

Increasing the Quality in High Value Care

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Disclosures

- No relevant commercial relationships to disclose.

Learning Objectives

At the conclusion of this session, participants should be able to:

- Describe high value care in the context of overuse and underuse of medical services
- Explain the connection between quality improvement and high value care in the hospital setting
- List at least one hospital acquired infection where quality improvement work has successfully improved quality, safety, and value of care

Value ≠ Cost

$$\text{Value} = \frac{\text{Quality}}{\text{Cost}}$$

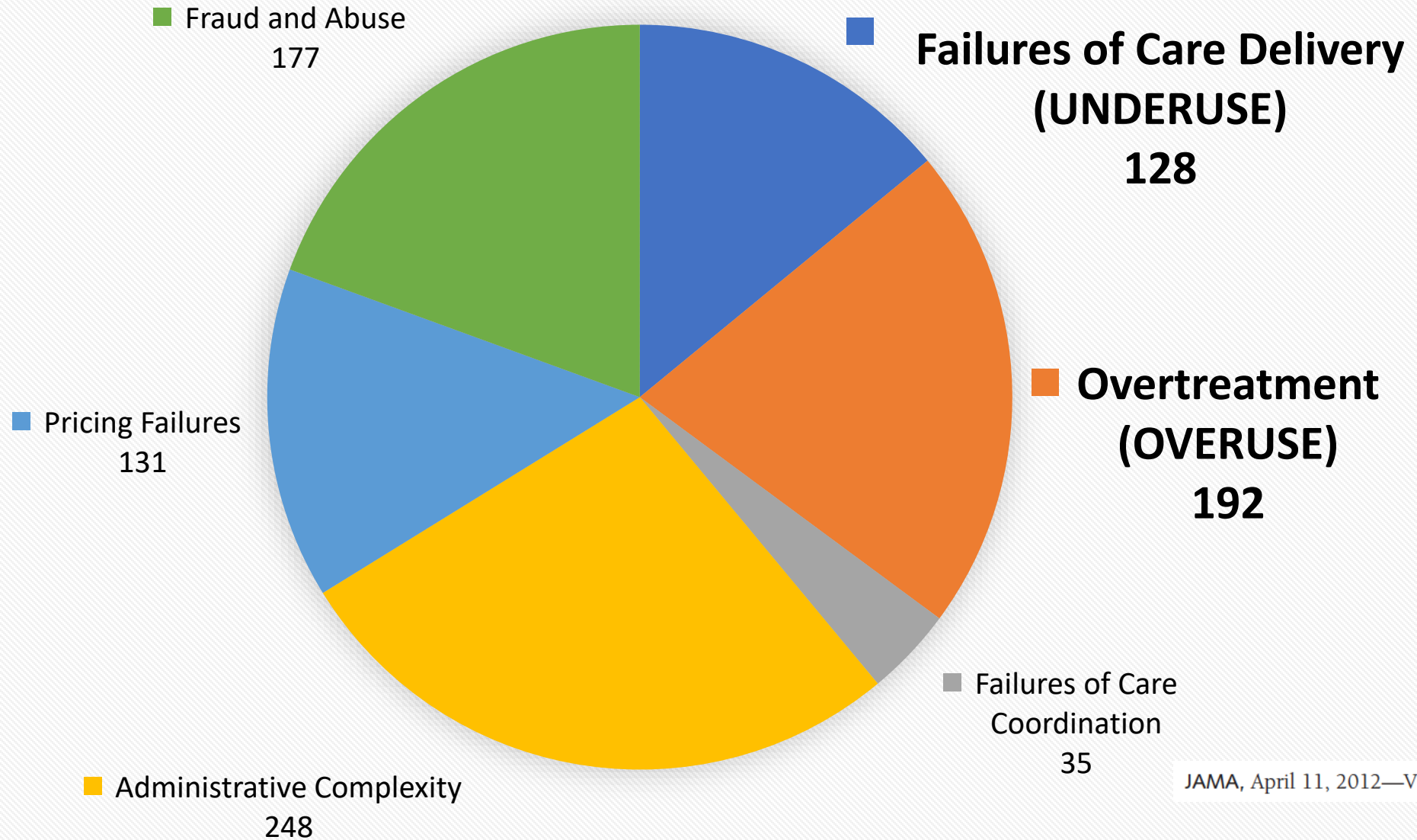
Patient Outcomes
Patient Experience
Patient Safety

Direct Harm
Downstream testing
Financial Toxicity

Institute of Medicine: “the best care for the patient, with the optimal result for the circumstances, delivered at the right price...”

APPROXIMATELY 30% OF HEALTHCARE SPENDING IS WASTE

Annual Cost to US Health System in 2011 (\$ in Billions)



Berwick estimated the US wasted \$158 - \$226 billion on Overuse in 2011

- Direct evidence:

- Approximately 14 million inappropriate pap smears performed in 2010

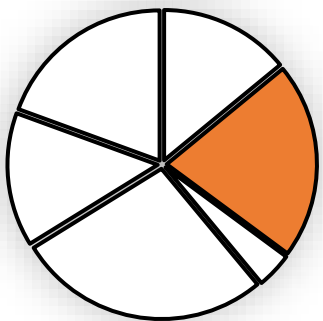
JAMA Internal Medicine. 2014; 174(2)

- Imaging studies done early in course of LBP (22.4% XR, 6.7% MRI)

JAMA. 2015; 313(11)

- Meta-analysis estimated 45% of patients with asymptomatic bacteriuria treated

Open Forum Infect Dis. 2017

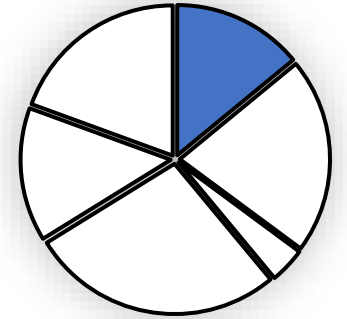


Cents and Sensitivity — Teaching Physicians to Think about Costs

Lisa Rosenbaum, M.D., and Daniela Lamas, M.D.

Put simply, helping a patient become well enough to climb the stairs to his apartment is meaningless if our care leaves him unable to afford that apartment.

Underuse and failures of appropriate care delivery were estimated to waste \$102 - \$154 billion in 2011



- 50-60% of patients receiving recommended preventative care, acute care, or care for chronic conditions

N Engl J Med. 2003; 348(26)

- The Case for Quality Improvement:

- Cost of QI project implementation for CLABSI and VAP: \$3,375 per infection averted
- Cost per infection: \$12,000 – 56,000

Am J Med Qual. 2011; 26(5)

- The Case for Palliative Care

- Inpatient services can reduce hospital costs and improve patient symptoms
- Community-based services can reduce hospitalizations and improve patient symptoms

J Pain Symptom Manage. 2015; 50(6)




Using our HVC definition, improving the quality of care improves the value of care

$$\uparrow \text{Value} = \frac{\text{Quality} \uparrow}{\text{Cost}}$$

Some high value interventions that improve quality of care will cost money, some will save money → if they increase quality of care substantially than they may still be considered HIGH VALUE

Hospital acquired infections are an important and publicly reported quality improvement metric for hospitals

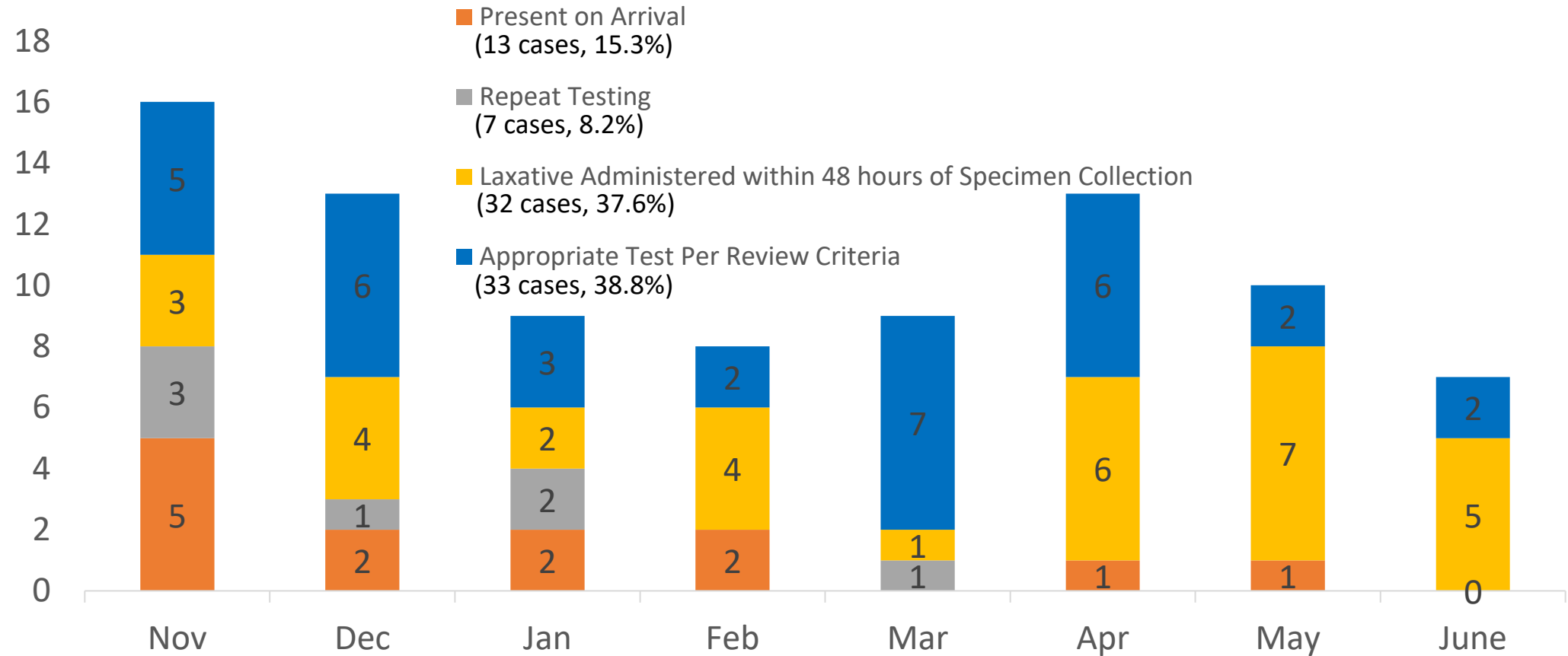
- CLABSI
- CAUTI
- C. difficile
- VAE
- SSI
- MRSA bacteremia

	Lovelace Women's Hospital (505) 727-7805 	University of New Mexico Hospital (505) 272-2111 	Presbyterian Hospital (505) 724-8386 
<p>Central line-associated bloodstream infections (CLABSI) in ICUs and select wards</p> <p>↓ Lower numbers are better</p> <p>National benchmark: 1.000</p>	<p>0.393</p> <p>No different than national benchmark</p>	<p>0.543</p> <p>Better than the national benchmark</p>	<p>1.043</p> <p>No different than national benchmark</p>
<p>Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards</p> <p>↓ Lower numbers are better</p> <p>National benchmark: 1.000</p>	<p>1.004</p> <p>No different than national benchmark</p>	<p>0.713</p> <p>No different than national benchmark</p>	<p>2.323</p> <p>Worse than the national benchmark</p>
<p>Clostridium difficile (C.diff.) intestinal infections</p> <p>↓ Lower numbers are better</p> <p>National benchmark: 1.000</p>	<p>0.430</p> <p>Better than the national benchmark</p>	<p>1.004</p> <p>No different than national benchmark</p>	<p>0.880</p> <p>No different than national benchmark</p>

A deep dive into how overuse can negatively impact quality: Testing in Cdiff



Diagnostic stewardship at UNM showed a pattern of potentially inappropriate testing



Because of the characteristics of Cdiff tests, inappropriate testing can lead to FALSE POSITIVE RESULTS



C. difficile

GDH Antigen tests this

PCR tests this



Toxigenic



Non-toxigenic



Active Toxin



*No active toxin = colonization



Non-toxin producing

Toxin Assay tests this

As of now, it is NOT standard of care to treat someone who does not have the syndrome of infection (i.e. treatment of colonization)

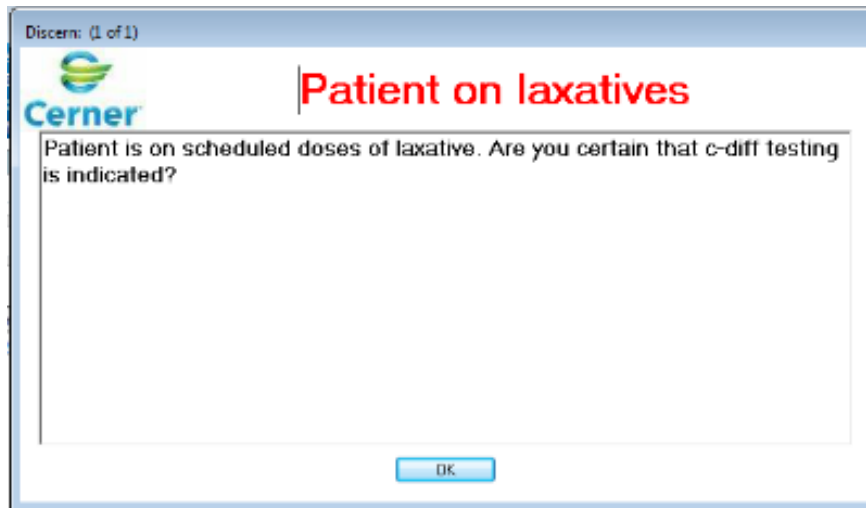
Because of the characteristics
of Cdiff tests, inappropriate
testing can lead to FALSE
POSITIVE RESULTS

Cdiff testing is complex, but most
hospitals now include some form of
PCR testing which can detect Cdiff
colonization. Colonization rates can
be as high as 50% in long-term care
residents!

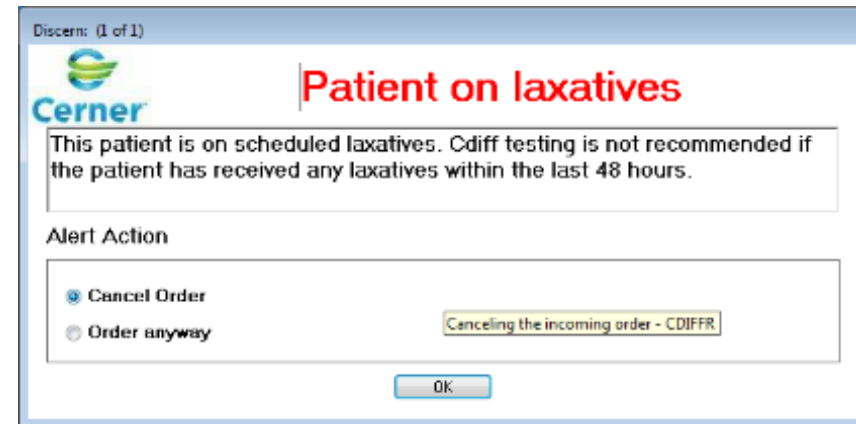
How could we reduce
Cdiff rates??

Implementation of SOFT stops on repeat testing (7d) or laxatives (48h) reduced testing only small amount

Alert before change (4/10/17 through 10/22/18)




Alert after change (10/22/18 through present)



	Number of Alerts N	C diff Test Ordered		C diff Test Discontinued	
		n	%	n	%
Before change to EMR alert (8.10.18 – 10.22.18)	136	107	79	29	21
After change to EMR alert (10.23.18 – 1.29.19)	159	112	70	47	30

Implementation of HARD stops led to greater change in practice

Discern: (1 of 1)



Patient on laxatives

Your patient does not meet criteria for C diff testing due to the patient receiving laxatives in the last 24 hours. (senna 8.8 mg, July 09, 2019 15:01:00 MDT)

If C diff testing is clinically indicated, call the hot seat pathology resident (see AMION) to discuss testing.

- Senna
- Polyethylene glycol 3350
- Lactulose
- Bisacodyl

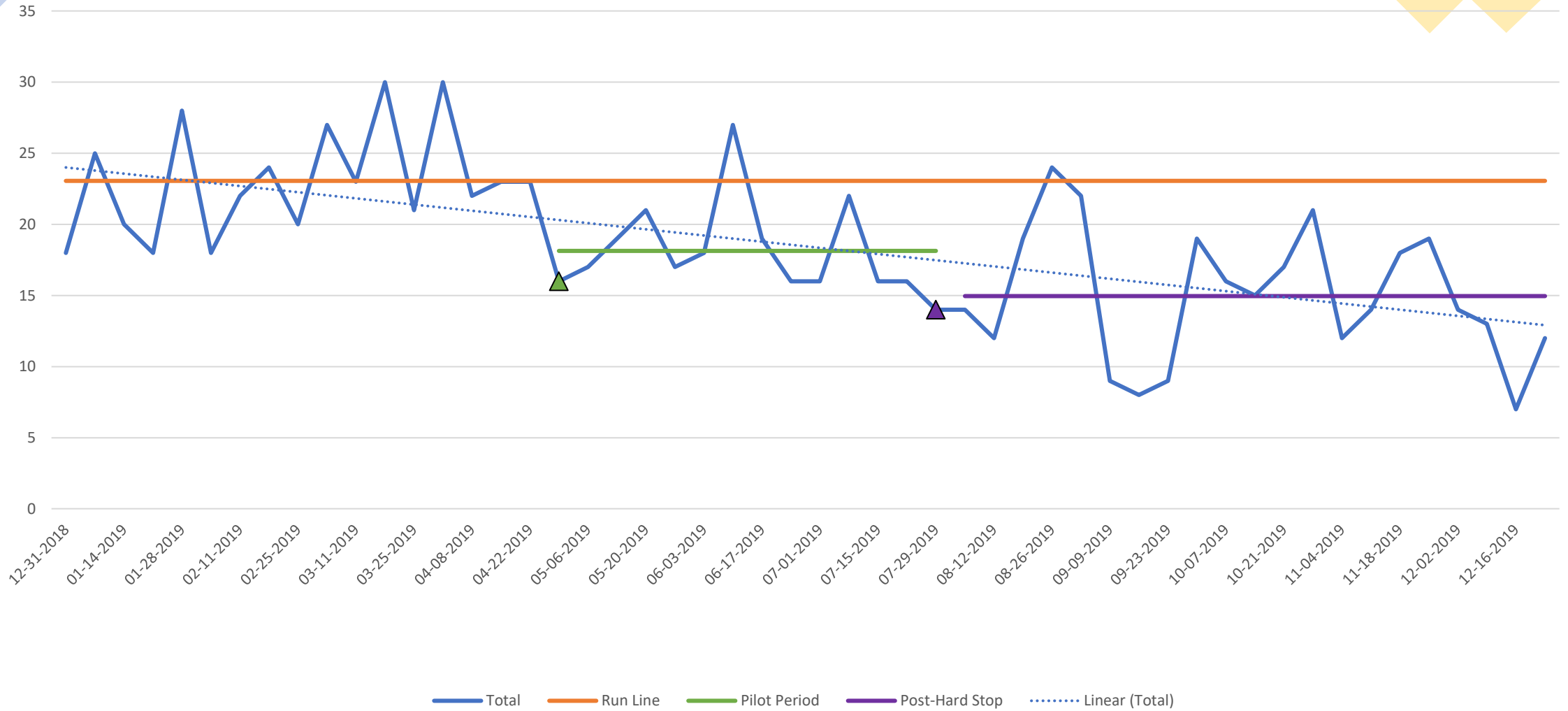
OK



August-December 2019:

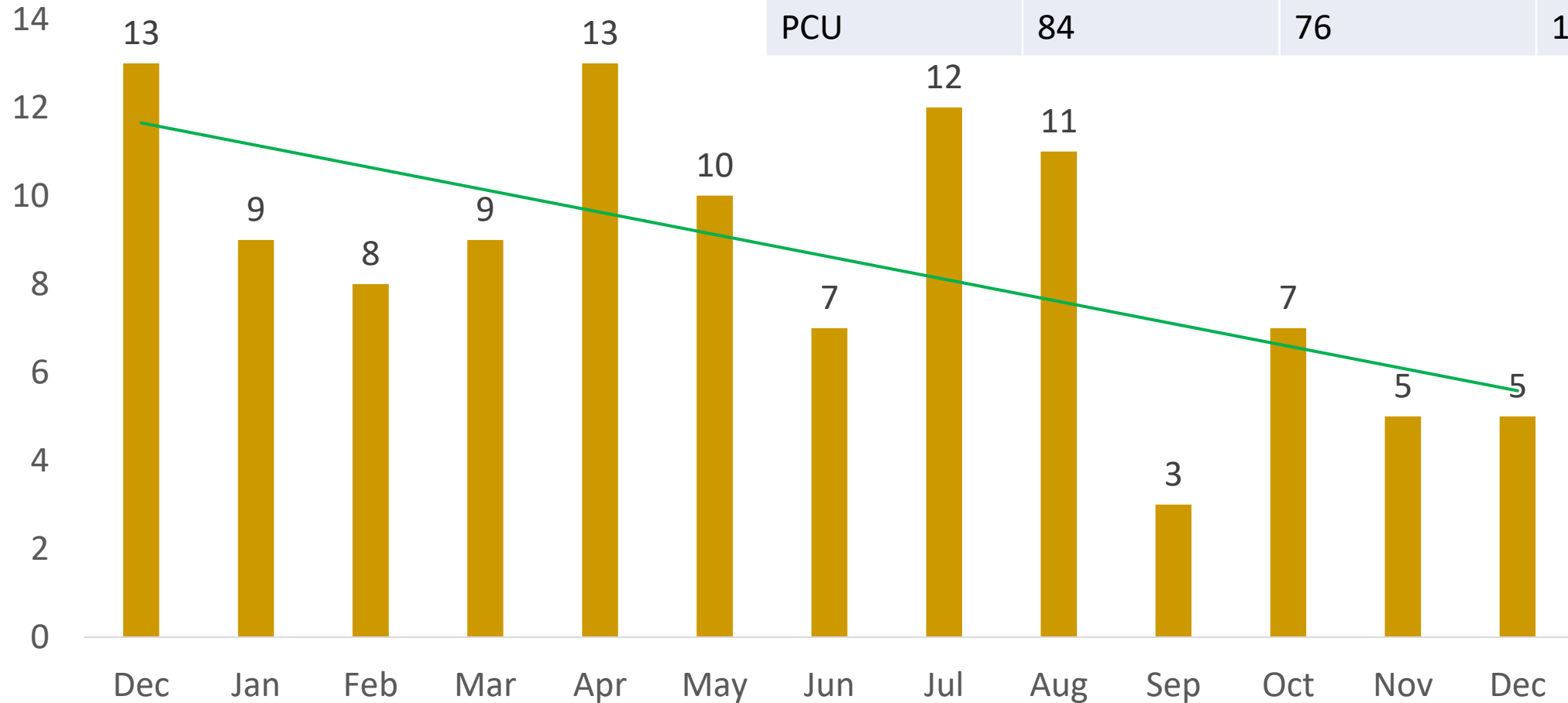
- ~ 9 hard stop calls
- 0 positive tests

Reduction in Total Inpatient Cdiff Orders By Week



Total Hospital Onset C. difficile Infections FY19-FY20

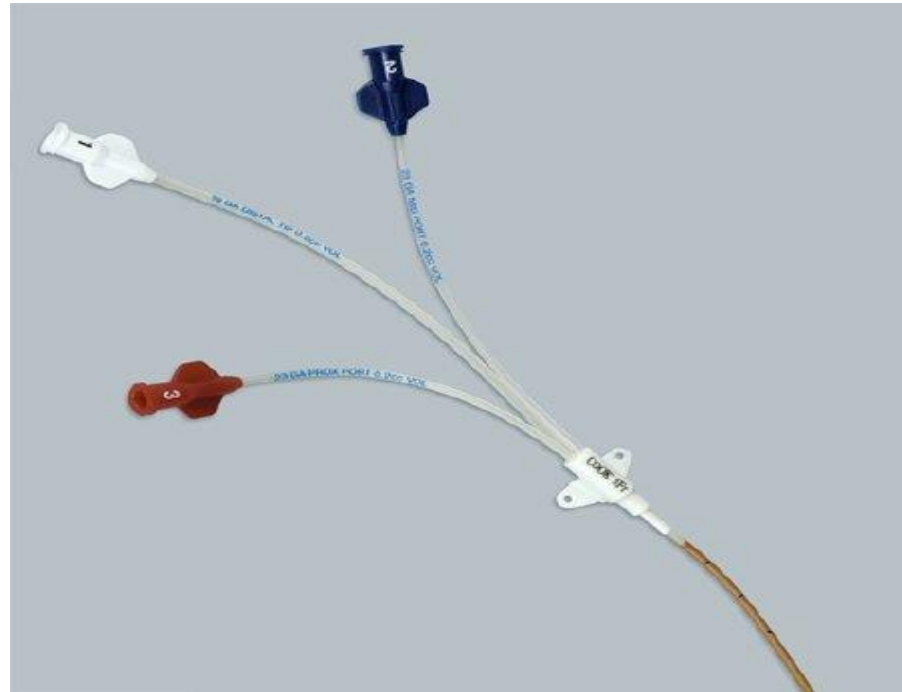
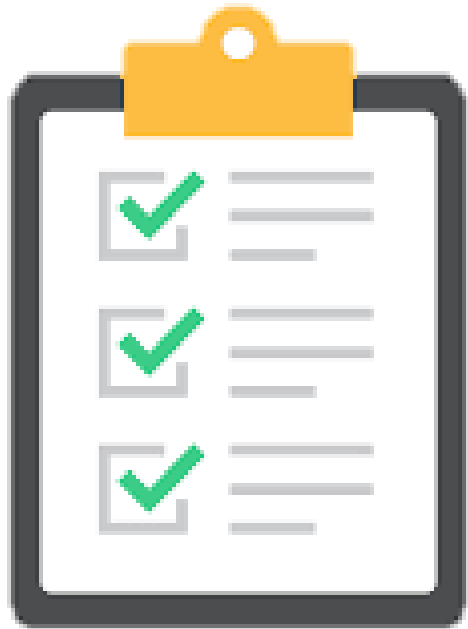
Location	2018	2019	% Change
ICU	51	17	67% decrease
PCU	84	76	10% decrease



★ Hard stop



A deep dive into how underuse of known interventions can impact quality: Using a Checklist to ensure known safety protocols are followed to reduce CLABSI rates



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An Intervention to Decrease Catheter-Related Bloodstream
Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinopoli, M.P.H., M.B.A.,
Haitao Chu, M.D., Ph.D., Sara Cosgrove, M.D., Bryan Sexton, Ph.D., Robert Hyzy, M.D., Robert Welsh, M.D.,
Gary Roth, M.D., Joseph Bander, M.D., John Kepros, M.D., and Christine Goeschel, R.N., M.P.A.

Central Line bundled care in ICU reduces CLABSI

Population:

- Multicenter prospective study in Michigan ICUs, academic and non-academic, large and small
- 1981 ICU-months; 375,757 catheter-days

Intervention:

- CDC best practices: hand washing, full barrier precautions, cleaning skin with chlorhexidine, avoiding femoral, removing unnecessary catheters
 - Procedures stopped if protocol not followed
 - Central-line cart with necessary supplies
 - Removal of catheters discussed at daily rounds
 - Team feedback

Comparison:

- Pre-/post-

Table 4. Incidence-Rate Ratios for Catheter-Related Bloodstream Infections.*

Variable	Incidence-Rate Ratio (95% CI)	P Value
Study period		
Baseline	1.00	
During implementation	0.76 (0.57–1.01)	0.063
After implementation		
0–3 mo	0.62 (0.47–0.81)	0.001
4–6 mo	0.56 (0.38–0.84)	0.005
7–9 mo	0.47 (0.34–0.65)	<0.001
10–12 mo	0.42 (0.28–0.63)	<0.001
13–15 mo	0.37 (0.20–0.68)	0.001
16–18 mo	0.34 (0.23–0.50)	<0.001
Teaching hospital	1.34 (0.73–2.46)	0.35
Bed size (per 100 beds)	1.03 (0.97–1.09)	0.33

* Incidence-rate ratios were calculated with the use of a generalized linear latent and mixed model (Rabe-Hesketh and Skrondal¹⁸), with robust variance estimation and random effects to account for clustering of catheter-related bloodstream infections within hospitals and clustering of hospitals within geographic regions. Rates of catheter-related bloodstream infection during and after implementation of the study intervention were compared with baseline (preimplementation) values, adjusted for the hospital's teaching status and number of beds.

How does reducing CLABSIs increase value?

$$\text{Value} = \frac{\text{Quality} \uparrow}{\text{Cost} \downarrow}$$

- Up to 80,000 infections per year
- Up to 28,000 deaths per year
- \$45,000 per infection (\$2.3 billion)

Medical Professionalism in the New Millennium: A Physician Charter*

Project of the ABIM Foundation, ACP-ASIM Foundation, and European Federation of Internal Medicine*

*Physicians and APPs – we are in this together for our patients!!

Commitment to a just distribution of finite resources. While meeting the needs of individual patients, physicians are required to provide health care that is based on the wise and cost-effective management of limited clinical resources. They should be committed to working with other physicians, hospitals, and payers to develop guidelines for cost-effective care. The physician's professional responsibility for appropriate allocation of resources requires scrupulous avoidance of superfluous tests and procedures. The provision of unnecessary services not only exposes one's patients to avoidable harm and expense but also diminishes the resources available for others.

Take Home Points

- Increasing the VALUE of care is not synonymous with reducing the cost of care
- OVERUSE of unnecessary services and UNDERUSE of proven interventions can lead to low value care
- Reducing Hospital Acquired Infections (HAIs) can simultaneously increase the quality of care and reduce long-term costs of care

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Questions?

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