Embedding EBP into Lean

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SALEM HEALTH
An OHSU Partner

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

Objectives

1. Compare and contrast the main principles of two health care improvement models – LEAN and EBP.

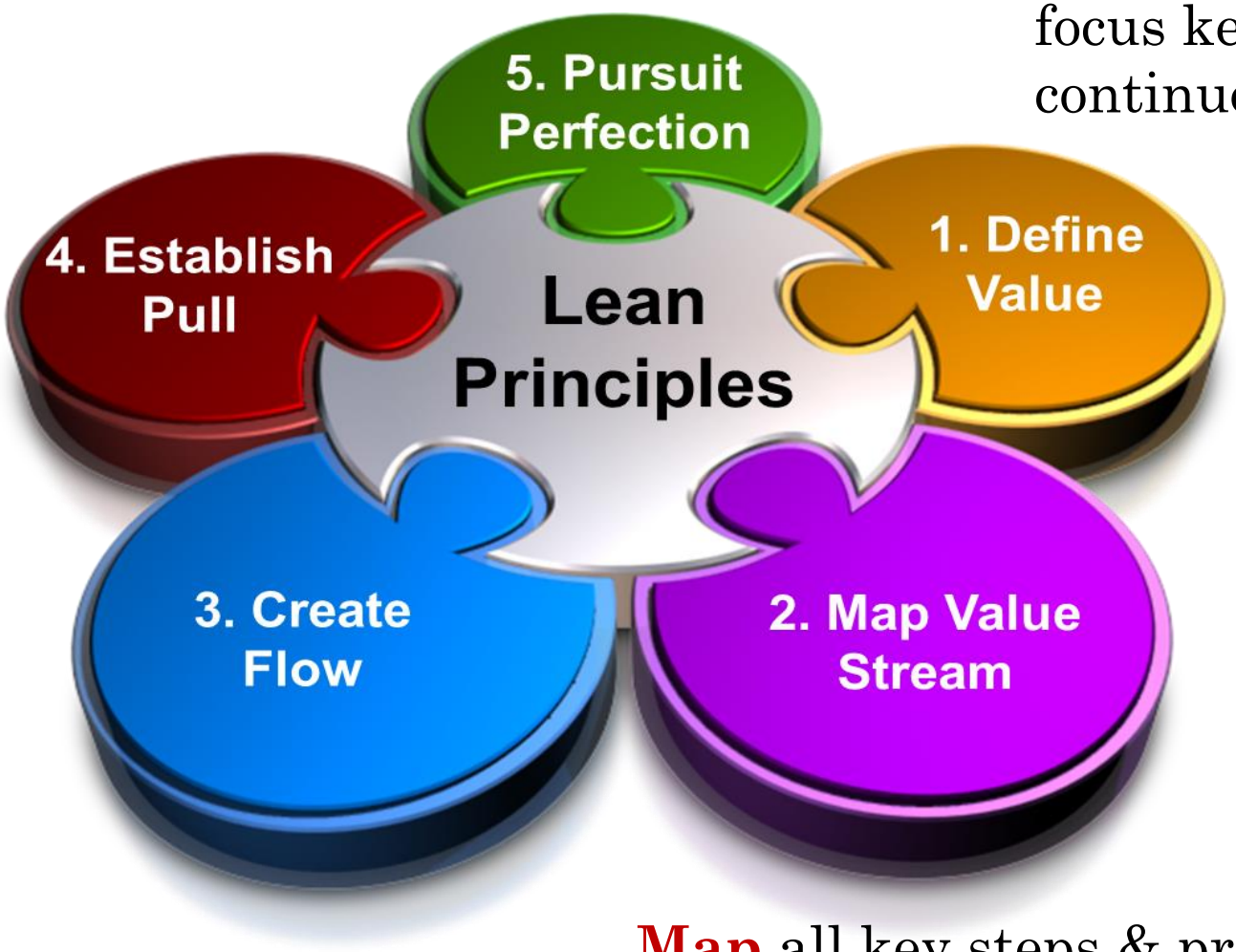
2. Explain how one Magnet organization embedded the search for and consideration of the best evidence in an organizational LEAN problem solving framework.

3. Discuss two clinical improvement projects that blended LEAN thinking with EBP steps and tools.

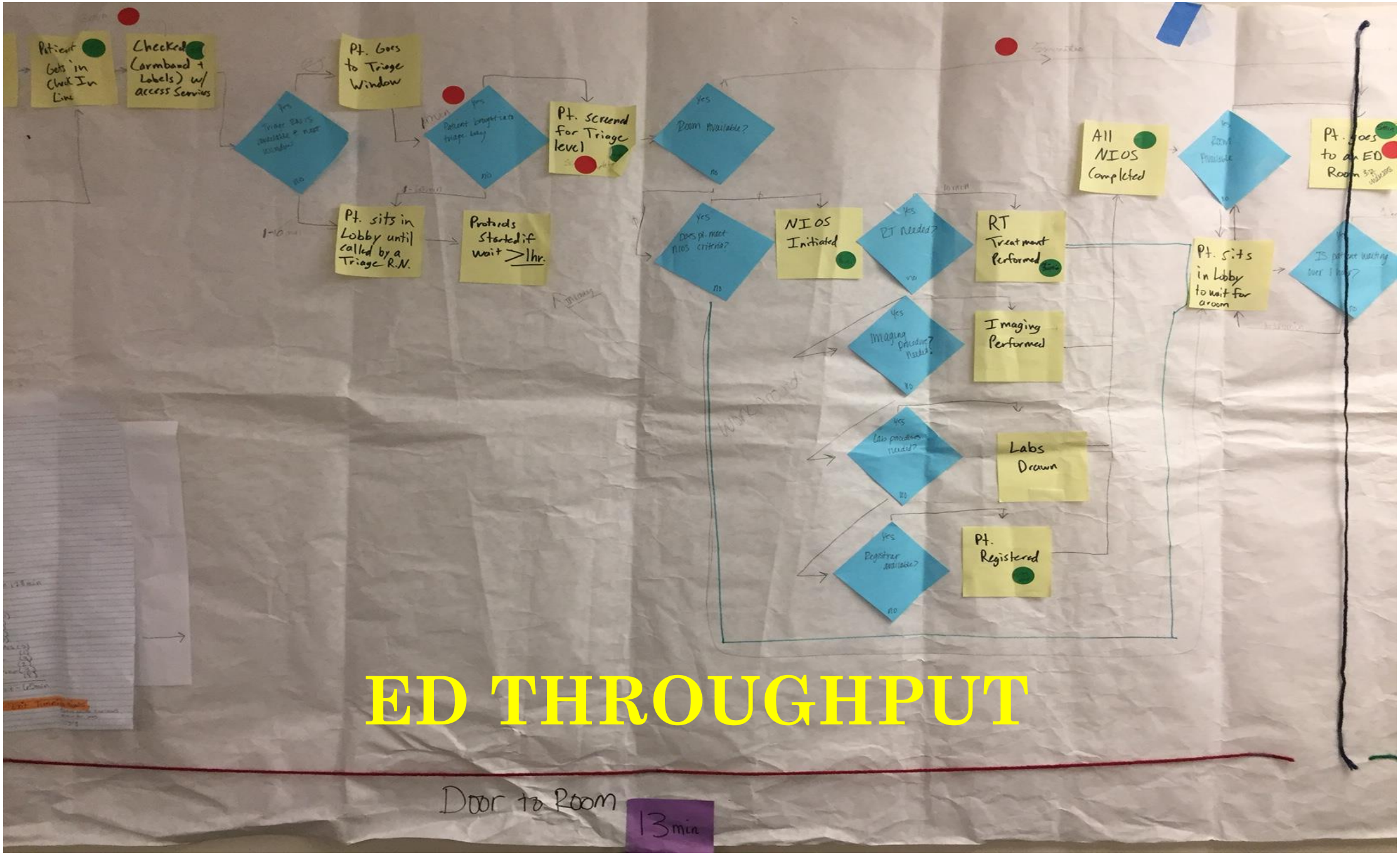
Health Care Improvement Models

Lean … focuses on maximizing **value**
while minimizing ***waste***

Understand value from perspective of patient & focus key processes to continuously enhance it



Map all key steps & processes involved in delivery of care for specific population



ED THROUGHPUT

Lean Problem Solving Image

Do I Have a Problem?

- Investigate the Concern
- What Should be Happening v.s. What is Actually Happening
- What is the measureable gap?
- What is the impact?

5 Why Analysis

Why?
Why?
Why?

Do I know the Root Cause?

- Go See: Directly Observe the Problem
- What is the Point of Cause?
- What is the Direct Cause?
- What is the Root Cause?

Root Cause

Have I Confirmed Cause & Effect?

- Form a Hypothesis
- Experiment to Confirm Root Cause

Counter Measures

Have I Confirmed the Countermeasures?

- Implement Countermeasures
- How will you Check?
- Revision to Standards

Lost improvement ideas due to lack of interest

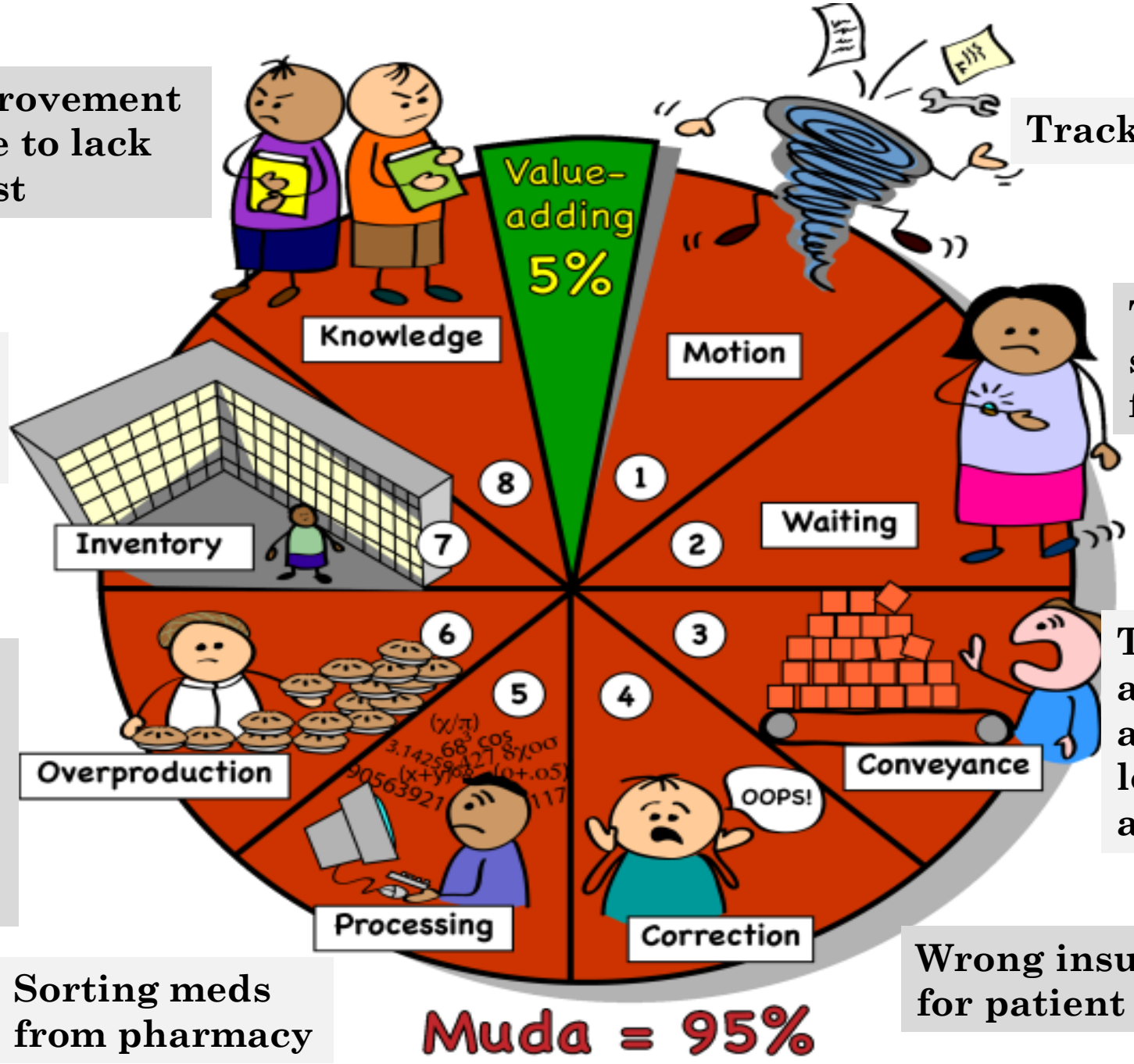
Tracking down supplies

More supplies on hand that may expire

Time patients spend waiting for imaging test

Drawing labs early for staff schedules rather than promoting sleep patterns

Transferring admitted patients to a unit with a similar level of care soon after admission



Sorting meds from pharmacy

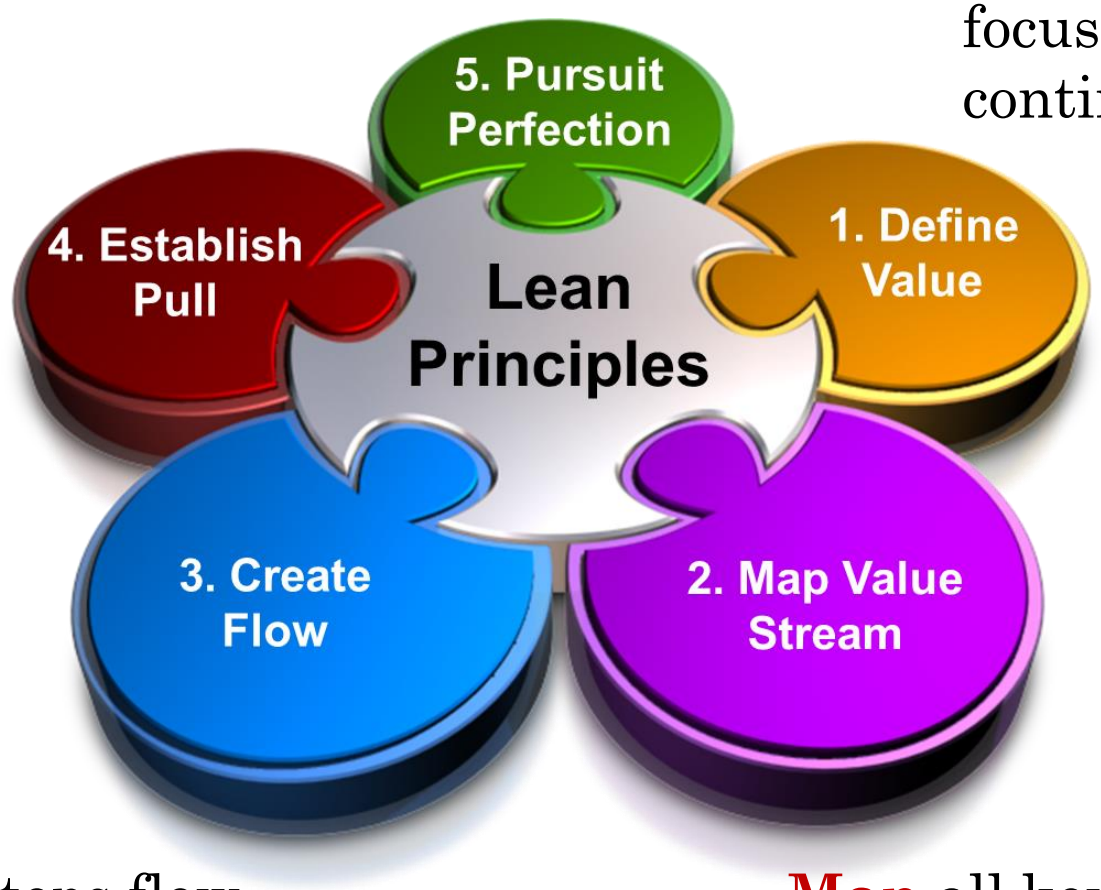
Muda = 95%

Wrong insulin pen used for patient → Med error

Lean thinking & process improvement instilled into culture to make it stick

Understand value from perspective of patient & focus key processes to continuously enhance it

As flow improved, patients pull what they need from next upstream activity

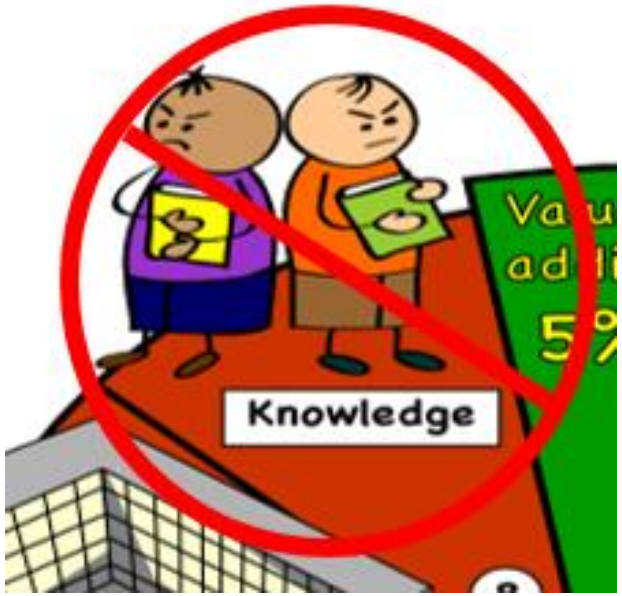


Ensure remaining steps flow smoothly without delays, interruptions or bottlenecks

Map all key steps & processes involved in delivery of care for specific population

EBP… focuses on making decisions through the conscientious, explicit & judicious use of the best available evidence to increase the likelihood of a ***favorable outcome***

KEY EBP PRINCIPLES

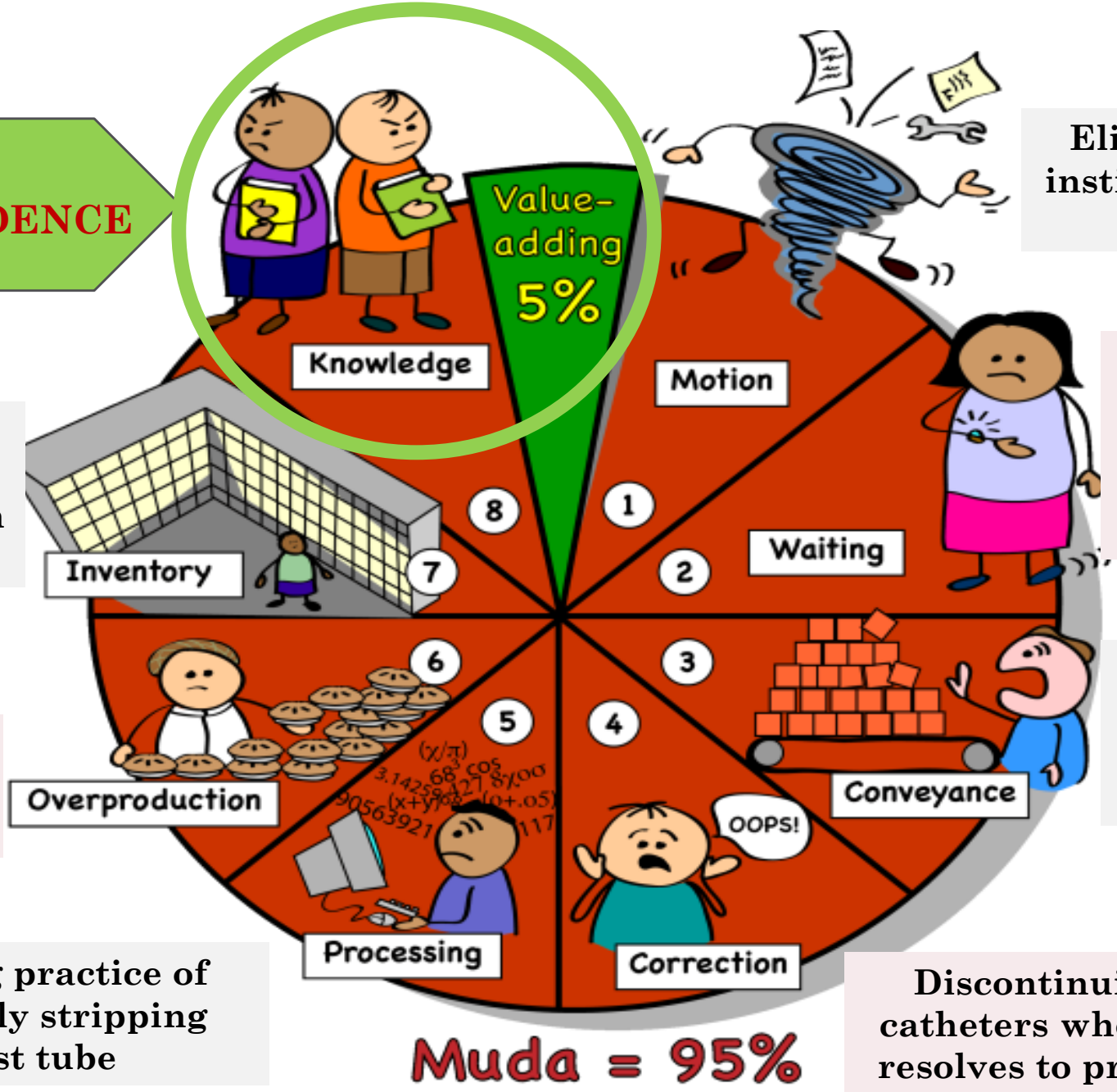


1. **Provide right care for clinical condition based on best available evidence**
   Assessment, diagnostic & treatment options

2. **Eliminate variation by standardizing evidence-based practices**
   Reducing acts of ***omission*** *AND* ***commission***

3. **Match evidence-based options with patient values and preferences**
   Providing patient-family-centered care

UTILIZE BEST AVAILABLE EVIDENCE



Muda = 95%

Eliminating routine instillation of NS with suctioning

Supporting family visits (e.g., family in PACU, children in ICU, during codes)

Providing nursing handoff of essential information on patient transport

Discontinuing urinary catheters when indication resolves to prevent CAUTI

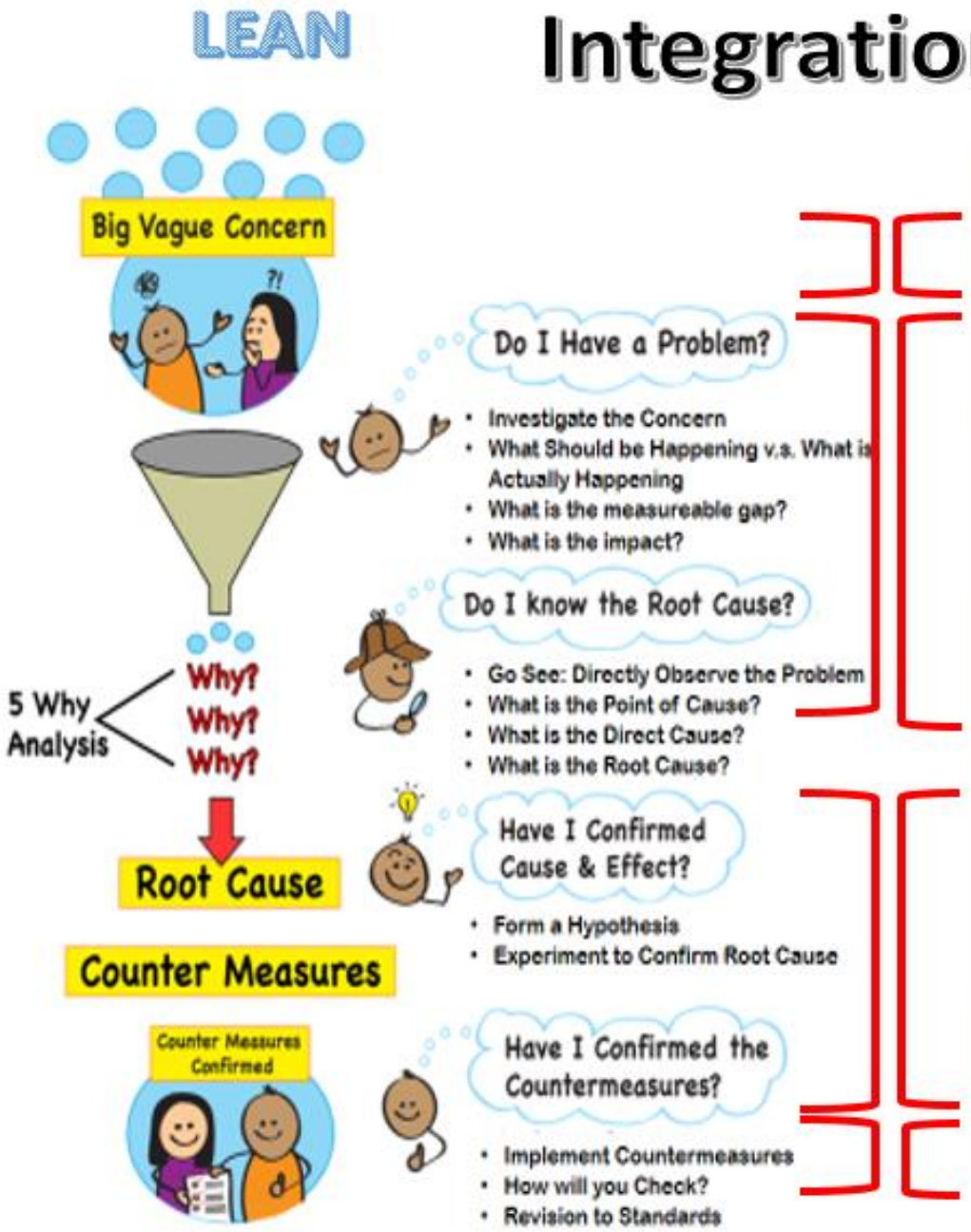
Stopping practice of vigorously stripping chest tube

Scrubbing hub for 5 seconds (not 15)

Using less supplies when changing IVs per clinical condition (not every 72 hours)

Integrated EBP–Lean Model

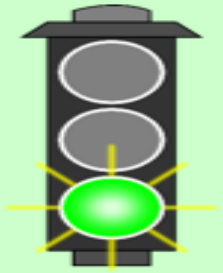
Integration of EBP into Lean



	Evidence-Based Practice Steps
0	Cultivate a spirit of inquiry
1	Ask the PICO(T) question
2	Search for the best evidence
3	Critically appraise and summarize the evidence
	Then reflect on practice: Go & See
	CONSIDER BEST EVIDENCE
4	Integrate the evidence with clinical expertise and patient preferences to make the best clinical decision
5	Evaluate the outcome(s) of the EBP practice change
6	Disseminate Findings

EVIDENCE ANDON

Are we Ready to Change our Practice?

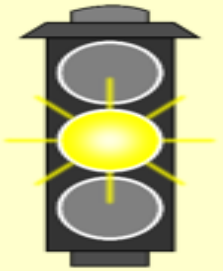


GREEN = GO!

Strong evidence supports this intervention for practice.

Next Steps:

1. Communicate evidence to stakeholders and your leader
2. If not current practice:
   - Prioritize with SPT/leader for timing of implementing practice change
   - Spread to other applicable units/populations

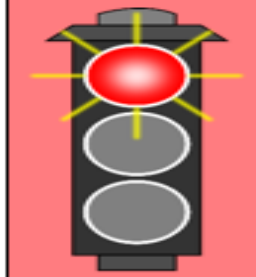


YELLOW = CAUTION!

Sufficient evidence is not available to say whether this intervention is effective or not.

Next Steps:

1. Communicate evidence to stakeholders and your leader
2. Continue current standard of care
3. Use 4SPS for tests of change on other potential evidence-based patient care solutions
4. In absence of evidence, test an intervention via research to generate new knowledge for practice



RED = STOP THE LINE!

Available evidence indicates this intervention is either ineffective or may cause patient harm.

Next Steps:

1. Communicate evidence to stakeholders and your leader.
2. If current standard of care – STOP intervention; update policies/ procedures/protocols.
3. If testing intervention – STOP and continue current standard of care.
4. Use 4SPS for tests of change on other potential evidence-based patient care solutions
5. In absence of evidence, test an intervention via research to generate new knowledge for practice

Evidence Table: ***[project title]***




Project Lead: _____ *Date:* _____

PICO or PS Question (See ❶ below):

Summary of evidence review (See ❷ below):

Summary Grade (See ❸ below): _____

Author/Year/ PMID (See ❹ below)	Design Type (See ❺ below)	Population Studied/ Sample Size (See ❻ below)	Primary Outcome Measure(s)/Results (See ❼ below)	Authors' Conclusion/ Comments (See ❽ below)	*Evid. Level* (See ❾ below)

SEPSIS IMPROVEMENT

Ann Alway, MS, RN, CNRN, CNS

Critical Care Clinical Nurse Specialist

Story Combined Affinity Group Severe Sepsis & Septic Shock

- Financial Experts
- Kaizen Experts
- EPIC Experts
- Physicians: hospitalist, intensivists, ED physicians
- Nurses: ICU, IMCU and ED
- Pharmacist

Surviving Sepsis Campaign:
Updated Bundles in Response to New Evidence

LEAN	EBP
Step 1. Do we have a problem?	Curiosity about past and present evidence
WSBH: 3 & 6 hr bundle **WAH**: 6 & 24 hr bundle **GAP**: fluid administration, Abx administration, bundle compliance **Impact:** mortality, readmission and length of stay	Begin formulating question about problem. **What effect does a combined CMS/EBP approach have upon severe sepsis/septic shock patients length of stay, readmission and mortality?** Search for the best scientific evidence. Integration of business demands.

NPR

March 28, 2017

A vitamin C 'cure' for sepsis? Don't hold your breath

Problem may vary depending upon patient location.

- Emergency Department
- ICU
- Adult Health
- Obstetric

Do we have a problem?

Sepsis Definitions	
SIRS (Any 2)	• Temp > 100.4 or < 95.0 • RR > 20 or PaCO2 <32mmHg • HR > 90 bpm • WBC >12k or <4k or Bands > 10%
Sepsis	• SIRS + Microbial Source
Severe Sepsis	• Sepsis with > 1 Organ System Dysfunction (Hypotension, AMS, Acidosis, Oliguria, ARDS, etc…)
Septic Shock	• Severe Sepsis with Hypotension Unresponsive to Fluid Resuscitation (30cc/kg bolus)
MODS	• > 1 Organ System Requiring Interventional Homeostasis

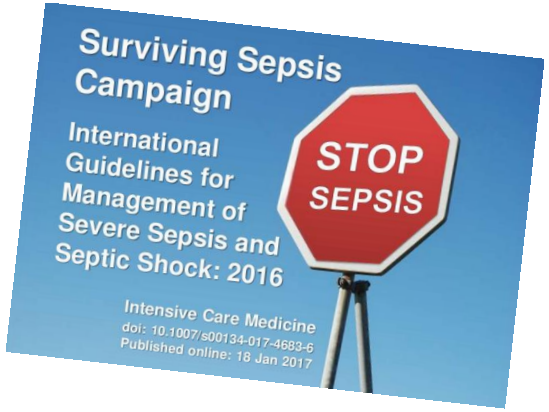
www.rebelem.com R.E.B.E.L.EM

What part of the problem does the team tackle first?

- Patient Safety
  - Early recognition
  - Early Communication
  - New provider order set
  - Collaboration between team members
  - Knowledge Gaps
  - Pathway Implementation
- CMS Business Compliance
  - Instructions for providers
  - Documentation in the electronic chart

Surviving Sepsis Campaign: Updated Bundles in Response to New Evidence (continued)

LEAN	EBP
Step 2. Do I know the root cause?	Critically Appraise and summarize the evidence.
Go-See (ED, ICU, IMCU)	Reflect on practice Go-See
Point of Cause (ED, ICU, IMCU)	Consider Best Evidence
Direct Cause (Disease: severe sepsis, septic shock)	What are the experts saying about this disease?
Root Cause (lack of adherence to EBP/CMS guidelines)	Do author's get to the bottom of problem? Do they provide a response plan?



Surviving Sepsis Campaign: Updated Bundles in Response to New Evidence

LEAN	EBP
Step 3. Have I confirmed cause & effect?	Integrate the evidence with clinical expertise and patient preferences to make the best clinical decision.
Form a hypothesis: If we create a CMS/EBP detailed approach for team members then LOS readmissions rate and mortality will decrease.	Refer back to initial PICO(T) *What effect does a CMS/EBP approach have upon severe sepsis/septic shock patients length of stay, readmission rate and mortality?*
Experiment to Confirm Root Cause	Evaluate outcome(s) of the practice change

Clinical Experiments (Tests of change) Adjustments

- Sepsis Alert in the ED (paper and beeper approaches)
- Paper Pathway (ICU and IMCU)
- Implementation of Electronic Pathway (ICU and IMCU)
- Provider order sets (Intensivists and Hospitalists)
- Protocols for Lactate draws.
- Antibiotic selection and administration (Stewardship)
- Fluid delivery at 30mL/Kg for Lactates 4 or above or hypotension (Sys 90 mmHg or MAP below 65 mmHg

Surviving Sepsis Campaign: Updated Bundles in Response to New Evidence

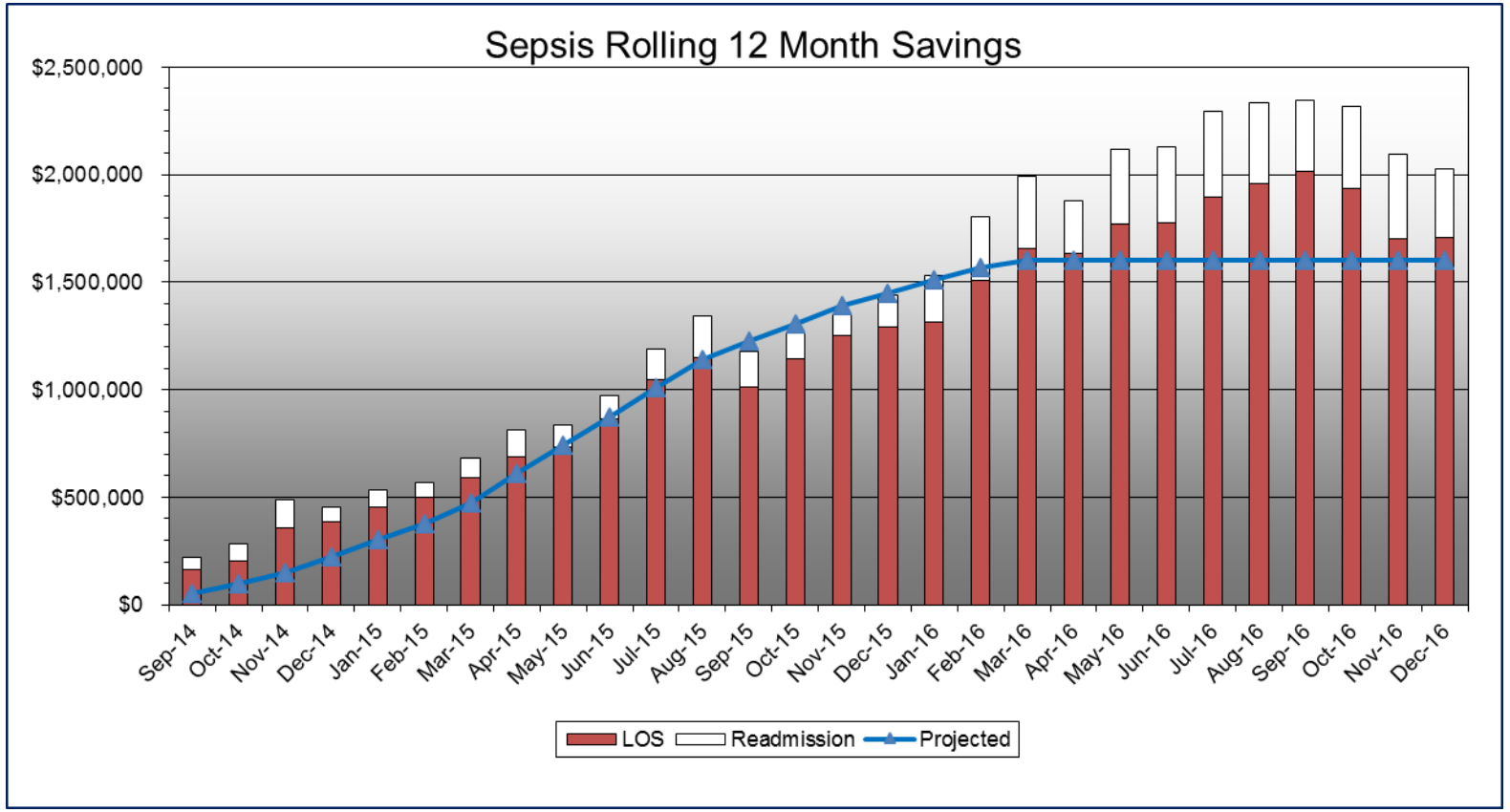
LEAN	EBP
Step 4 Have I confirmed the counter measure	Evaluating outcomes
Checking (fixed intervals)	Evaluating outcomes
Adjusting	Disseminating Findings
Revision of structures	Disseminating Findings

	Baseline	After 1y	After 2y
Length of Stay SvS (days) SSH (days)	 7.46 9.51	 6.69 ⇓ 8.14 ⇓	 6.32 ⇓ 8.01 ⇓
Readmission Rate SvS SSH	 17.6% 20%	 15.1% ⇓ 18% ⇓	 12.9% ⇓ 18%

Sepsis Affinity Sustainment Plan & Transition to Sepsis Leadership Committee

TOC	Outcome metric	Checking cadence	Who checks	How check/Where data from
Risk Assessment	90% risk assessments done correctly	weekly	Unit nursing leaders	Epic chart audits
Clinical Pathway	80% pathway used	weekly	Unit nursing leaders	Epic chart audits
Sustain and Operate				
Continue "Sepsis Leadership Committee"	Sierra, Krista, Beckie as committee leaders. Cheeri Barnhart/Seunghyo Hong as nurse leader oversight. Zennia as backup leadership support. Members: Dr. Marvel, another intensivist, Dr. Martin Johnson, Dr. Gramenz, Sierra Schneider, Ann Alway, Matt Tanner, Beckie Sparks, Seunghyo Hong, Brenda Crawford, Dr. Kaur , Krista Hackstedt, Raven Layton.			
ED sepsis screening tool	80% usage of screening tool		Jill/Beckie	C1958
ED Severe Sepsis Alert	80% usage		Jill/Beckie	C1972
IP Adult Sepsis OS	50-70% orderset usage		Dr. Kaur & Dana Werhli	C1056x, os # 88 (ICU) and 431428 (hospitalist)
3 and 6 hour bundle compliance	80% compliance		Sierra	C2273a
MEWS	80% charge RN check in on nurses who have patients with MEWS > 6		RRT	Via RRT rounding
Lactic Acid Panel	50% 2nd LA ordered in 6 hours		Sierra	chart audit

Financial Successes



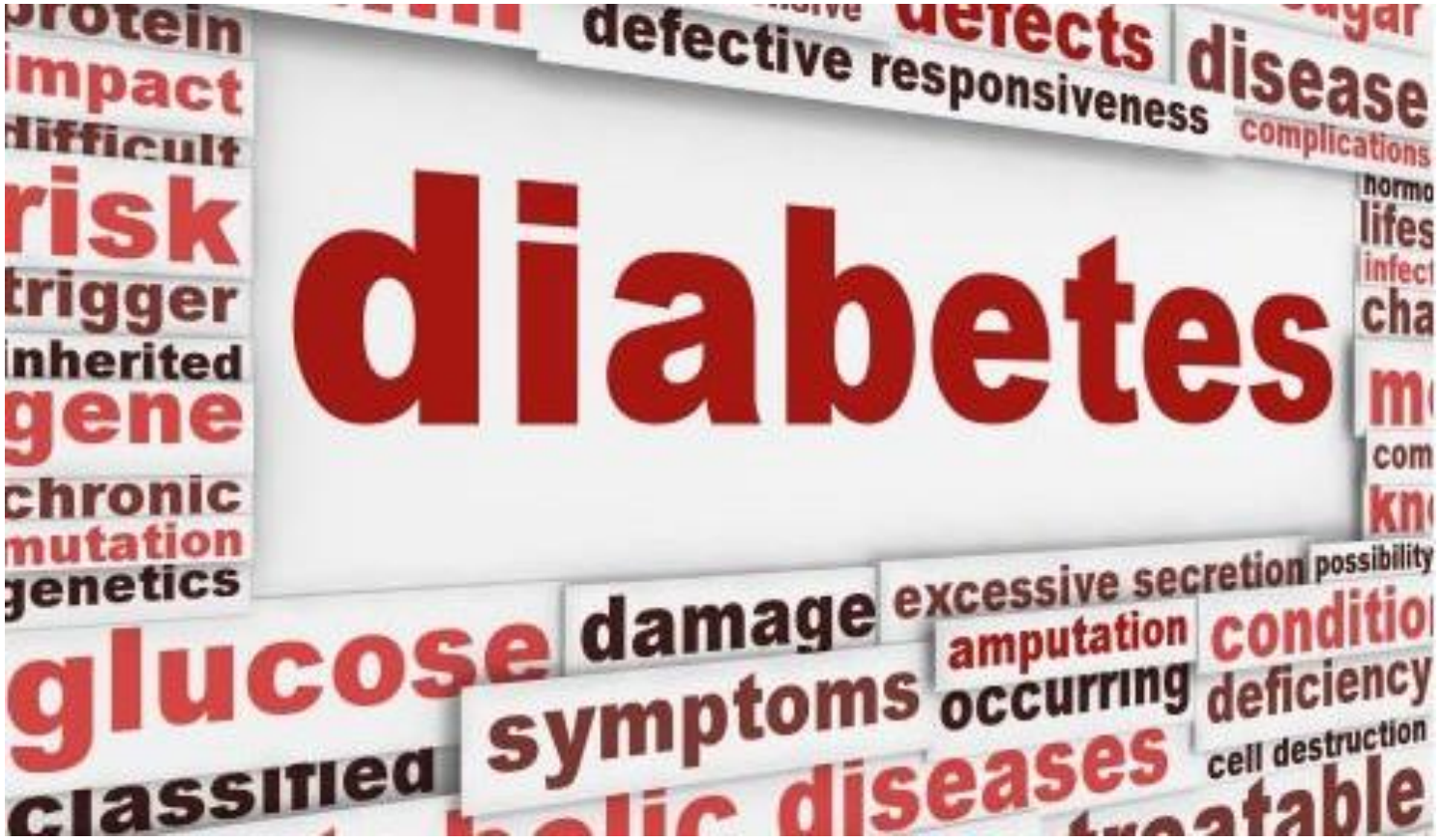
Financial and Scientific Success

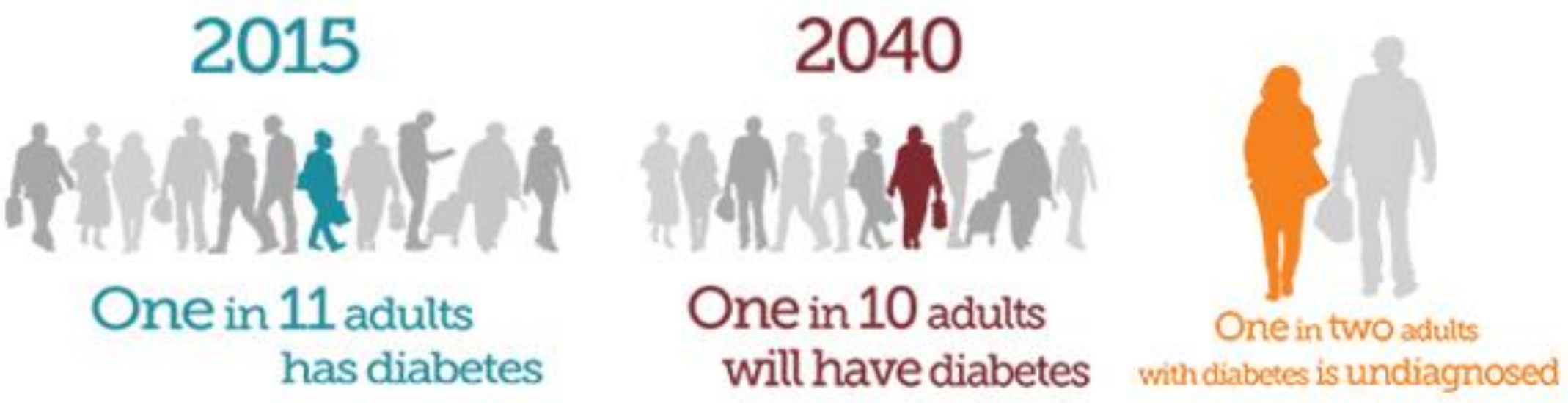
DIABETES IMPROVEMENT

Sandra Bunn, MSN, RN, CNS-PP, ACNS-BC, CDE, BC-ADM

Diabetes Clinical Nurse Specialist

Diabetes at Salem Health vs U.S.





At Salem Hospital—in our initial data gathering period—37% of patients admitted to SH had a diabetes diagnosis. (2014-15)

Additionally, 34% of patients were diagnosed with diabetes or hyperglycemia, while in the hospital.

LEAN/EBP and New Program development

BIG VAGUE CONCERN(S)

- Patients with diabetes are staying longer, readmitting more frequently and don't know how to care for themselves.
- Nursing staff with multiple questions and concerns on caring for patients with diabetes.
- Physicians demonstrated great variability in how they are caring for patients with diabetes.

Do we have a problem?

- Conducted a 4 Step Process to identify needs
- Searched the evidence for best practice recommendations
- Prioritize approaches—what do address first? How? Who?

What Should Be Happening?

LEAN

- **WSBH:** Patients should be prepared for DC using EB order sets and programmed education approaches prior to discharge.
- **WSBH:** Patients should have solid follow up plan including contact with care provider who has knowledge of patient's most recent hospitalization, diabetes diagnosis and treatment plan

EBP

- JCAHO and ADA and AACE all recommend consistent order sets, discharge follow up within specific period of time and education regarding medications and DSME

LEAN

- **WAH: Great variability in**
  - IP management of diabetes by providers
    - Insulin orders
    - Lab orders
  - Diabetes patient discharge process.
  - Medication teaching
  - Prescriptions.
  - Follow up.
- **Direct Causes**:
  - Lack of a standard
  - Lack of a system to support patients—not enough providers or appointments
  - Lack of education for staff and providers.

EBP

- **Critically Appraise and summarize the evidence.**

Reflect on practice Go-See—gathered data around how many patients received ALL needed discharge prescriptions (i.e.: needles, test strips)

Surveyed bedside nurses regarding confidence in teaching about insulin etc.

Consider Best Evidence

What are the experts saying about treatment of diabetes?

GAPs

- Physicians admitting patients to Salem Hospital with a diagnosis of diabetes were using the Adult Diabetes Order Set 3.7% of the time
  - GAP 96.3% opportunity to increase use of diabetes specific order sets.
- Wide variability in how patients were discharged from the hospital including discharge medication teaching, appropriate diabetes supplies prescriptions and scheduled follow up were not consistent with any evidence based recommendations—
- RESULT-high readmission and ED re-encounters

Impact of Gaps

- Ineffective treatment regimen, no education and no follow up plan.
- Readmission Rate 19.0%
- Length of Stay: 5.14 days
- ED re-encounter: 39%

Test of Change

Will a dyad model and dedicated resources have a positive impact on overall care and subsequent outcomes for diabetes patients?

HYPOTHESIS:

If patients with diabetes received evidence-based standardized care and education in the hospital and timely appropriate follow up after hospitalization, then there will be a reduction in the variation of care for patients with diabetes, a reduction in the time their course of treatment requires and a reduction in avoidable readmissions/ ED re-encounters

Diabetes SELF-MANAGEMENT

RESULTS-30 patient sample

	Baseline**	30 Sample	Savings	Cost Savings
LOS	5.14	4.17	0.97 days per patient	$39,000
Readmission Rate*	19.0%	8.0%	3 readmissions	$19,000
ER Re-encounter*	39.0%	28.0%	3 ER visits	$3,000
* All cause readmission and ER re-encounter within 30 days				
** Case mix adjusted 6-month sample of diabetics with same coding outcomes				

More useful information (30 patient sample)

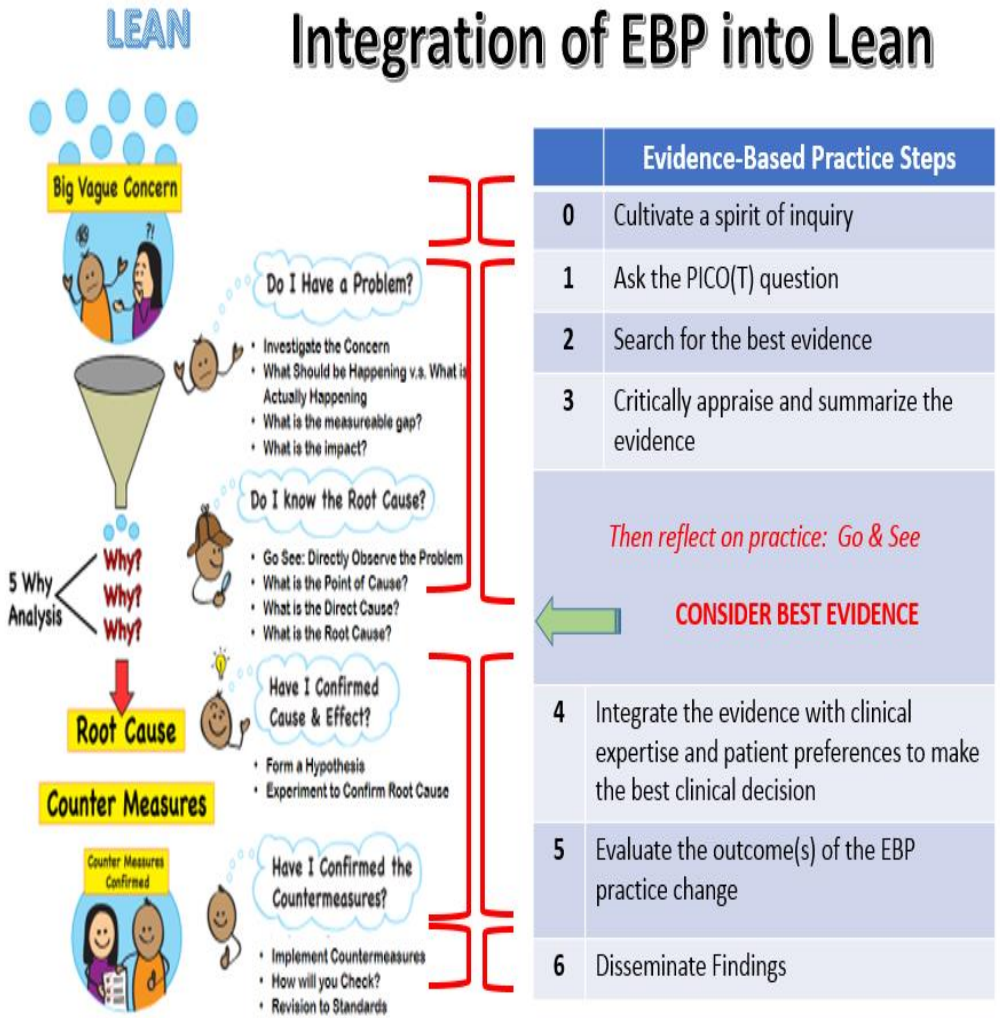
	# of Patients	% of Patients
New to insulin	14	47%
Newly diagnosed Type 1	3	10%
Newly diagnosed Type 2	5	17%
Type 1 (new and previously dx)	7	23%
Discharge Barriers	13 (18 different barriers)	43%
No PCP	8	27%
No Insurance	2	7%
Medication	8	27%
Transition Care Follow-up	5	17%

Counter Measures Overall

- Provider order sets—ongoing check and adjust
- Standardized referral process for CNS/NP and Diabetes Education
- Presented proposal to ELC for establishment of Glycemic Management Team
  - Hiring for additional APRNs and Diabetes Educators
- Establishment of OP Diabetes Clinic for up to 60 day follow-up
- Further development of Diabetes Champions for individual units and Diabetes Resource Nurse plan.

Key Learnings

INTEGRATION OF MODELS IS POSSIBLE



- <u>Collaboration</u>
  Bringing experts together

- <u>Continuous learning mindset</u>
  - Learning from colleagues
  - Challenging new ways of thinking/ approaching problems
  - Developing common language

- <u>Persistence</u>
  Staying the course

GREATER VALUE FOR PATIENTS & STAFF

By challenging ourselves to break down improvement silos –
We improve the quality of our clinical problem solving

- Escalate clinical effectiveness of care
- Increase efficiency of workflows
- Reduce waste in the value stream
- Engage nurses and interprofessionals in owning & advancing their practice

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Discussion

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