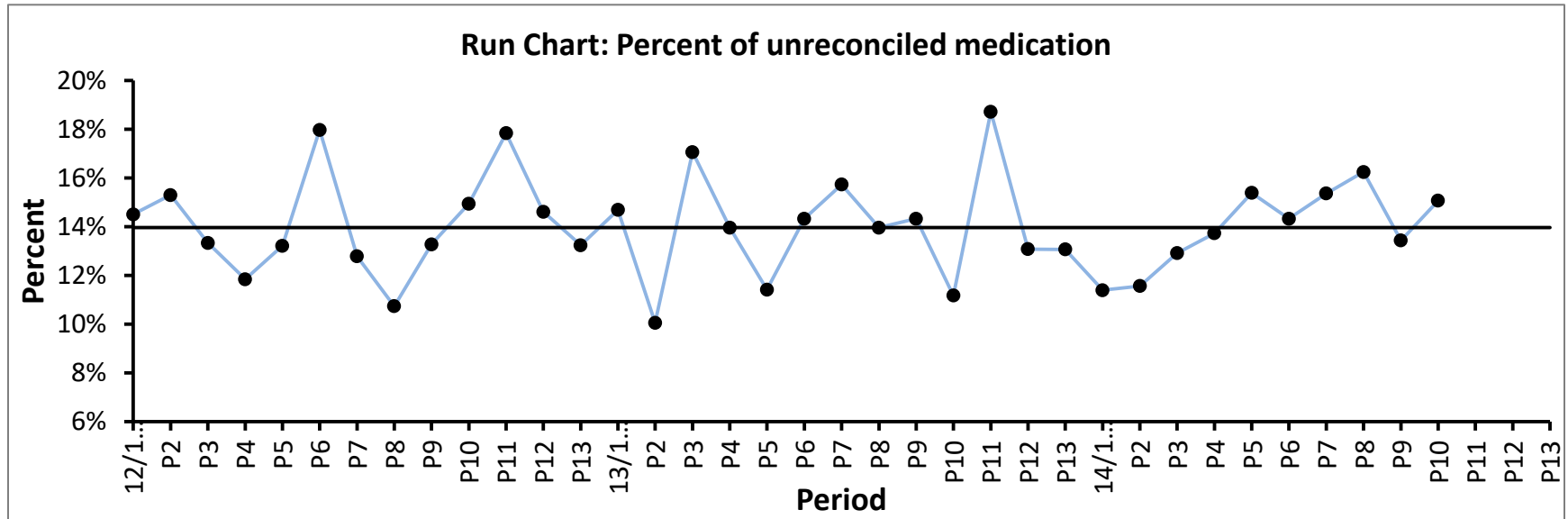- Useful for seeing potential areas for improvement

Example:

How is outpatient satisfaction affected by time spent with provider?

How strong is the association between these two variables?

Are other variables at play (i.e., wait time)?

Run Chart

Run Chart: Percent of unreconciled medication

What is this data display used for?
- Displaying data to make process performance visible
- Determining whether a change resulted in improvement
- Determining whether gains made through improvement effort are being sustained

Example:
What is the average percent of unreconciled medication? Has performance gotten better or worse? If we are testing a change, has it made an impact?

Summary of Display Tools

- Variety of charts for displaying data

- Use charts as aids to learn and analyse data
  - Frequency plots, Pareto charts, and scatterplots can provide important insight, especially when used in combination with a run chart
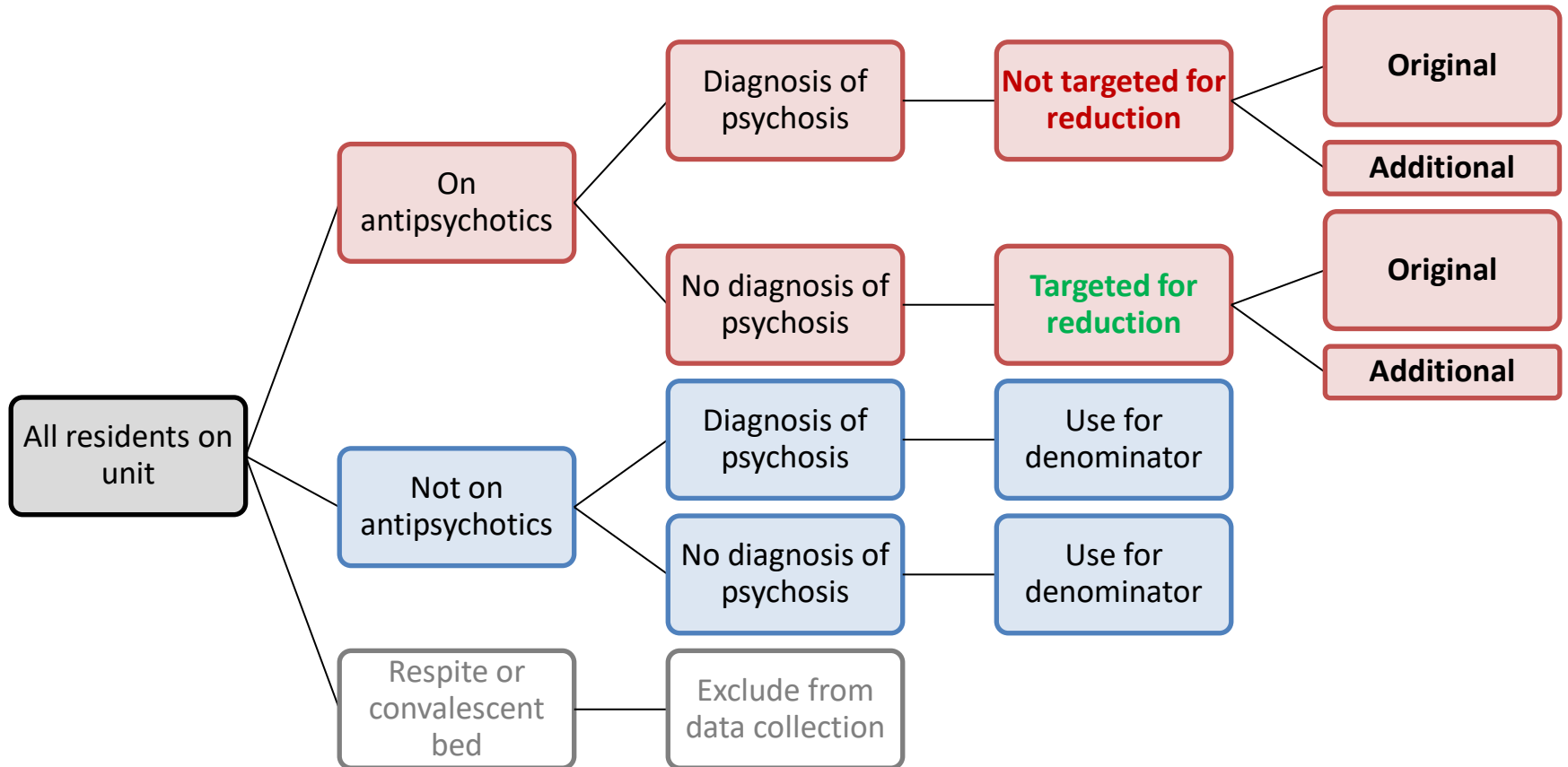
3. MEASURING FOR CLEAR

Measurement Strategy

Clear Data

- Primarily achieved with manual collection
- *Clear Data Collection Tool* made simpler
- In alignment with RAI, the measurement strategy will be to focus on **residents without a diagnosis of psychosis**

Using Other Data

- We will use RAI data where possible
- We will also support the use of existing datasets for the purposes of improvement work

Clear Resident Populations (Cohorts)

Family of Measures

Outcome	Process	Balancing
• Based on Aim Statement (usually) • What is better for the resident? (i.e., what will we tell residents and their families?)	• Voice of the system • What is being done differently? • What is now being done consistently?	• What are unintended consequences? • What are we worried about (that can be addressed)?
Examples		

Family of Measures

Outcome	Process	Balancing
• Based on Aim Statement (usually) • What is better for the resident? (i.e., what will we tell residents and their families?)	• Voice of the system • What is being done differently? • What is now being done consistently?	• What are unintended consequences? • What are we worried about (that can be addressed)?
Examples		
• Median wait time from referral to be seen by specialist	• Referrals to the specialist that have complete information	• Median wait time from specialist to date of surgery
• Residents on antipsychotics without a diagnosis of psychosis	• Residents on antipsychotics with med review completed	• Target residents with worsened behaviours

Data Collection Tool Measures

Outcome (mandatory):

- Residents on antipsychotics without a diagnosis of psychosis
- Residents on antipsychotics (total)

Process (optional):

- Residents on antipsychotics with a medication review completed
- Residents on antipsychotics with a dose reduction trial

Balancing:

- New enrollments (admissions) on antipsychotics
- Residents with worsened behaviours

Cumulative statistics:

- Residents with medication reductions and discontinuations

Operational Definitions

Basic Definition:

- Residents on antipsychotics without a diagnosis of psychosis

Operational Definition:

- Number of residents on unit prescribed any antipsychotics / Number of residents currently on unit
- Exclusion Criteria:
    - respite, convalescent, or pathway to home
    - residents with RAI exclusion criteria (see next page)

RAI Exclusions

RAI diagnoses for excluding residents for potentially inappropriate use of antipsychotics:

Code	Name	Description
J5c	End stage disease	Stability of condition – end stage disease, 6 months or less to live
P1ao	Hospice care	Special care in last 15 days – hospice care
I1x	Huntington's chorea	Disease – Huntington's chorea
I1ii	Schizophrenia	Disease – schizophrenia
J1i	Hallucinations	Problem condition in last 7 days – hallucinations
J1e	Delusions	Problem condition in last 7 days – delusions

Clear Data Collection Tool
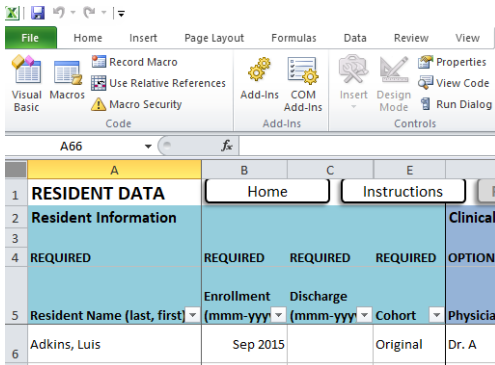

Demo Time!

4. REPORTING PROGRESS

The Checklist

✓ A data collector

✓ Data sources:
  - Resident charts
  - Medication/Prescriptions
  - Other charts and resources

✓ Measurement strategy & guide (for reference)

✓ Data collection templates
  - Clear Data Collection Tool   (Excel)
  - Monthly Team Report   (Word)

Data Collection Process

1. Gather Data Sources
   - RAI assessments or resident charts
   - Medication Administration Record (MAR) or a pharmacy report

2. Initial Baseline Data Collection (Feb 2018)
   - Enter "Original Cohort" of residents
   - Enter resident info and active medications
   - Submit baseline data using Monthly Team Report

3. Monthly Data Collection/Updates (Mar 2018 - Apr 2019)
   - New admissions and resident discharges
   - Review and update resident and med info
   - Submit monthly data using Monthly Team Report

Monthly Data Submission

Data Collection Tool
(Excel)

Monthly Team Report
(Word)

Data Submission to
Improvement Advisor

Build Measurement Plan!

1. Define what measures to use
2. Determine when to measure and what the sample will be
3. Determine how to collect data
4. Determine how to display and analyze data
5. Disseminate information

Measurement Plan Worksheet

Measure	Operational Definition (O/P/B)	Data Collection Strategy	Data Analysis and Display	Baseline Result	Target Result

Measurement Plan Worksheet

Measure	Operational Definition (O/P/B)	Data Collection Strategy	Data Analysis and Display	Baseline Result	Target Result
Residents on antipsychotics without diagnosis of psychosis	Outcome: Residents on AP / Residents without Dx of psychosis	Manual collection + RAI assessments; EY complete on 1st week of month	Monthly run chart	30%	20%
Resident on antipsychotics (total)	Outcome: Residents on AP / Residents on unit	Manual collection	Monthly run chart	28%	22%
Residents with an antipsychotic with a medication review completed	Process: Residents on AP with med review / Residents on AP	Manual collection	Monthly run chart, pareto	50%	90%
Daily interdisciplinary huddles	Process Days with huddles in AM and PM shifts / Work days	Manual collection	Monthly run chart, histogram	10%	80%
Residents with worsened behaviours	Balancing: Residents with worsened behaviour / Target Residents	Manual collection (DOS tool, RAI ABS, or other behaviour assessment)	Monthly run chart, scatterplot	50%	25%

More Examples: Process & Balancing

Process

- % med reviews with family/caregiver involvement
- # P.I.E.C.E.S. assessments completed
- % Care reviews conducted using BPSD Algorithm
- # Calls to MRP to request antipsychotic use

Balancing

- # of incidents causing harm
- Staff satisfaction
- Family satisfaction

Key Messages

A **family of measures** is used to provide feedback over the lifetime of a project

Additional Tips

- Capitalize on staff interests

- Leverage existing measures

- Keep data collection as quick and simple as possible

- Collect and display measures over time!

Questions?

Thank you!

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   Thursday, December 7, 2017

Webinar 2: Leading for Change
   Thursday, December 14, 2017

Webinar 3: Introduction to the Model for Improvement
   Thursday, January 11, 2018

Webinar 4: Culture
   Tuesday, January 16, 2018

Webinar 5: The Value of Measurement in Improvement Work
   Tuesday, January 23, 2018

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