# NIATx EbmHR Learning Collaborative

**Fond Du Lac    Green Bay    Kenosha    Madison    Manitowoc    Menomonie    Milwaukee    Racine    Siren    Wis. Rapids**

## Knowing How Electronic Behavioral/Mental Health Records Impact Workflows



**April 30, 2010**

# Special Guests

**Jesi Wang**

Vice President of Quality Resources

**Stacey Rondorf**

Field Operations Manager

*www.metastar.com*
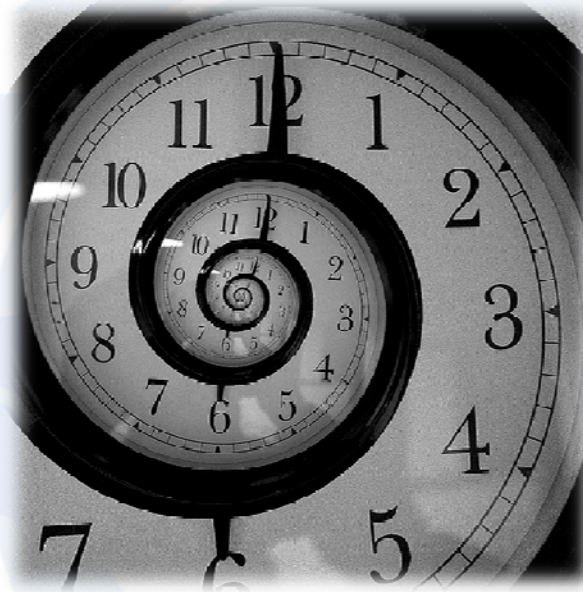
# Our Aim Today

To identify…

1. EHR vs. Non-EHR workflow performance differences
2. Methods of process analysis & improvement
3. Next steps for your organization

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# The promise…

*"Electronic health records reduced my job from 40 hours down to 8 hours."*

Nancy Lowndes, Coder & Biller, Oakwood Clinical Associates
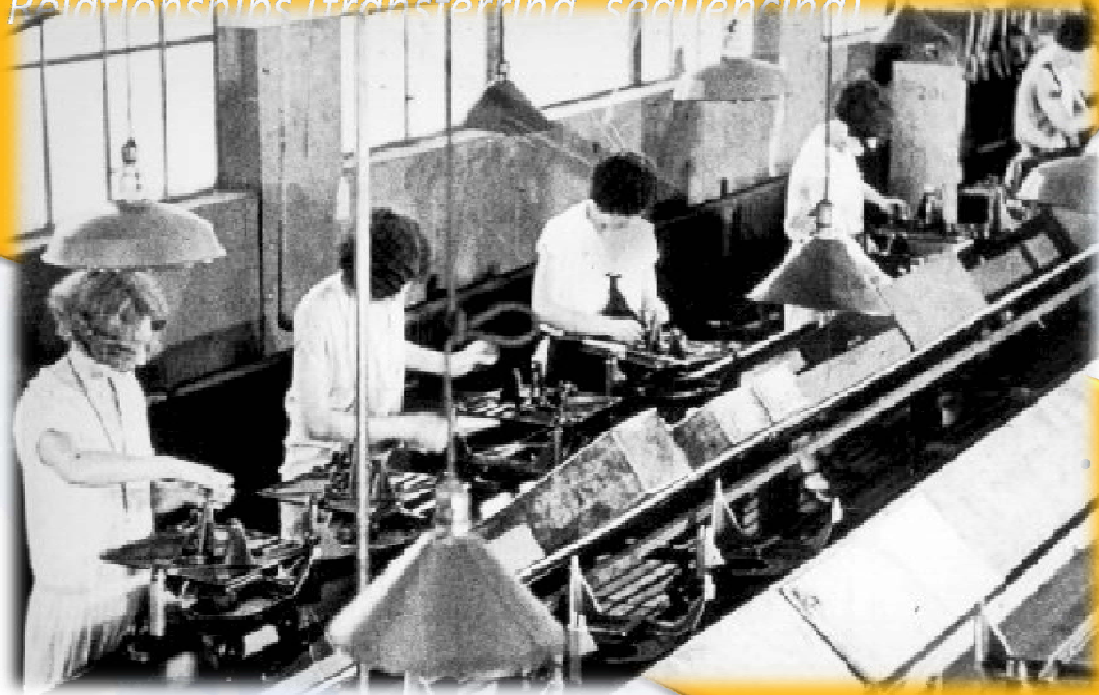
# Background

# What is workflow?

*"The flow or progress of work done by a company, industry, department, or person."*

**Ingredients...**

*Events (tasks, decisions, phases)*

*Resources (labor, documents, technology)*

*Relationships (transferring, sequencing)*

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# How do you capture workflow?

- Flowchart
  - A picture of process steps in sequential order, including materials or services entering (input) or leaving (output) the process, decisions that must be made, people who become involved, time involved at each step and/or process measurements. Swim-lane diagram is uniquely formatted flowchart.

- Process Map
  - A picture of all service steps provided to the client within a process and identifying responsibility for each.

- Spaghetti Diagram
  - A picture that uses continuous flow line tracing the path of an item or activity through a process. The continuous flow line enables process teams to identify redundancies in and expedite workflow.

- Value Stream Map
  - A picture of a process that identifies (1) value added and (2) non-value added activities. Typically involves current vs. future states.
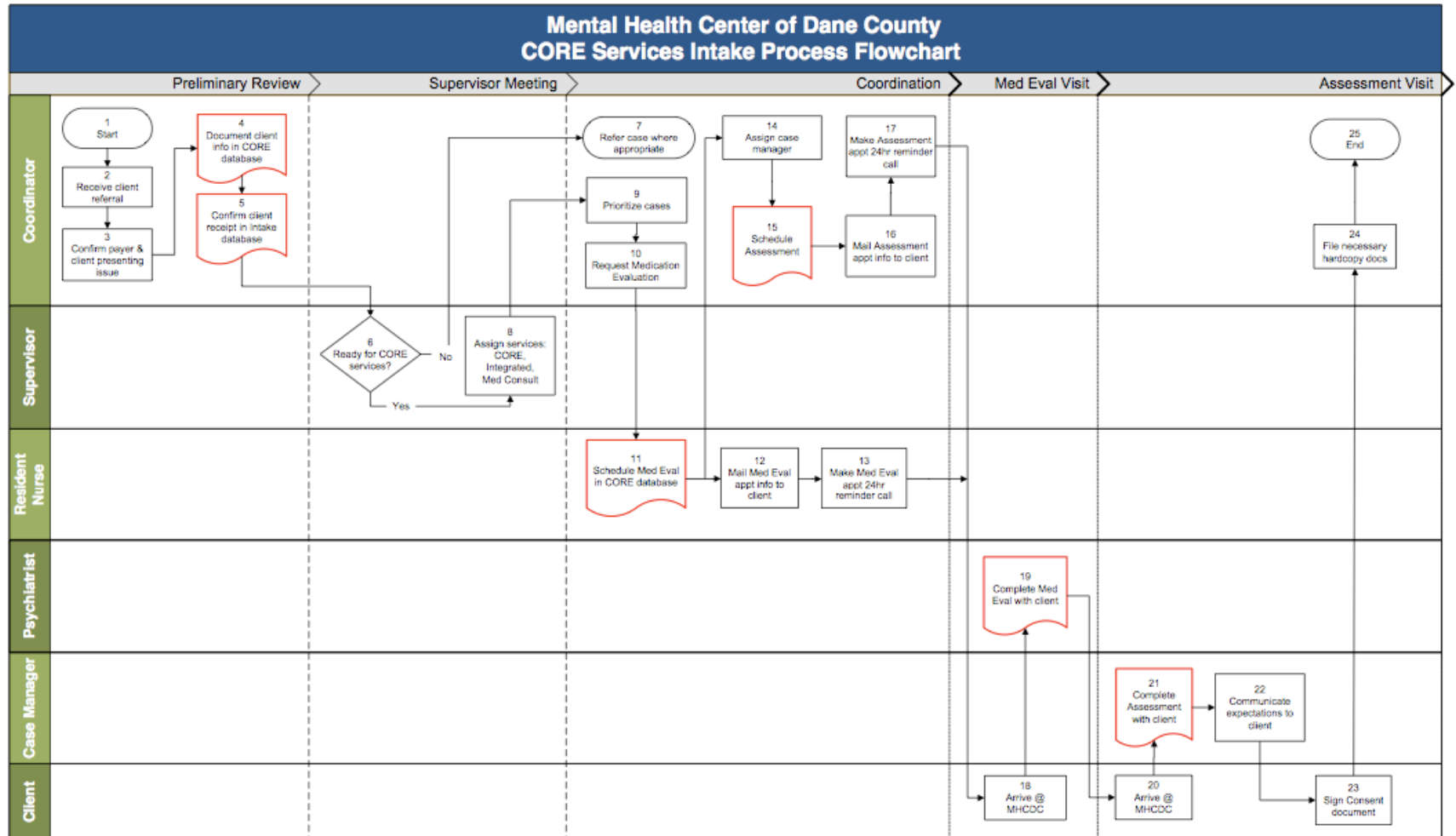
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*American Society of Quality (ASQ), www.asq.org. Visited on April 28, 2010.*

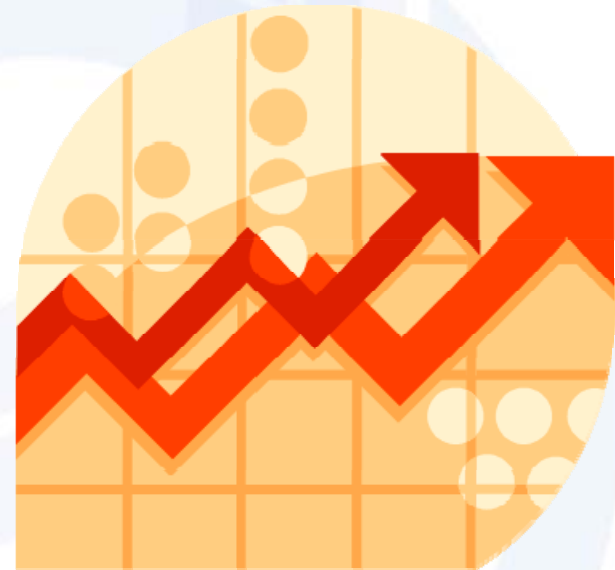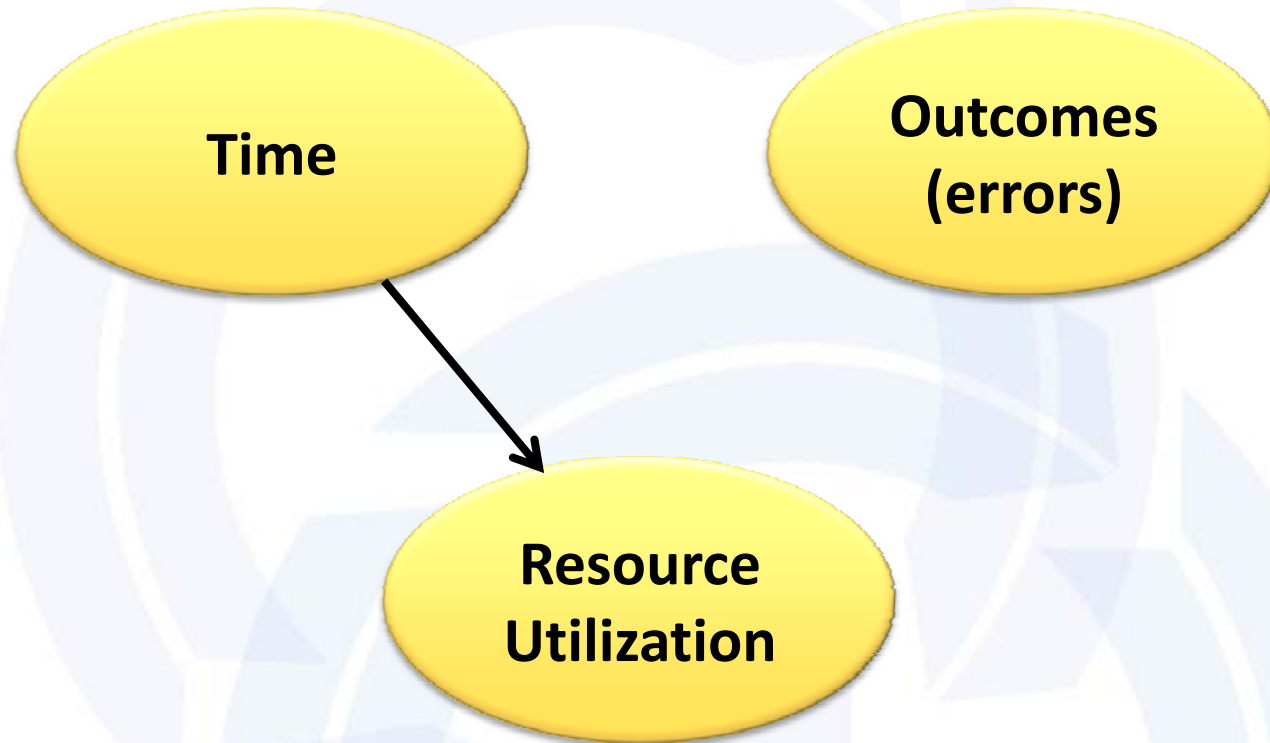# "Swim Lane" Diagram Example

# "Swim Lane" Diagram Example
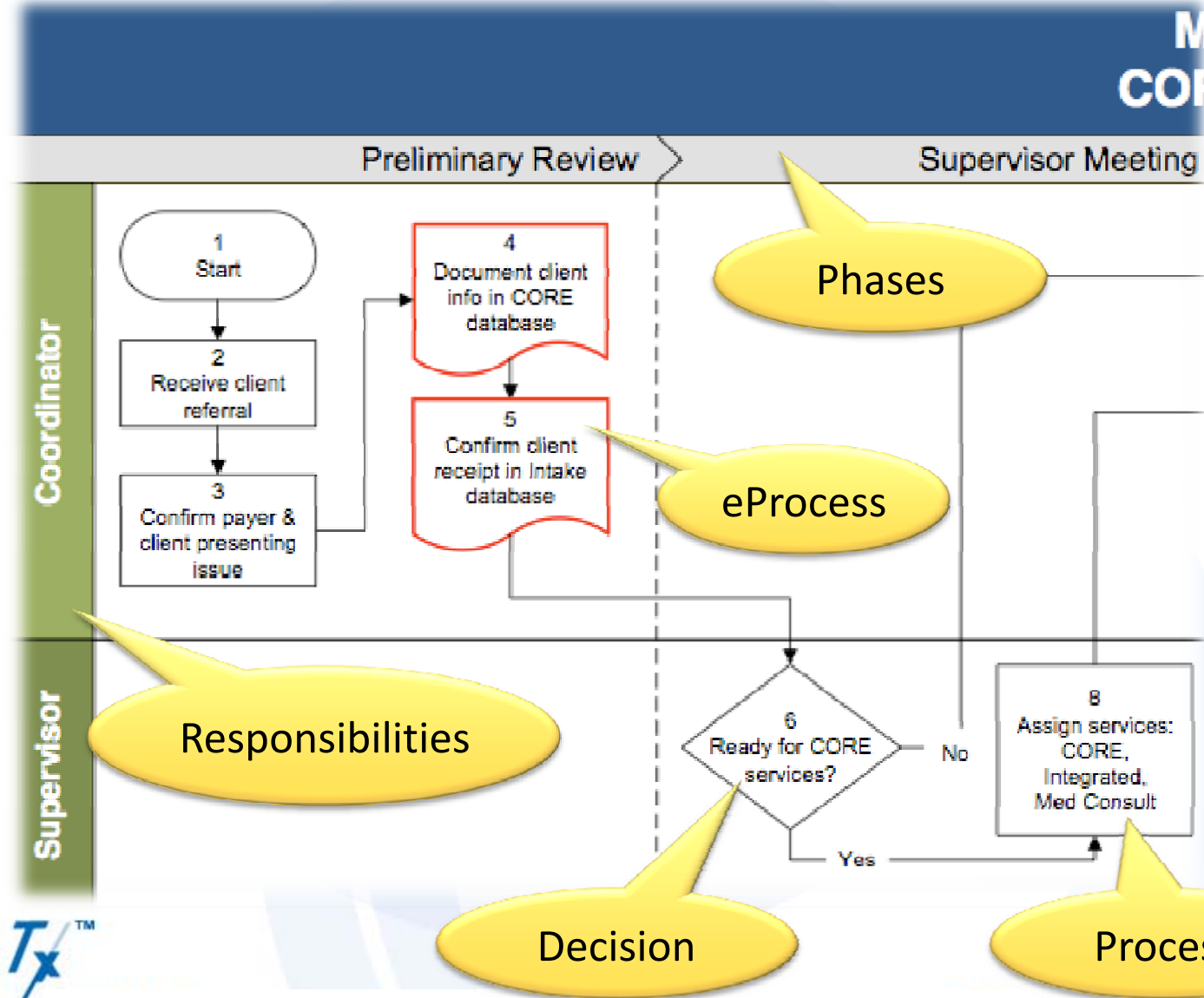
# Why is capturing workflow important?

- Visualize & Understand

- Identify opportunities

- Support process improvement

- Educate others

# How can you measure workflow?

Time

Outcomes (errors)

Resource Utilization

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# Some Improvement Methods

- PDCA Cycle
  - Plan
  - Do
  - Check
  - Act

- Failure Mode & Effects Analysis (FEMA)
  - Identify all possible failures in a process
  - Study the consequences, or effects, of those failures
  - Eliminate or reduce failures, starting with the highest-priority failures

- Mistake-proofing
  - Use automation to make error impossible or immediately obvious at occurrence

*American Society of Quality (ASQ), www.asq.org – Visited on April 28, 2010*

# Results

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# Data Summary

- Nov 2009 – Apr 2010 site visits

- 7 agencies

- 3 processes:  intake, discharge, billing

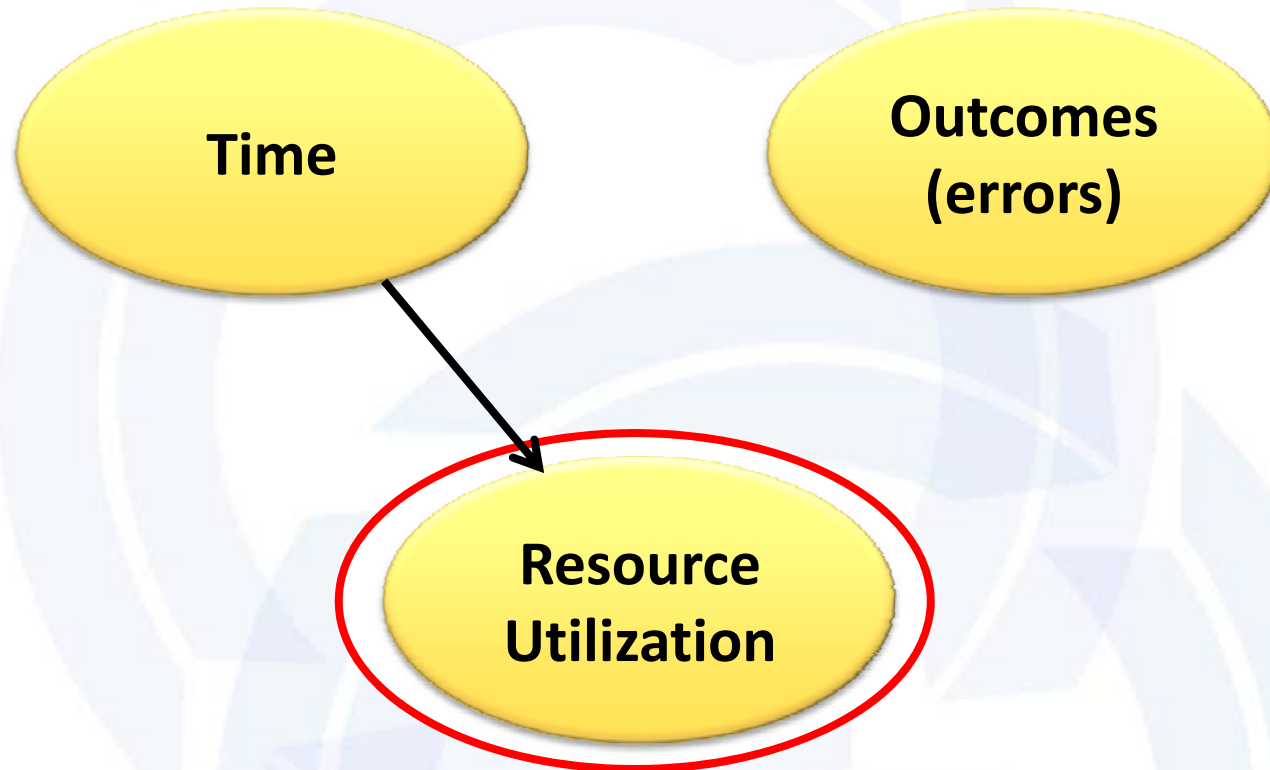| Agency | | EHR | Non-EHR |
|---|---|---|---|
| ARC Community Services | Madison | | X |
| Aurora Community Counseling | Siren | | X |
| Mental Health Center of Dane County | Madison | X | |
| Meta House | Milwaukee | | X |
| Oakwood Clinical Associates | Kenosha | X | |
| Racine Psychological Services | Racine | | X |
| Wood County Unified Services | Wis. Rapids | | X |

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# Analysis Challenges

- Analysis based on preliminary flowcharts
- Limited standardization & improvement time
- Different services, payers, processes (scope, resources)
- Level of process detail communicated varied
- Limited data (time, outcomes) for comparison
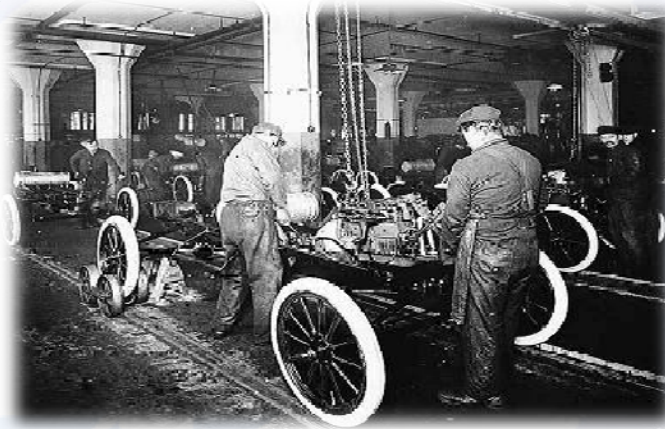- Insufficiently captured information management tasks

# Cross-Agency Analysis Metric

*"How much time does a process demand of each employee?"*



Employee Utilization =

$$\frac{\text{# Employee Process Time Events}}{\text{Total Process Time Events}}$$

WARNING…
Significant time variability between events

# Intake

| AGENCY | UTILIZATION | | | | |
|---|---|---|---|---|---|
| | Client | Support Staff | Clinician | Admin | EHR |
| A | 36.8% | 36.8% | 26.3% | 0.0% | 0.0% |
| B | 18.2% | 54.5% | 27.3% | 0.0% | 0.0% |
| C | 9.0% | 74.6% | 16.4% | 0.0% | 0.0% |
| D | 8.1% | 86.5% | 5.4% | 0.0% | 0.0% |
| E | 26.5% | 26.5% | 46.9% | 0.0% | 0.0% |
| F* | 13.0% | 52.2% | 17.4% | 17.4% | 0.0% |
| G* | 8.6% | 72.4% | 15.5% | 0.0% | 3.4% |
| Non-EHR Avg. | 19.7% | 55.8% | 24.5% | 0.0% | 0.0% |
| EHR Avg. | 10.8% | 62.3% | 16.5% | 8.7% | 1.7% |
| Non-EHR Std. Dev. | 12.2% | 25.1% | 15.4% | 0.0% | 0.0% |
| EHR Std. Dev. | 3.1% | 14.3% | 1.3% | 12.3% | 2.4% |

**\* Agency uses electronic health records**

# Intake

**Average Resource Utilization**
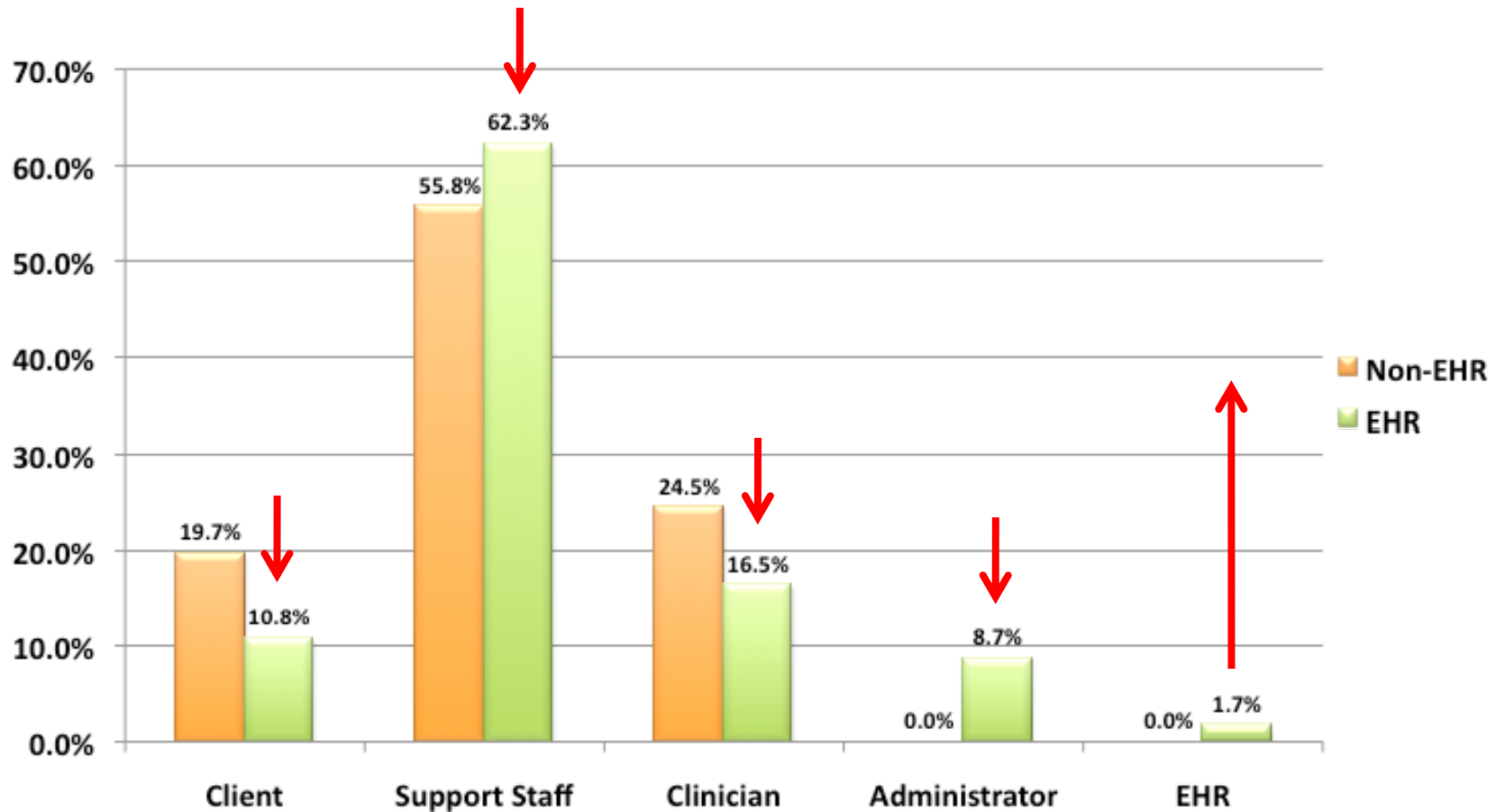
# Discharge

| AGENCY | UTILIZATION | | | | |
|--------|--------|--------------|-----------|-------|------|
| | Client | Support Staff | Clinician | Admin | EHR |
| A | 20.0% | 0.0% | 66.7% | 13.3% | 0.0% |
| B | 10.0% | 20.0% | 70.0% | 0.0% | 0.0% |
| C | 0.0% | 58.8% | 29.4% | 11.8% | 0.0% |
| D | 6.3% | 43.8% | 50.0% | 0.0% | 0.0% |
| E | 7.7% | 7.7% | 53.8% | 30.8% | 0.0% |
| F* | 5.3% | 0.0% | 15.8% | 78.9% | 0.0% |
| G* | 8.3% | 0.0% | 75.0% | 16.7% | 0.0% |
| Non-EHR Avg. | 8.8% | 26.1% | 54.0% | 11.2% | 0.0% |
| EHR Avg. | 7.3% | 24.7% | 16.1% | 12.6% | 0.0% |
| Non-EHR Std. Dev. | 6.8% | 0.0% | 45.4% | 47.8% | 0.0% |
| EHR Std. Dev. | 2.2% | 0.0% | 41.9% | 44.0% | 0.0% |

**\* Agency uses electronic health records**

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# Discharge

## Average Resource Utilization
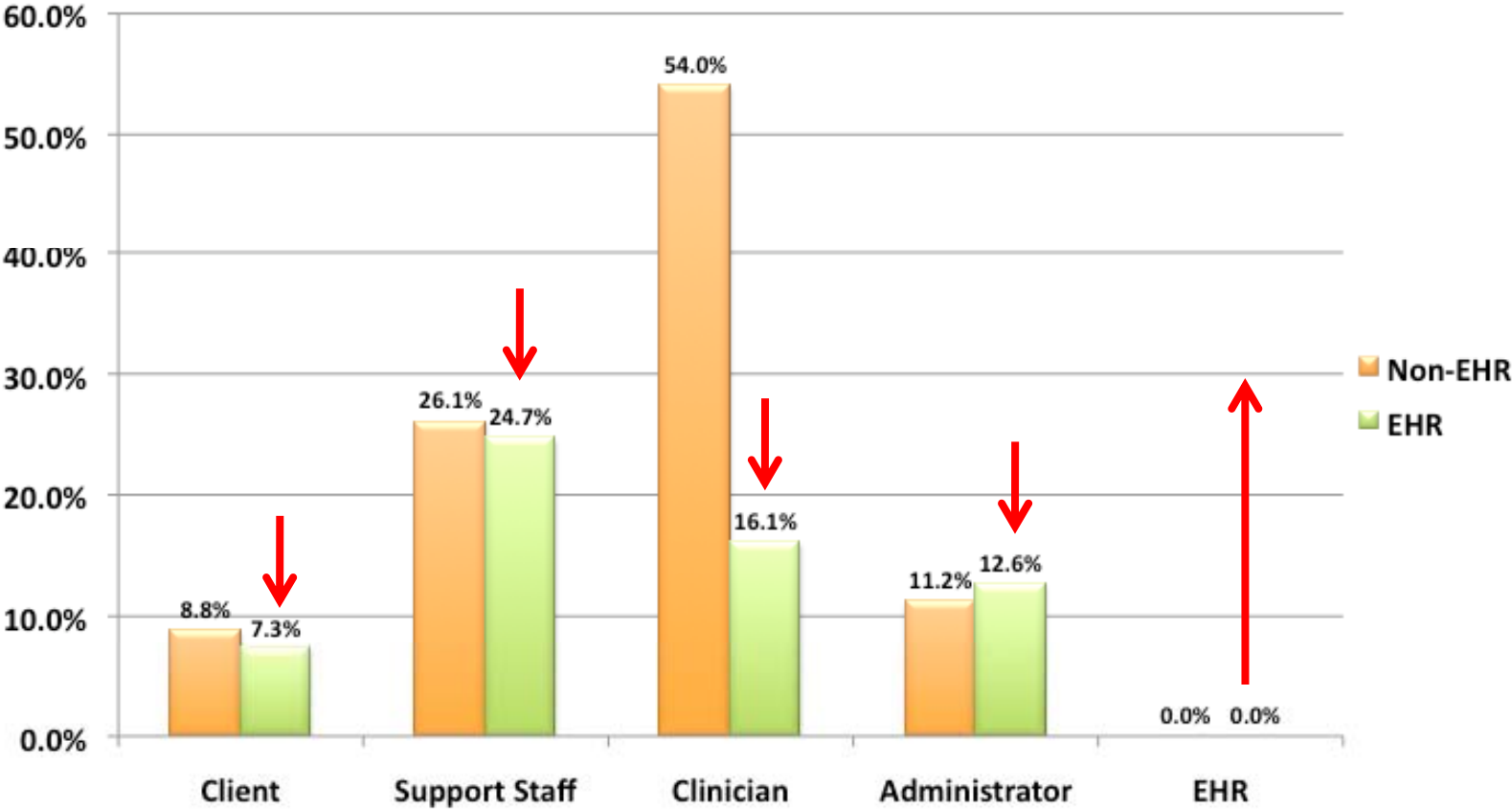


| | Non-EHR | EHR |
|---|---|---|
| Client | 8.8% | 7.3% |
| Support Staff | 26.1% | 24.7% |
| Clinician | 54.0% | 16.1% |
| Administrator | 11.2% | 12.6% |
| EHR | 0.0% | 0.0% |

# Billing

| AGENCY | UTILIZATION | | | | |
|---|---|---|---|---|---|
| | Client | Support Staff | Clinician | Admin | EHR |
| A | 0.0% | 100.0% | 0.0% | 0.0% | 0.0% |
| B | 0.0% | 87.5% | 12.5% | 0.0% | 0.0% |
| C | 0.0% | 47.6% | 33.3% | 19.0% | 0.0% |
| D | 0.0% | 94.6% | 0.0% | 5.4% | 0.0% |
| E | 0.0% | 36.4% | 0.0% | 63.6% | 0.0% |
| F* | - | - | - | - | - |
| G* | 0.0% | 100.0% | 0.0% | 0.0% | 0.0% |
| Non-EHR Avg. | 0.0% | 73.2% | 9.2% | 17.6% | 0.0% |
| EHR Avg. | 0.0% | 29.1% | 14.6% | 26.9% | 0.0% |
| Non-EHR Std. Dev. | 0.0% | 100.0% | 0.0% | 0.0% | 0.0% |
| EHR Std. Dev. | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

**\* Agency uses electronic health records**

# Billing
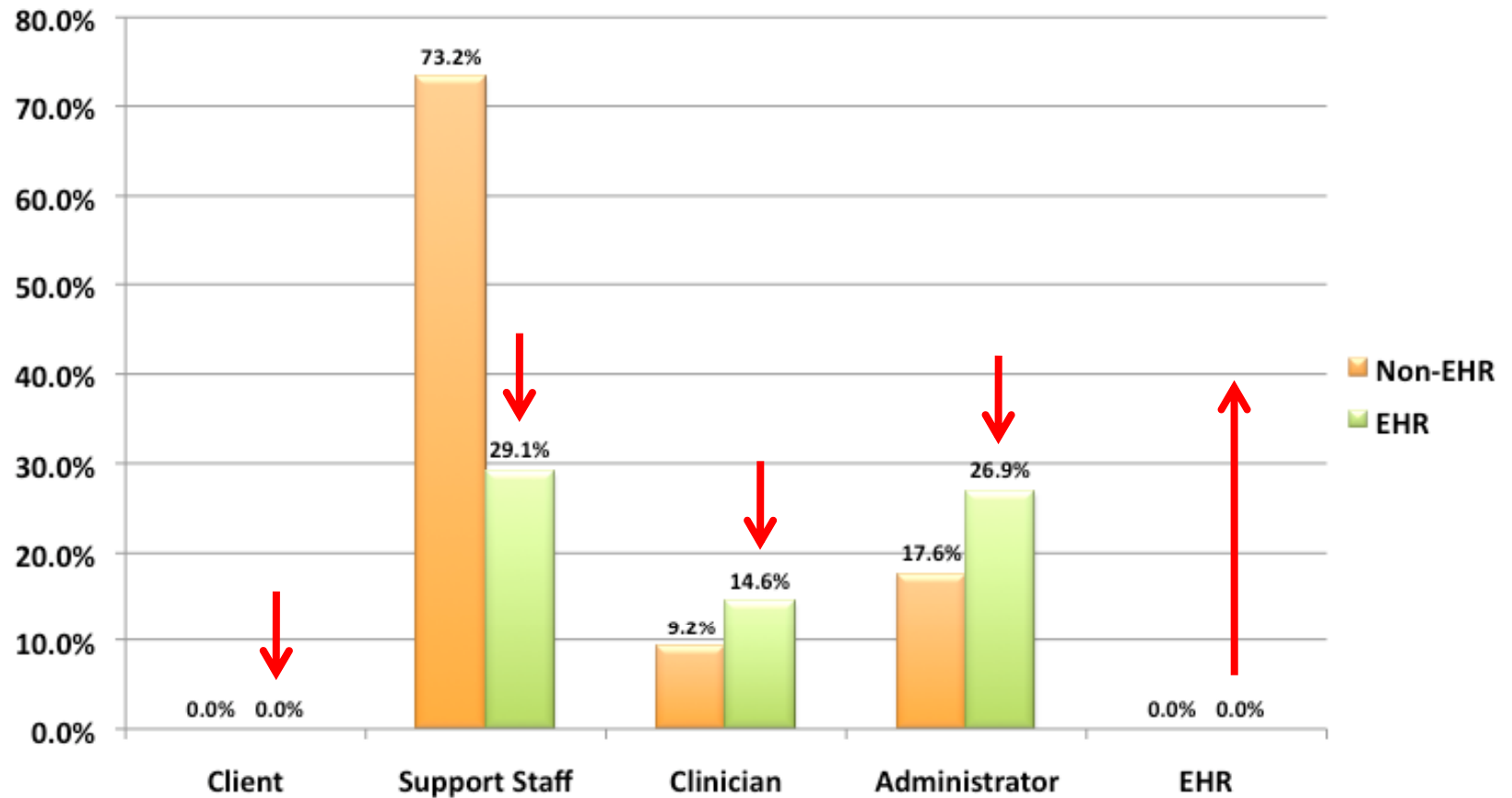
Average Resource Utilization

# What does EHR change?

Pro's…

- Reduces information management time
  - Generating, storing, retrieving, sharing
- Reduces opportunities for data-related errors
  - *"What is the cost of error?"*

Con's…

- EHR does not equal 100% automation (staff still required)
- EHR does not equal 100% paperless (government transactions)

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# Next Steps
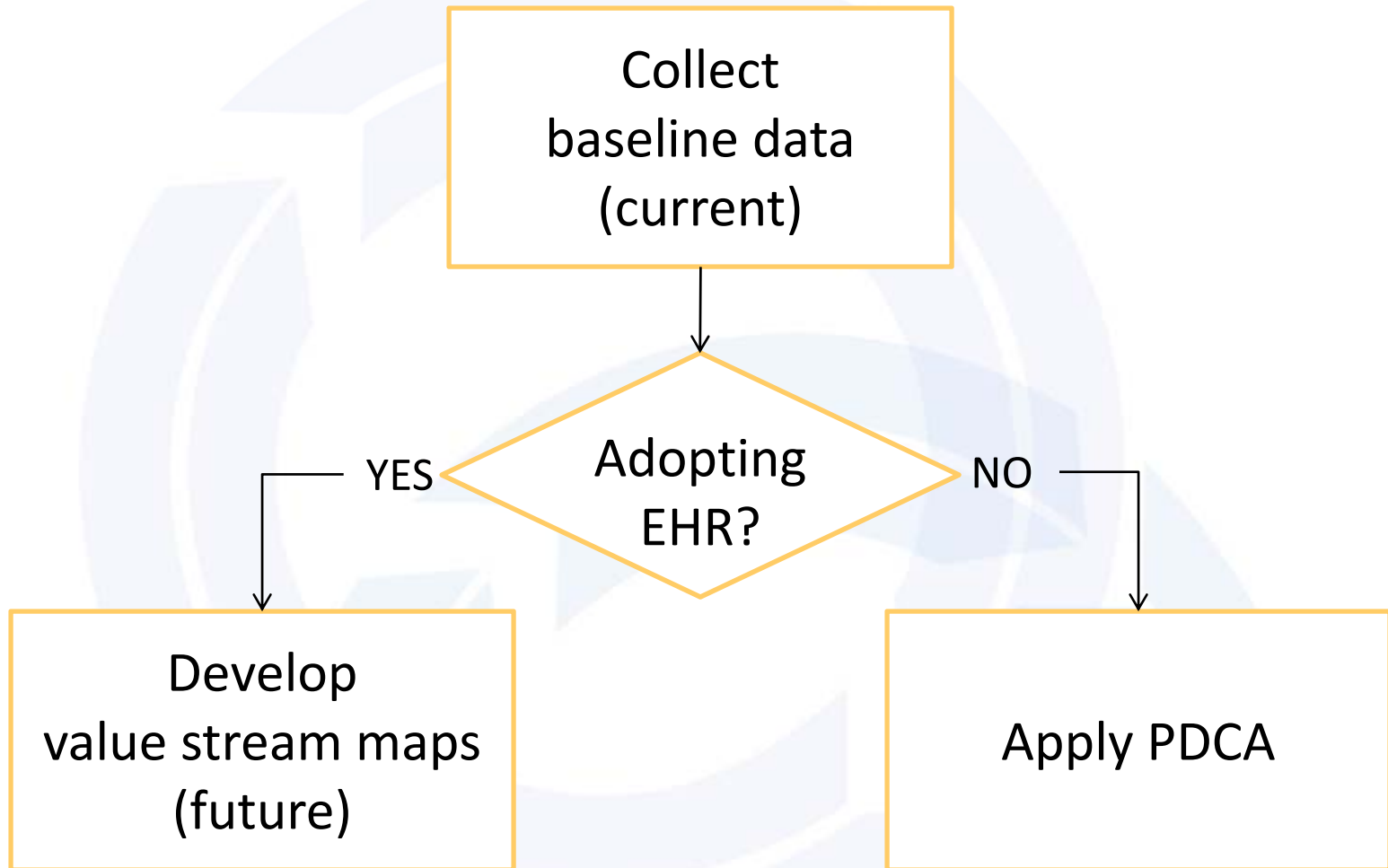
# Further Your Understanding!!!

Collect
baseline data
(current)

Adopting
EHR?

YES

NO

Develop
value stream maps
(future)

Apply PDCA

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# How do you improve workflow?

*"Does the activity add VALUE for the STAKEHOLDER?"*

*If not, PDCA away!!!...*



Eliminate?
Simplify?
Change?
Combine?
Standardize?

Implement change

Adopt?
Adapt?
Abandon?

Monitor
Measure
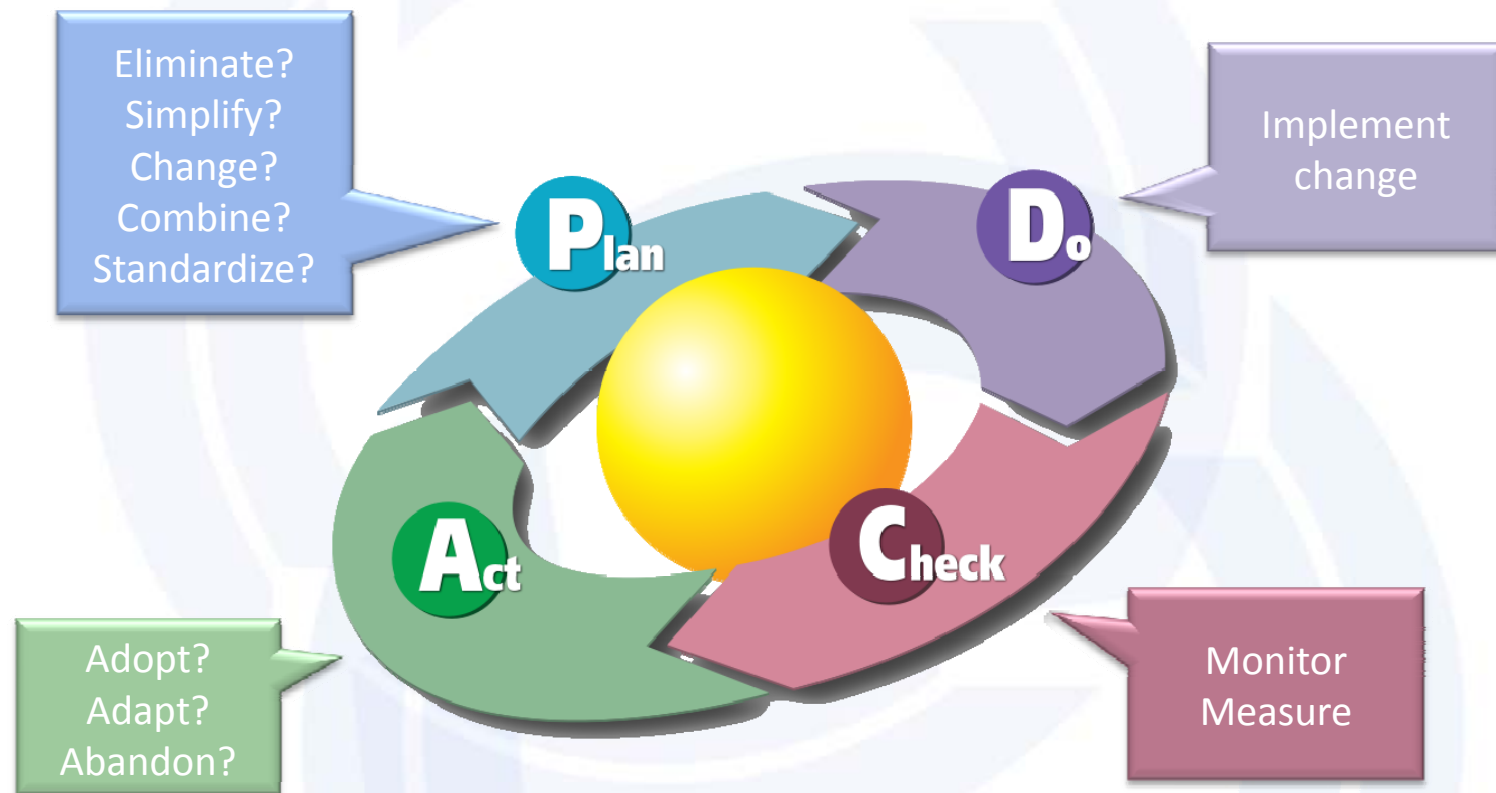
# Keys to Measurement

*Remember to…*

1. *Measure what REALLY matters*

2. *Ensure measure validity*

3. *Collect data consistently*

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# Intake Performance Metrics

- Time
  - Call-to-Authorized Period (I1): 1st client call to Payer Authorization Receipt (min)
  - Call-to-Door Period (I2): 1st client call to 1st visit (*min*)
  - Intake Period (I3): 1st client call to intake end (*min*)
  - Call-to-Treatment Period (I4): Time between 1st call and treatment (*min*)
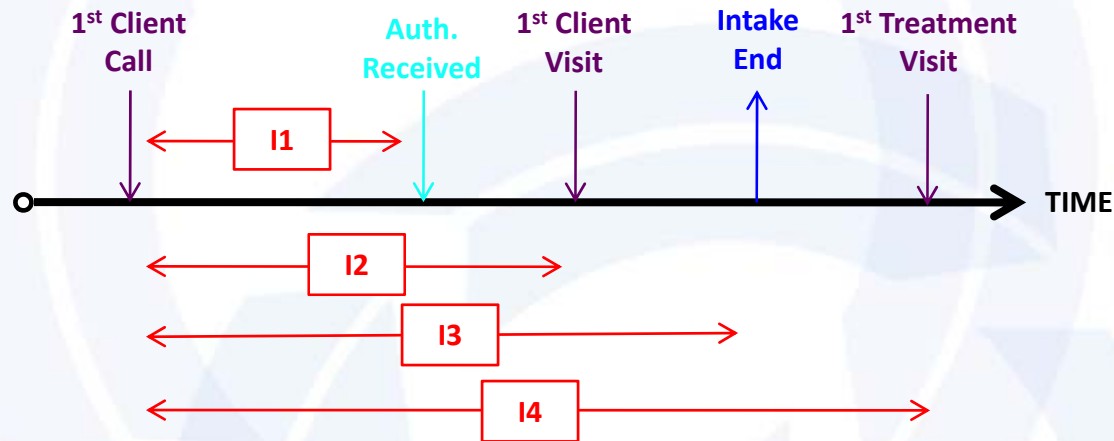


- Utilization
  - Clinician Care: Clinician Care Hours ÷ Total Hours (*max*)
  - Clinician Administrative: Clinician Admin. Hours ÷ Total Hours (*min*)
  - Staff Payer-Authorization: Staff Payer Authorization Hours ÷ Total Hours (*min*)

# Billing Performance Metrics

- **Time**
  - Accounts Receivable Period (B1): Service to Reimbursement (*min*)
  - Cash Cycle (B2): Paycheck to Reimbursement (*min*)
  - Receivables Turnover: Sales ÷ Avg. Accounts Receivable (*max*)
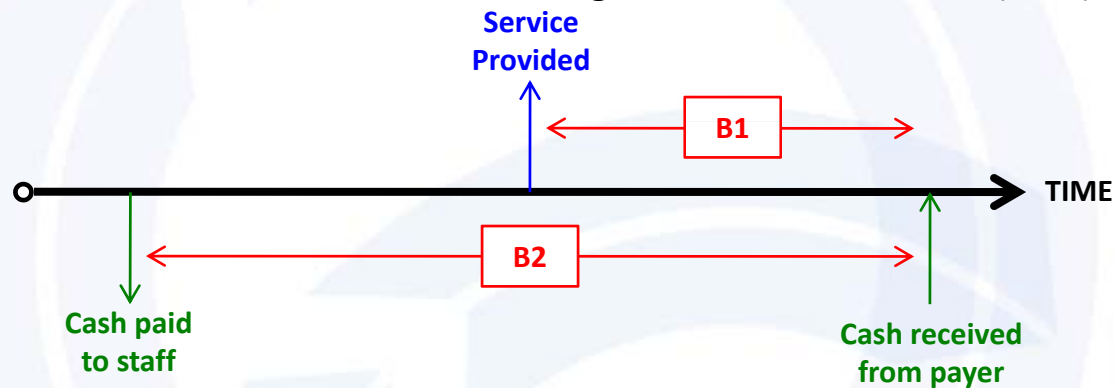


- **Utilization**
  - Biller Correcting Claims: Biller Correcting Claims Time ÷ Total Biller Hours (*min*)
  - Clinician Billing: Clinician Billing Hours ÷ Total Hours (*min*)

- **Outcomes**
  - Claims Rejection Rate: # Claims Rejected ÷ Total # Claims (*min*)
  - Complete Reimbursement Rate: # Claims 100% Reimbursed ÷ Total # Claims (*max*)
  - Bad Debt (Write-off) Rate: Write-off Amount ÷ Total Claims Amount (*min*)

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# Discharge Performance Measure

- Time
  - Decision-to-Staff-Signature (D1):  Decision to Staff Signatures (*min*)
  - Decision-to-Client-Staff (D2):  Decision to Client Signature (*min*)
  - Discharge Process (D3):  Decision to Chart Filed (*min*)
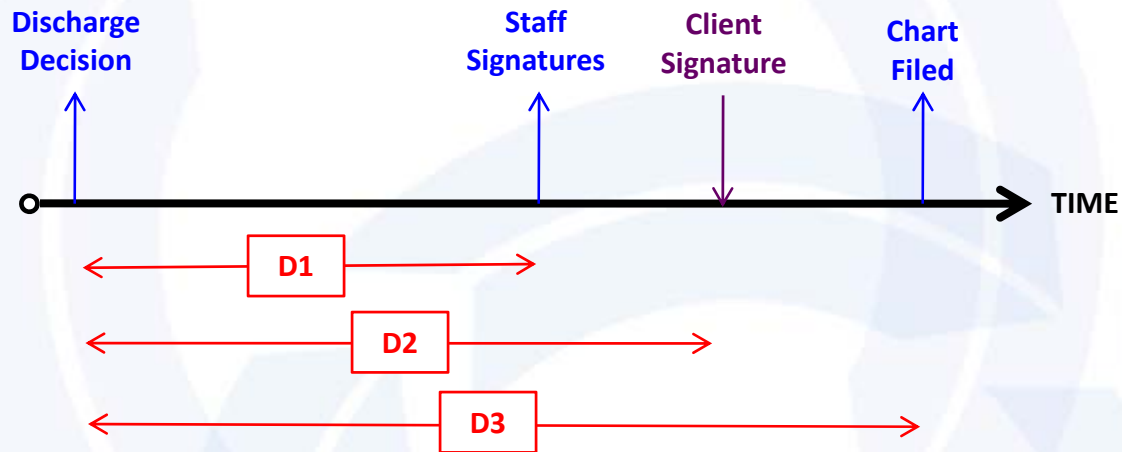
# Conclusion

# Key to Value

- To best understand the impact of EHR  on workflows…
  - Leverage the *appropriate* engineering tools
  - Document all *impactful* events
  - Measure the *right* things
  - View EHR as *one-of-the-team*

# Thank You!

## What can you anticipate?

- Technology Design Issues & Cognizant Technology Use     May 17 (3-4pm)
- Business Case (Cost-Benefit Analysis)     May
- Customization & Training (WAAODA)     May 11
- Technology Implementation Overview (NIATx Summit)     July 11

BACKGROUND   RESULTS   IMPROVEMENT   CONCLUSION

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