

Adventures in Laboratory Stewardship

Improving Quality and Care
while Lowering Cost



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Speaker Disclosure



None

Opportunities to...



- ❧ Improve Quality & Patient Safety
- ❧ Enhance Patient Care and the Patient Experience
- ❧ Increase Laboratory Efficiency and Effectiveness
- ❧ Decrease Cost
- ❧ Enhance Your Position on Healthcare Delivery Teams

Addressing the IOM's Charge



- ❧ Crossing the Quality Chasm: A New Health System for the 21st Century
 - ❧ The IOM defined quality health care as “*safe, effective, patient-centered, timely, efficient and equitable.*”
 - ❧ Evidence-based, *patient-centered* test utilization practices, particularly those deployed through the electronic medical record, are *timely* and *equitable*.

Traditional Approaches to Test Utilization



- ❧ Education with New Test Implementation
 - ❧ Challenge: Communications that are read.
 - ❧ Are these read?
- ❧ Re-Education
 - ❧ Challenge:
 - ❧ How often? Every year / every test? = unwieldy.
 - ❧ New residents and fellows every year. = Did I already cover this?
- ❧ Inappropriate orders intercepted upon accessioning.
 - ❧ Doc-to-doc conversation.
 - ❧ Time consuming
 - ❧ May be confrontational –
 - ❧ (Good time for professionalism and communication skills).
 - ❧ Specimen already drawn

Substantial Changes



- ❧ Electronic Medical Record
 - ❧ Computerized Physician Order Entry (CPOE)
 - ❧ The decision-maker is at the computer.
 - ❧ Clinical Decision Support Tools (CDST)
 - ❧ There is an opportunity to unidirectionally interact with the decision-maker in real-time. (*Timely and Equitable*)
 - ❧ “Pop-ups” are hazardous.
- ❧ Carrots and Sticks (Incentives & Penalties):
 - ❧ Meaningful Use
 - ❧ An obligation to improve practice with these new tools and systems.
 - ❧ MACRA
 - ❧ Improvement in medical practice linked to reimbursement.
 - ❧ MOC
 - ❧ Improvement in medical practice is part IV
- ❧ Volume to Value Based Payment System.
- ❧ Systems-Based Changes (*Equitable*).

Patient Care and Safety

(Patient-Centered)

❧ Over-utilization:

❧ Unnecessary Phlebotomy

❧ Iatrogenic Anemia

❧ Exacerbates cardiopulmonary compromise

❧ Decreases wound healing and ability to fight infections

❧ False-Positive Test Results

❧ Additional Blood draws

❧ Additional Unnecessary Tests

❧ Under-utilization

❧ Inadequate Screening

❧ Late stage disease presentation.

❧ Inadequate Follow-up

❧ Missed opportunity for early disease intervention.

Each year, more than 100,000 Americans get the wrong care and are injured as a result.

- Institute of Medicine (IOM). 1999. To err is human: Building a safer health system. Washington, D.C.: National Academies Press.

Patient Experience

(Patient-Centered)

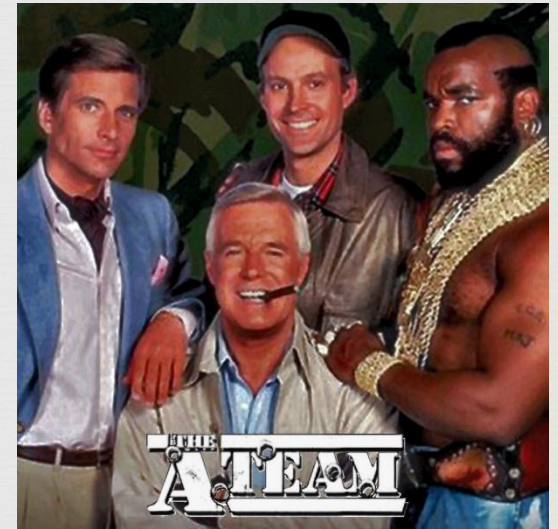


- ❧ Pain and Psychological Stress
 - ❧ Excessive phlebotomy (One stick or two?)
 - ❧ Unnecessary procedures (*e.g.*, transfusions)
 - ❧ 0400 wakeups
- ❧ Unnecessary work-ups
 - ❧ PPV directly related to prevalence of disease
 - ❧ Testing normals (as defined by previous testing) means most positives are false positives
 - ❧ Daily LFTs -> aberrant abnormality -> Liver ultrasound
- ❧ Unnecessary costs
 - ❧ Cost of additional phlebotomy
 - ❧ Cost of unnecessary tests
 - ❧ Cost of follow-up of false-positive results
 - ❧ Cost of missing a diagnosis or not following up appropriately

Building the A Team



- ❧ Physician / Laboratory Professional Led
- ❧ Leadership Support
- ❧ Open/ Transparent/ Multidisciplinary
- ❧ Active Support/ Partnership Information Technology
 - ❧ Clinical Decision Support Tools (CDST) and
Computerized Physician Order Entry (CPOE)
 - ❧ Interact with (not harass) the physician at the time of order entry.
- ❧ Best Practice / Patient Care Focused; Not Cost-Reduction Focused
- ❧ Monitoring and Reporting
 - ❧ Building credibility and support for your next project.
- ❧ Share Successes



Cleveland Clinic Embedded Initiatives



- ❧ Pilot: Soft Stop Initiative
- ❧ Hard Stop Initiative
- ❧ Restricted Use Initiative
- ❧ Laboratory-Based Genetic Counseling
- ❧ Regional Smart Alerts
- ❧ Expensive Test Notification
- ❧ Extended Hard Stop
 - ❧ Once-in-a-Lifetime Orders
- ❧ 3 Day Rule for Stool Cultures/O&P examinations
- ❧ Daily Orders Reduction Initiative

Soft Stop Pilot



- ❧ Trial 1: Quantitative CMV and EBV PCR
 - ❧ Significant difference in same-day duplicate orders pre-versus post- intervention. ($p < 0.0001$)

- ❧ Trial 2: *C. difficile* PCR
 - ❧ No significant difference in same-day duplicate orders pre- versus post- intervention ($p = 0.21$)

- ❧ Why?
 - ❧ Evidence that CDST Alerts are not read.

Example of “Pop-Up” Fatigue

Date	Test	Patient MRN	User ID	User name
9/1/2010 9:22	RETIC COUNT[23971]	Jane Doe	1	Doctor_____X
9/1/2010 9:22	RETIC COUNT[23971]	Jane Doe		Doctor_____X
9/1/2010 9:23	RETIC COUNT[23971]	Jane Doe		Doctor_____X
9/1/2010 11:58	RETIC COUNT[23971]	Jane Doe		Doctor_____X
9/1/2010 16:21	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/1/2010 16:24	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/1/2010 16:24	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/1/2010 16:24	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/1/2010 16:25	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/2/2010 16:04	RETIC COUNT[23971]	Jane Doe		Doctor_____Z
9/2/2010 16:04	RETIC COUNT[23971]	Jane Doe		Doctor_____Z
9/2/2010 21:02	RETIC COUNT[23971]	Jane Doe		Doctor_____A
9/2/2010 21:03	RETIC COUNT[23971]	Jane Doe		Doctor_____A
9/2/2010 21:06	RETIC COUNT[23971]	Jane Doe		Doctor_____A
9/2/2010 21:09	RETIC COUNT[23971]	Jane Doe		Doctor_____A
9/2/2010 21:09	RETIC COUNT[23971]	Jane Doe		Doctor_____A
9/2/2010 21:10	RETIC COUNT[23971]	Jane Doe		Doctor_____A
9/3/2010 14:30	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/3/2010 14:30	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/3/2010 15:00	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/5/2010 11:16	RETIC COUNT[23971]	Jane Doe		Doctor_____Y
9/5/2010 11:16	RETIC COUNT[23971]	Jane Doe		Doctor_____Y

Repetitive firing of the same CDST suggests the caregiver is not reading the message

The Hard Stop



- ❧ The soft stop studies provided *evidence* to medical operations that a firmer intervention was needed.
- ❧ They agreed, but...required a “break the glass” scenario in the event that a physician still wanted a duplicate study. (*Safe*)
- ❧ Duplicate tests were made available through the laboratory *Client Services* area

Testing, Inp A

Age: 77 year * DOB: 7/21/1932 Allergies: **Pencillin, Captopril, Peanut*** Bed: **2010-08** MyChart: **Inactive** Code: **History**
Sex: **M** MRN: **55000123** PCP: **SALAY, ELIZABETH M (DrC)** Alert: **HM** Type: **NFR**

SnapShot

Patient Summary

Chart Review

Results Review

Problem List

History

Inpatient Notes

Demographics

Medications

Allergies

Order Entry

Order History

Imm/Injections

MAP

I/O Summary

Doc Flowsheet

Initial Assessments

Admission Nav

Rounding Nav

Transfer Nav

Discharge Nav

Order Set

Document List

Stroke CarePath

Hotkey List

Exit Workspace

SHIRLEY STAHL ITD

Place orders

New Order Interactions Providers Reports Pending/Held Pend Orders Sign & Hold Sign Orders Settings Order Set Treatment Team

Problem List

Selected Orders

Medications

Orders

New order: Search Next Edit Multiple...

Order mode: Standard Order defaults: Not using defaults

Procedures (1)

HGB A1C

Remove

ONCE First occurrence Today at 1400, Routine, Lab Collect, BLOOD

Order Validation

The following information is missing or may need your attention

Warning:

This lab test has been ordered in the last 24 hours; repeat testing is usually not warranted for this analyte within 24 hours. If you feel you need to override the alert please call Lab Client Services (216-444-5733).

HGB A1C was ordered on 5/13/10 at 1:10 PM by provider **KNOTT, PHILIP D**

Date/Time	Component	Result	Ref Range	Flag
5/13/10 1:37 PM	Hemoglobin A1C	7.2	4.0 - 6.0 %	H
5/13/10 1:37 PM	Estimated Average Glucose	160	mg/dL	

These orders cannot be accepted.

OK

F7- Prev Order F8- Next Order

order selected

1:45 PM

Hard Stop Proposal



- ❧ Thirteen tests were selected for a pilot that were thought never to be needed more than once per day.
- ❧ The list was vetted with the medical staff via Doc.com.
- ❧ Institute a Hard Stop
 - ❧ An electronic notification that this is a duplicate order and same day repeated testing for this analyte is usually unnecessary.
 - ❧ Create a means for the caregiver to still order the test, but with documentation/approval.

Initial Hard Stop List



- ☞ Hemoglobin A1C
- ☞ CMV Detection, Blood
- ☞ Epstein Barr DNA Quant
- ☞ Hypercoagulation Diagnostic Interpretive Panel
- ☞ *C. difficile* EIA
- ☞ FACTOR V LEIDEN/PCR
- ☞ PROTHROMBIN GENE PCR
- ☞ Uric acid
- ☞ IRON + TIBC
- ☞ HEP REMOTE PANEL BL
- ☞ Lipid PANEL BASIC
- ☞ RETIC COUNT
- ☞ C-REACTIVE PROTEIN (CRP)

Uric acid removed after clinical input: May be needed more than once per day for during chemotherapy to monitor tumor lysis

Phased Implementation

❧ Hard Stop Implementation

❧ Phase 1:

- ❧ 12 tests that are NEVER needed more than once per day

❧ Phase 2:

- ❧ Added 78 tests (total 88)

❧ Phase 3:

- ❧ “Many more” tests added (>1,200 tests on the same-day Hard Stop list)

❧ Rapid review/removal process implemented

❧ One year review disclosed no untoward safety issues (*Safe*)

❧ Initially: Physicians only, then -> all

- ❧ (35% of orders were non-physicians in the 1st month)

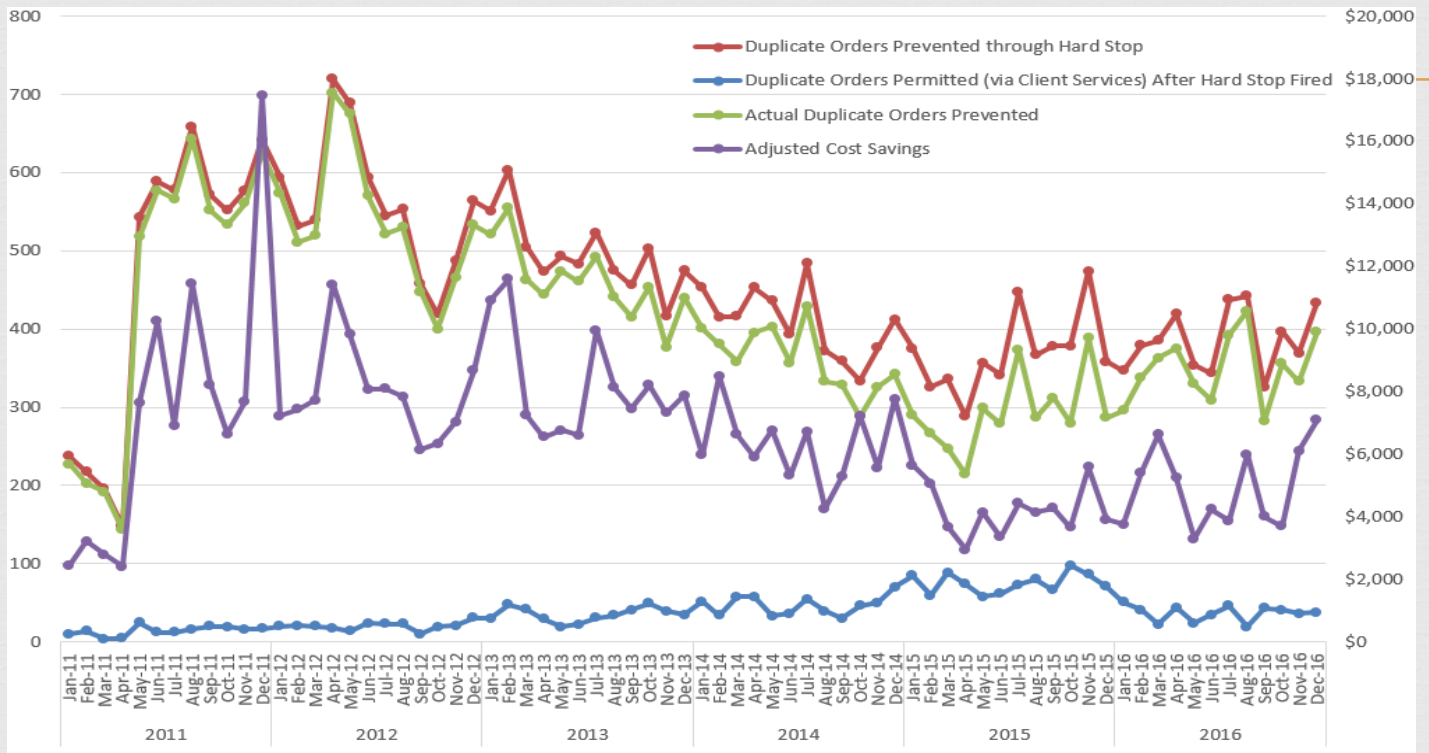
❧ Very few caregivers called Client Services to have a duplicate order placed.

- ❧ Reasons for duplicate disclosed educational opportunities in most instances.

Cost Avoidance Based on Blocked Duplicates

	Test	Count	Tech Time	Prof Time	Supply Cost	Total Cost
Month 1	C. Difficile EIA (24219)	31	527	0	128.03	380.99
	CMV Detection Blood (24221)	2	16	0	75.28	82.96
	C-Reactive Protein (CRP) (23342)	22	44	0	27.94	49.06
	HEP Remote Panel BL (23593)	3	30	0	42.72	57.12
	HGB A1C (23607)	9	27	0	15.39	28.35
	Iron + TIBC (23655)	3	6	0	1.11	3.99
	Lipid Panel Basic (23683)	9	117	0	12.6	68.76
	Retic Count (23971)	19	19	0	18.43	27.55
		98	786	0	321.5	696.78
Month 2	C. Difficile EIA (24219)	11	187	0	45.43	135.19
	CMV Detection Blood (24221)	3	24	0	112.92	124.44
	C-Reactive Protein (CRP) (23342)	12	24	0	15.24	26.76
	HEP Remote Panel BL (23593)	1	10	0	14.24	19.04
	HGB A1C (23607)	5	15	0	8.55	15.75
	Iron + TIBC (23655)	3	6	0	1.11	3.99
	Lipid Panel Basic (23683)	6	78	0	8.4	45.84
	Retic Count (23971)	6	6	0	5.82	8.7
		47	350	0	211.71	379.71
Month 2	C. Difficile EIA (24219)	20	340	0	82.6	245.8
	CMV Detection Blood (24221)	3	24	0	112.92	124.44
	C-Reactive Protein (CRP) (23342)	17	34	0	21.59	37.91
	HEP Remote Panel BL (23593)	4	40	0	56.96	76.16
	HGB A1C (23607)	5	15	0	8.55	15.75
	Iron + TIBC (23655)	2	4	0	0.74	2.66
	Lipid Panel Basic (23683)	2	26	0	2.8	15.28
	Retic Count (23971)	4	4	0	3.88	5.8
		57	487	0	290.04	523.8
		202	1623	0	823.25	1602.29

Hard Stops



2017: 4,563 unnecessary orders prevented;

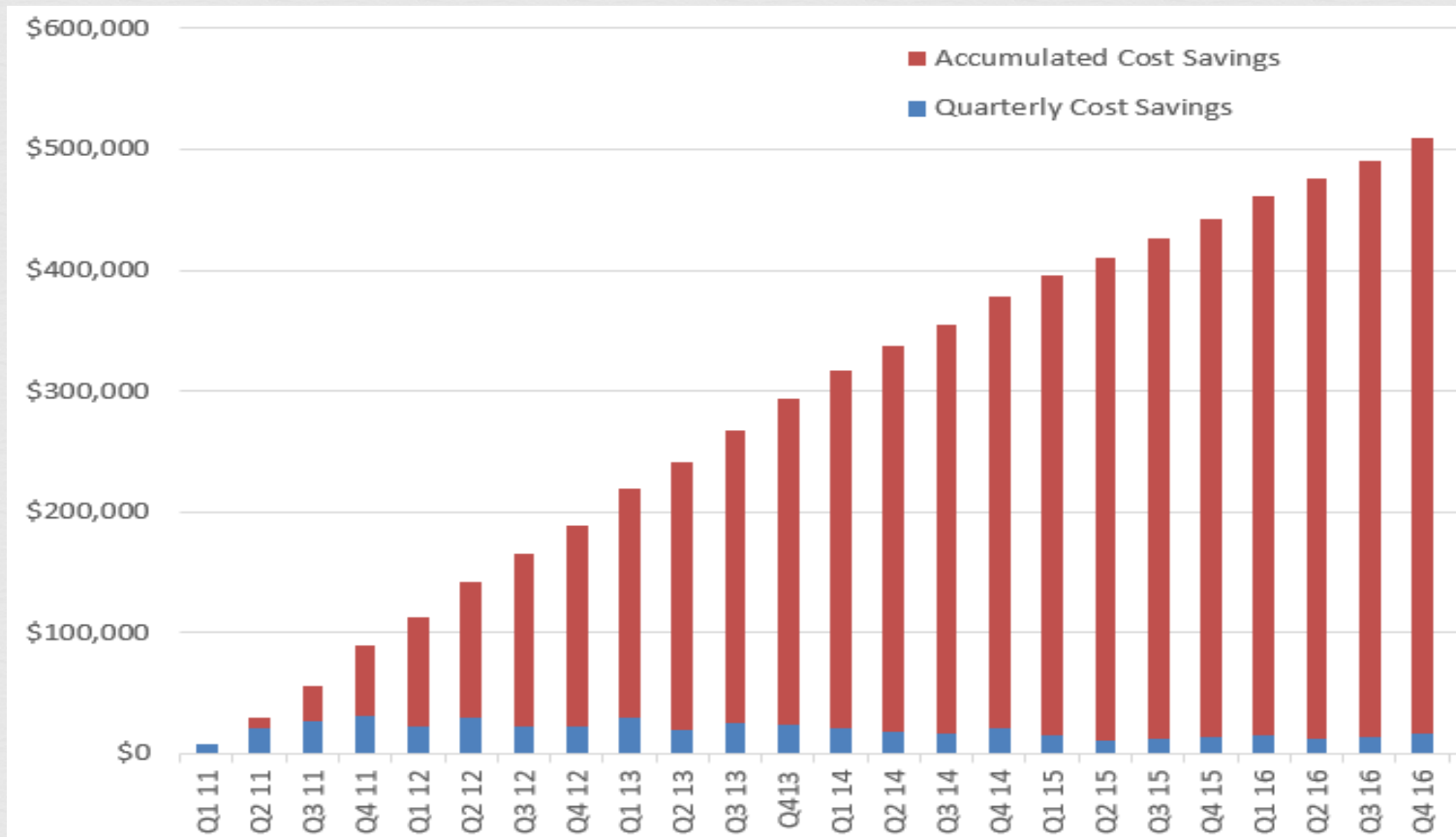
Full Program (1/11-12/17): 33,949 unnecessary orders prevented.

80-95% Success Rate

Unnecessary phlebotomies avoided and blood saved: A lot.

Hard Stop Financials

by Quarter



2017: Cost Avoidance - \$54,516

Total: (1/11 to 12/17): \$522,622

Regional *Smart Alerts*



- ❧ Similar to Soft Stops.
 - ❧ But, with Previous Results Displayed.
- ❧ List includes: 752 of the 1,283 tests on Main.
- ❧ Considerations include:
 - ❧ Non-Cleveland Clinic Practitioners
 - ❧ Practitioner use of Computerized Physician Order Entry-availability
 - ❧ Written orders to unit clerks/nurses
 - ❧ No work-around infrastructure.

Regional Smart Alert

Place orders

New Order Interactions Providers Reports Pending Orders Held Orders Pending Orders Sign & Hold Sign Orders Settings Order Set Pref List

New order: Search

Order mode: Standard New order defaults Not using defaults

During visit (1 Order)

LIPID PANEL BASIC (EU,FV,HL,LK,LU,MM,SP) P Routine, ONCE Fil

Order Validation

The following information is missing or may need your attention

Warning:

This lab test has been ordered in the last 24 hours; repeat testing is usually not warranted for this analyte within 24 hours.

LIPID PANEL BASIC (EU,FV,HL,LK,LU,MM,SP) was ordered on 9/20/12 at 12:53 PM by provider AGARWAL, RAJESH

If you are ordering LIPID PANEL BASIC (EU,FV,HL,LK,LU,MM,SP) at the same time as other orders, you must first remove LIPID PANEL BASIC (EU,FV,HL,LK,LU,MM,SP) from the order list before you can file the other orders.

Date/Time	Component	Result	Ref Range	Flag
9/20/12 1:58 PM	Triglyceride	333	30 - 149 mg/dL	H
9/20/12 1:58 PM	Cholesterol	222	100 - 199 mg/dL	H
9/20/12 1:58 PM	HDL Cholesterol	55	>55 mg/dL	L
9/20/12 1:58 PM	VLDL-Cholesterol	33	6 - 40 mg/dL	
9/20/12 1:58 PM	LDL Cholesterol	22	60 - 129 mg/dL	L
9/20/12 1:58 PM	Fasting Time	12	hrs	
9/20/12 1:58 PM	TC:HDL Ratio	11.00	1.00 - 5.00	H
9/20/12 1:58 PM	LDL:HDL Ratio	5.00	0.50 - 3.55	H
9/20/12 1:58 PM	Non HDL Cholesterol	6	90 - 159 mg/dL	L

Do you want to accept these orders anyway?

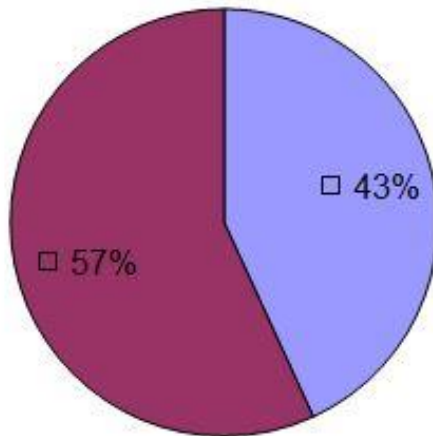
Yes No

Regional Smart Alerts



Monthly calculation of alert compliance

Hillcrest Hospital Lab Soft-Stop
October 2015 Report



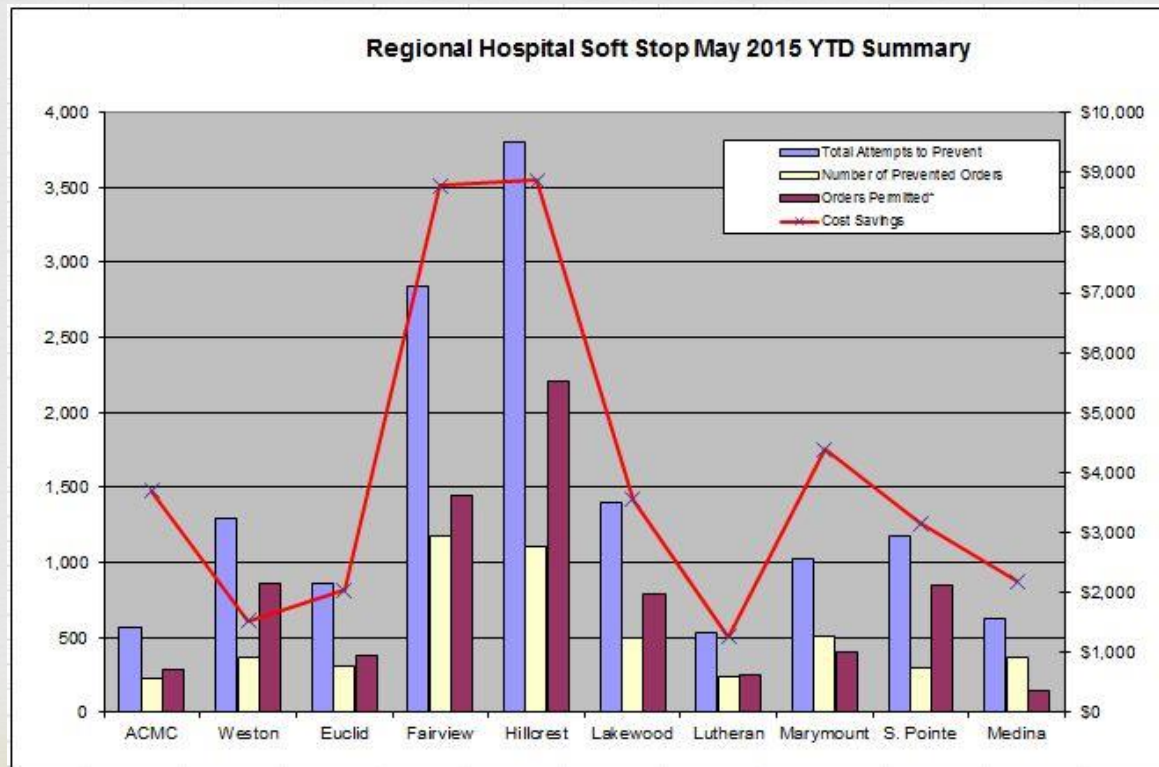
■ Firing without Orders ■ Order placed within 30 minutes of firing

Regional Smart Alerts



5,507 unnecessary tests averted in 2017

Total (10 m 2013 - 2017): 26,767

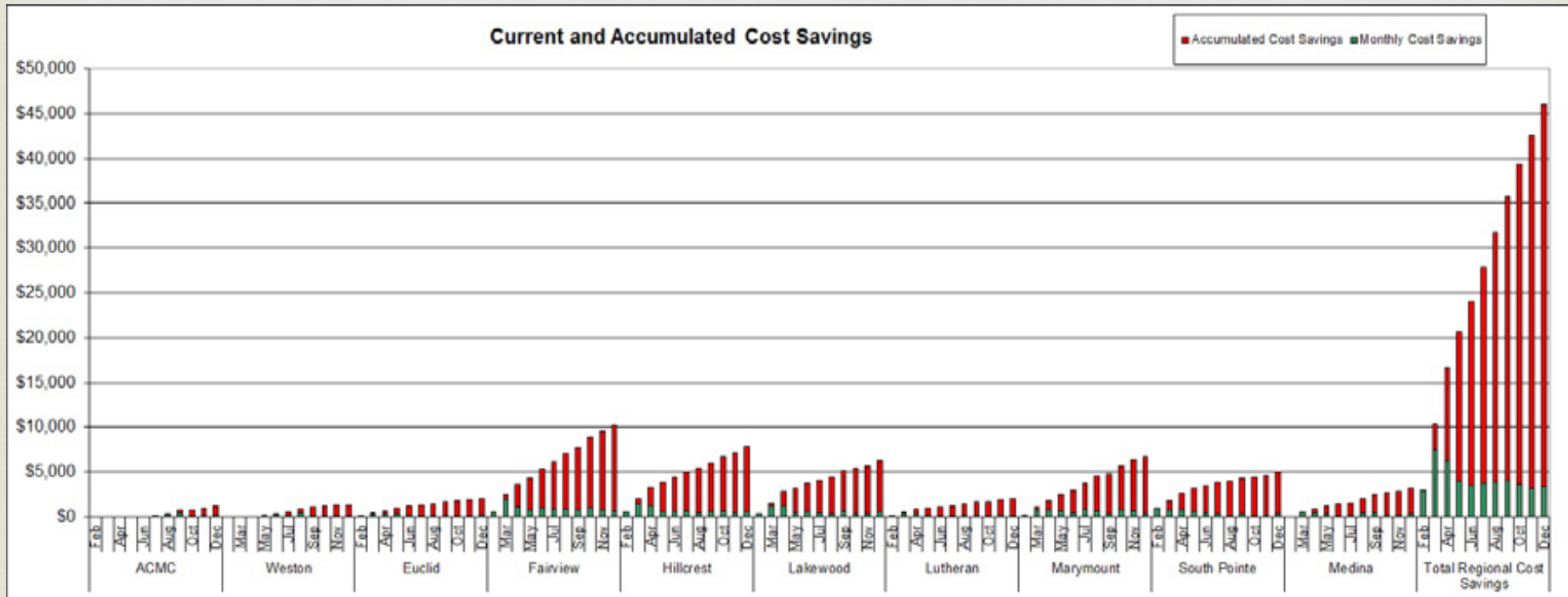


Regional Smart Alert: Cost Avoidance



Cost-Savings, 2017: \$41,258

Total (10m 2013 - 2016): \$211,800



Hard Stop versus *Smart Alert* Comparison

- ❧ One year comparison
 - ❧ Duplicate tests avoided and cost avoidance.
- ❧ The Hard Stop alert was significantly more *effective* than the Smart Alert (92.3% versus 42.6%, respectively; $p < 0.0001$).
- ❧ The cost savings realized per alert activation was \$16.08/alert for the Hard Stop alert versus \$3.52/alert for the Smart Alert.

Optimizing Molecular Genetic Testing



❧ Restricting Testing

- ❧ Specialized tests not on standard menu “Lab Order Only”
- ❧ Restriction to Users Groups

❧ Genetic Guidance

- ❧ Laboratory-Based Genetics Counselor
 - ❧ With Molecular Genetic Pathologist Oversight.
- ❧ Resident/Fellow Involvement
 - ❧ Educational/Not “Thrown to the wolves.”

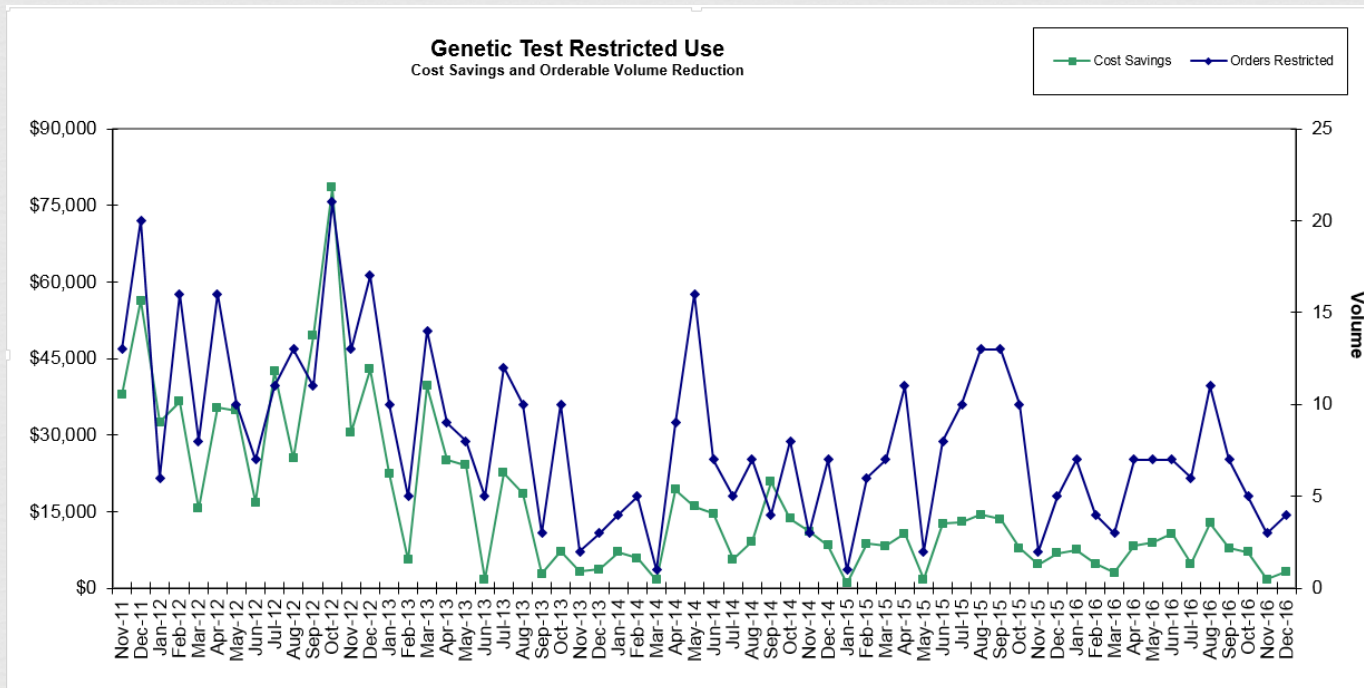
❧ Algorithmic Testing

- ❧ Collaborative Development (Clinician/Pathologist) of Algorithms
- ❧ Extract/Hold -> Sequential Testing
 - ❧ Requires infrastructure & engagement.

Restricted Use Initiative

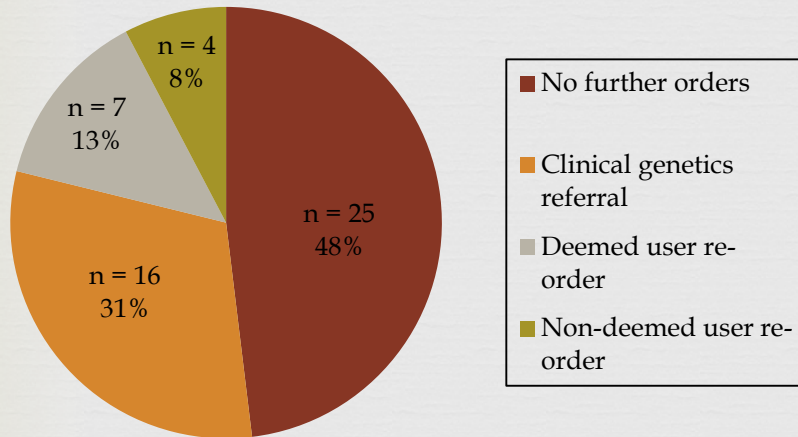


- ❧ Molecular Genetic Tests limited to “Deemed Users.”
- ❧ Inpatient testing requires a Medical Genetic Consult

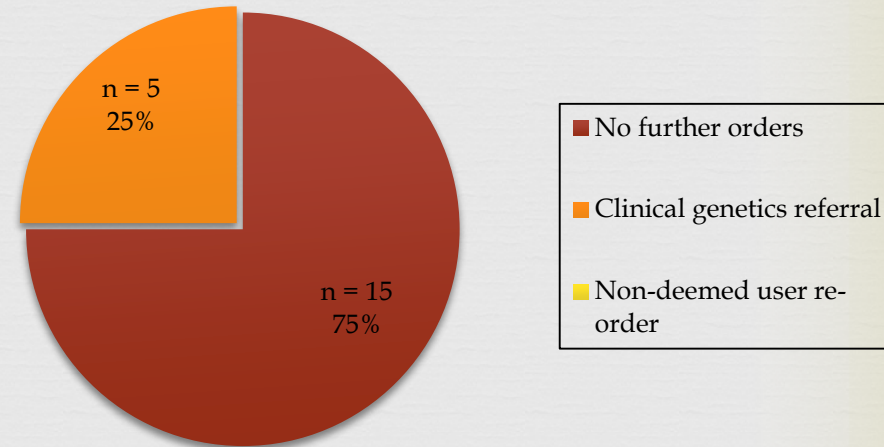


2017: 57 Tests; \$67,262 Total (11/11 - 12/17): 565 Tests; \$1,094,659

Follow-up to Restricted Orders



Ambulatory



Inpatient

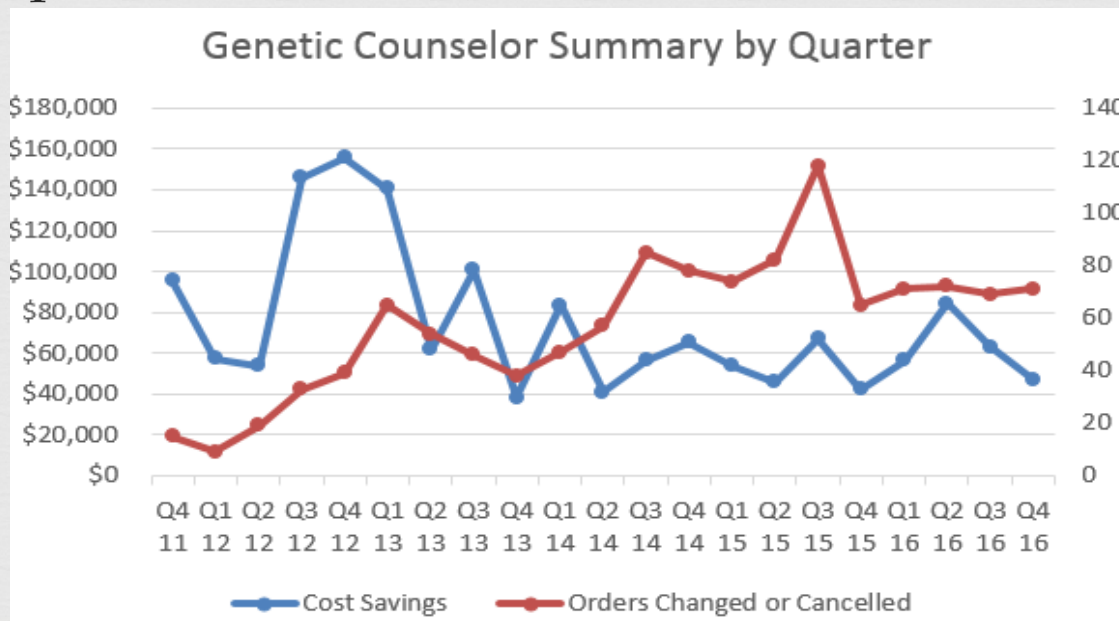
Efficient – Not doing unnecessary testing;

Effective - Directing patients to subspecialists, who need subspecialists

Laboratory-Based Genetics Counselor



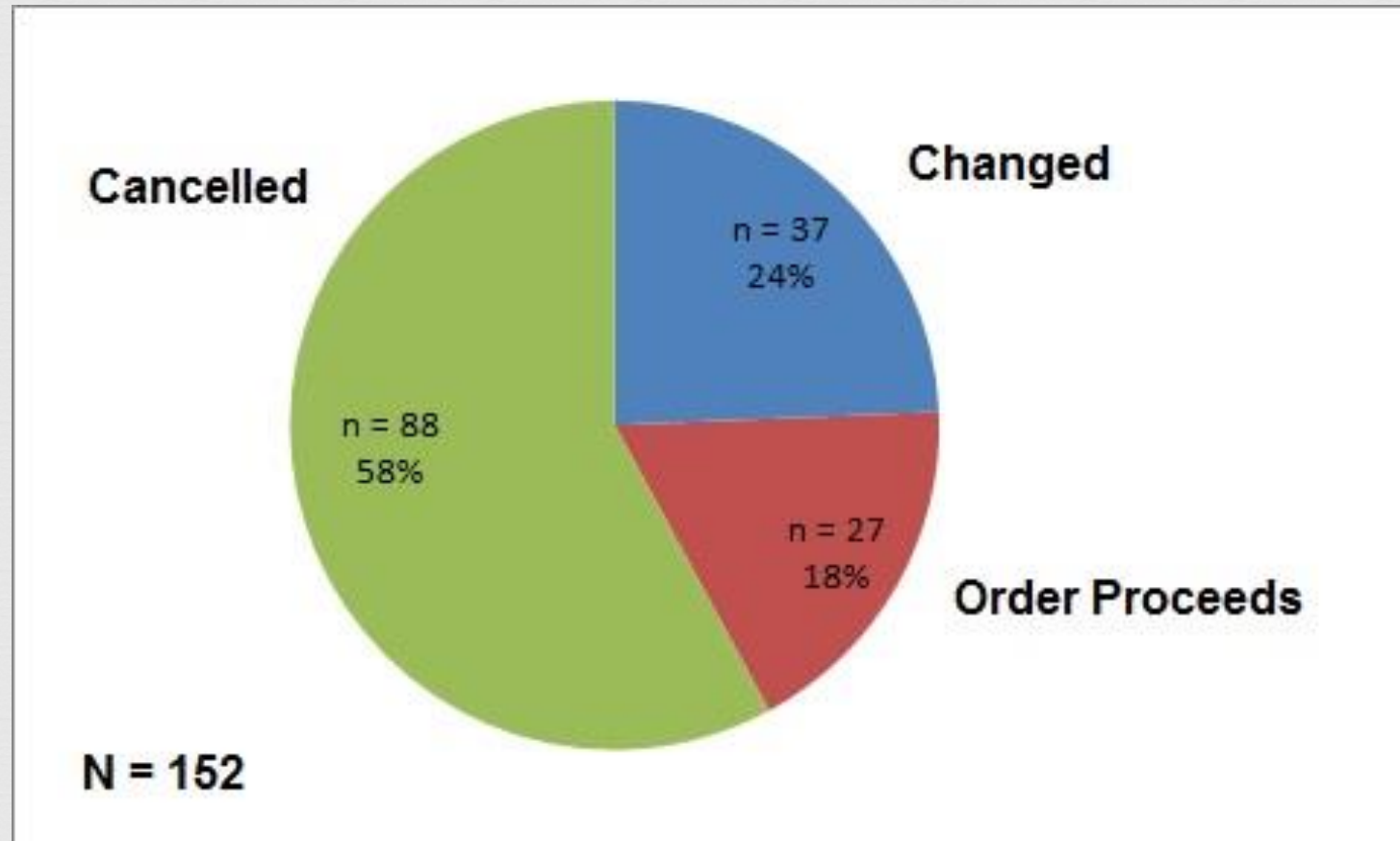
- Pre-Analytic Test Guidance and Post-Analytic Assessment
 - Triage, Decreased panel use and assistance in selecting the appropriate test



2017: 223 tests for \$244,828

Total (9/11 - 12/17): 1,141 tests for \$1,771,416

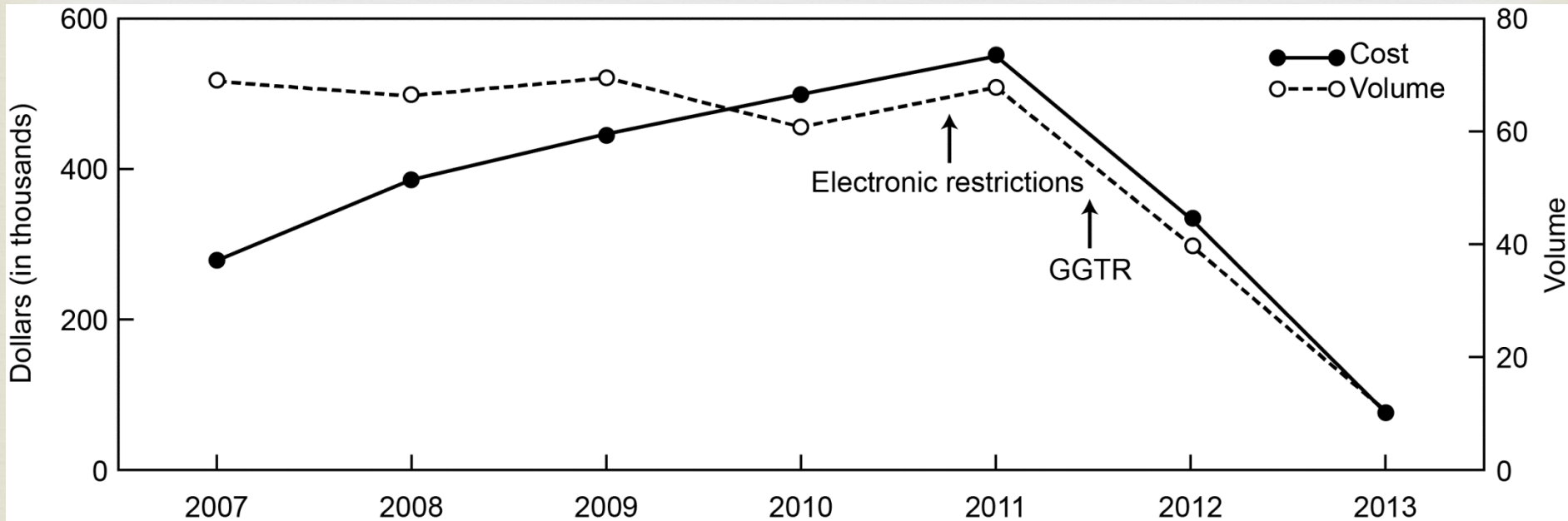
Follow-up of Genetic Counselor Triage



Efficient – Not doing unnecessary testing;

Effective and Patient-Centered - Directing providers to the correct test

Impact of Restricted Use and Genetic Counselor/MGP Triage Interventions



Effective

Expensive Test Notification



2017: 131 tests averted; \$186,849

Cumulative (9 m.2013 - 2017):

654 tests averted; \$974,683

Order Validation

 The following information is missing or may need your attention

The test(s) below costs the institution >\$1000 to perform. Please consider carefully if this test is absolutely necessary, as charges, which may be substantially greater than costs, not covered by the insurance provider may be billed directly to the patient:

NEUROFIB TYPE 2 DNA [SQNEUFIB] >\$3000

Do you want to accept these orders anyway?

Extended Hard Stop



- ⌘ Time extended hard stop.
- ⌘ Went live 11/2014 (after more than a 12 month build).
- ⌘ 2015 Expanded to Regional Hospitals

- ⌘ *C. difficile* PCR
 - ⌘ Once/ 7 days

- ⌘ HbA1c
 - ⌘ Once/month

- ⌘ HCV Genotyping
 - ⌘ Once-twice per lifetime.

13,140 Duplicate Tests Prevented in 2017; \$71,718 Cost Avoidance

11/2014-2017: 37,974 Duplicate Tests Prevented; \$205,075

Repeat Constitutional Genetic Tests (Once in a Lifetime Testing)

Procedure Name
FACTOR V LEIDEN/PCR [SQFVLEID] ... review result from: 2/22/2016 10:46 AM
PROTHROMBIN GENE PCR [SQPTGENE] ... review result from: 2/25/2016 9:40 PM
HFE (HEMOCHROMATOSIS) [SQHEMDNA] ... review result from: 3/1/2016 6:00 PM
FACTOR V LEIDEN/PCR [SQFVLEID] ... review result from: 2/23/2016 6:11 PM
CYSTIC FIBROSIS SCR139 VARIANT ASSAY [SQCFNGS] ... review result from: 2/10/2016 12:38 PM
CHROM ANALY PERIPH [SQCHRBLD] ... review result from: 9/3/2014 12:30 PM
HFE (HEMOCHROMATOSIS) [SQHEMDNA] ... review result from: 12/10/2014 7:52 AM
HEPATITIS C GENOTYPE [SQHEPGEN] ... review result from: 5/1/2006 1:50 PM
TPMT GENOTYPE (PRO-PREDICTR TPMT BL) [SQPPTMPT] ... review result from: 2/2/2005 5:01 PM
CELIAC ASSOC HLA-DQ GENOTYPE [SQCELIA] ... review result from: 1/28/2016 5:30 PM
MTHFR BY PCR [SQMTHFR] ... review result from: 1/21/2015 8:45 AM
MTHFR BY PCR [SQMTHFR] ... review result from: 10/24/2013 1:00 PM
CELIAC ASSOC HLA-DQ GENOTYPE [SQCELIA] ... review result from: 2/2/2009 5:21 PM
FAMIL MEDITERR FEVER [SQFAMMED] ... review result from: 7/13/2015 7:52 PM
HLA B5701 [SQB5701] ... review result from: 4/18/2014 4:00 AM
PROTHROMBIN GENE PCR [SQPTGENE] ... review result from: 3/17/2016 6:02 PM
FACTOR V LEIDEN/PCR [SQFVLEID] ... review result from: 3/17/2016 6:02 PM
HEPATITIS C GENOTYPE [SQHEPGEN] ... review result from: 5/29/2015 9:52 AM
PROTHROMBIN GENE PCR [SQPTGENE] ... review result from: 3/19/2016 3:44 PM
FACTOR V LEIDEN/PCR [SQFVLEID] ... review result from: 3/19/2016 3:44 PM
HEPATITIS C GENOTYPE [SQHEPGEN] ... review result from: 5/29/2015 9:52 AM
MTHFR BY PCR [SQMTHFR] ... review result from: 2/14/2012 3:37 PM
MTHFR BY PCR [SQMTHFR] ... review result from: 10/26/2015 7:39 AM
HEPATITIS C GENOTYPE [SQHEPGEN] ... review result from: 1/17/2016 4:00 PM
MTHFR BY PCR [SQMTHFR] ... review result from: 1/3/2014 11:43 AM
FACTOR V LEIDEN/PCR [SQFVLEID] ... review result from: 1/27/2014 9:09 AM
MTHFR BY PCR [SQMTHFR] ... review result from: 6/4/2014 2:56 PM
FACTOR V LEIDEN/PCR [SQFVLEID] ... review result from: 9/26/2008 11:06 AM
PROTHROMBIN GENE PCR [SQPTGENE] ... review result from: 9/26/2008 11:06 AM

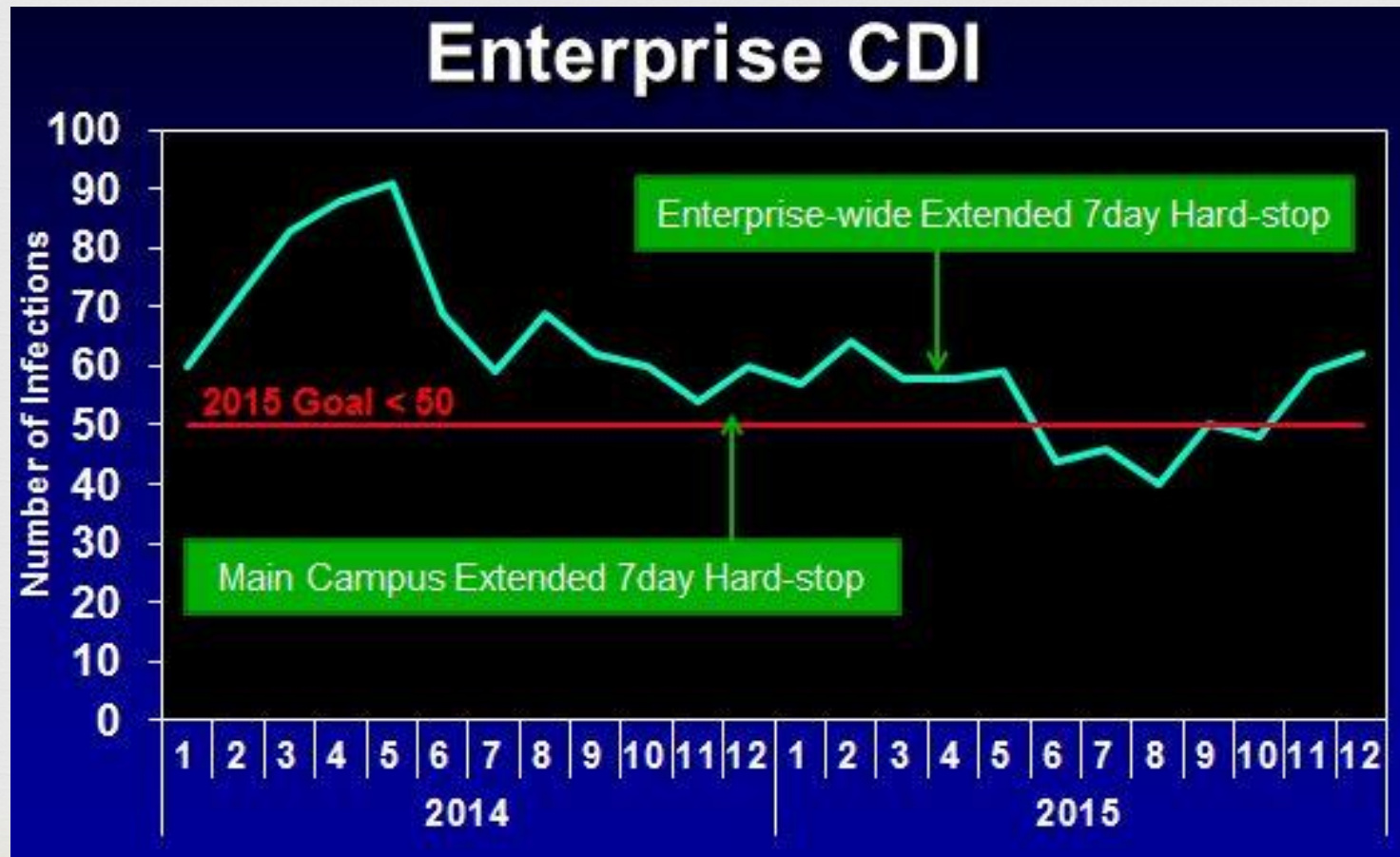
[2017]

350 Tests
\$45,183

[11/2014-12/2017]

940
\$132,743

Impact on *C. difficile* Rate



3 Day Rule:

Stool Cultures and O&P Examinations



❧ Limit Ordering of Stool Culture and O&P examinations for patients that are hospitalized >3 days.

❧ 2017

❧ 312 unnecessary orders stopped.

❧ \$10,545 Cost Avoidance

❧ 6/2014 - 2017

❧ 857 unnecessary orders stopped.

❧ \$27,497 Cost Avoidance



Education



❧ Graduate Medical Education Initiative

❧ Information on GME Website

❧ Infographic produced.

❧ General

❧ Introduction to the most over utilized tests.

❧ Infographics for Individual Tests

❧ ANA

❧ *C. difficile* testing

❧ TSH

❧ Etcetera,

❧ How to capture impact?



Why reduce inappropriate lab testing?

- Increases patient satisfaction
- Increases patient safety (the more tests performed, the greater the potential for error (i.e. There is a false-positive rate associated with any test that has a specificity less than 100 percent))
- Decreases unnecessary phlebotomy and potentially iatrogenic anemia
- Reduces financial burdens (lower tests = dollar savings) for:
 - hospitals
 - patients
 - third-party payers

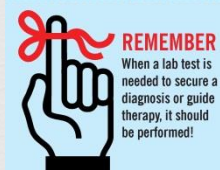
How are we doing this at Cleveland Clinic?



Results since 2010



Patient care *has not* been interrupted or compromised



Want more background on this initiative?
Read Strategies for Appropriate Test Utilization
http://portals.ccf.org/Portals/71/strategies_test_utilization.pdf

An education initiative from the Trench Pathology & Laboratory Medicine Institute, Cleveland Clinic Test Utilization Committee, Education Institute, and Medical Art & Photo

<u>Initiative</u>	<u>Orders Prevented</u>	<u>Cost Savings</u>
1. Hard Stops	4,563	\$ 54,516
2. Restricted Use	57	\$ 67,262
3. Genetics Counselor/ MGP	223	\$ 244,828
4. Regional Smart Alert	5,507	\$ 41,258
5. Expensive Test Notification	131	\$ 186,849
6. Extended Hard Stop	13,140	\$ 71,718
7. Once-In-A-Lifetime Tests	350	\$ 45,183
8. 3 Day Rule Initiative	312	\$ 10,545
9. Daily Orders	38,324	\$ 117,951
10. Optimization of Blood Cultures	134	\$ 1,619
Total	81,517	\$ 841,729

Accumulated Totals for Entire Program

1. Hard Stops	33,949	\$ 522,622
2. Restricted Use	565	\$ 1,094,659
3. Genetics Counselor	1,141	\$ 1,771,416
4. Regional Smart Alert	26,767	\$ 211,800
5. Expensive Test Notification	654	\$ 974,683
6. Extended Hard Stop	37,974	\$ 205,075
7. Once-In-A-Lifetime Tests	940	\$ 132,743
8. 3 Day Rule Initiative	857	\$ 27,497
9. Daily Orders	38,324	\$ 117,951
10. Optimization of Blood Cultures	134	\$ 1,619
Total	160,072	\$ 5,060,066

Conclusion



- ❧ Improvements in Test Utilization can address each issue highlighted by the Institute of Medicine for Quality Health Care
 - ❧ *Safe*: Interventions that facilitate the right test at the right time.
 - ❧ *Effective*: Demonstrable results.
 - ❧ *Patient-Centered*: Employment of best practice guidelines.
 - ❧ *Timely*: Interventions at the point of order entry.
 - ❧ *Efficient*: Decreasing waste by not doing unnecessary testing.
 - ❧ *Equitable*: Interventions are activated for all.
- ❧ Pathologists and other Laboratorians have an Opportunity in the Era of ACOs, MACRA and Integrated Care.
 - ❧ Participate in your Laboratory Stewardship Committee today,
 - ❧ Become active at the systems level in your institution.