Managing Test Utilization for Improved Patient Care and Financial Performance

CLMA – Western Lake Erie Chapter

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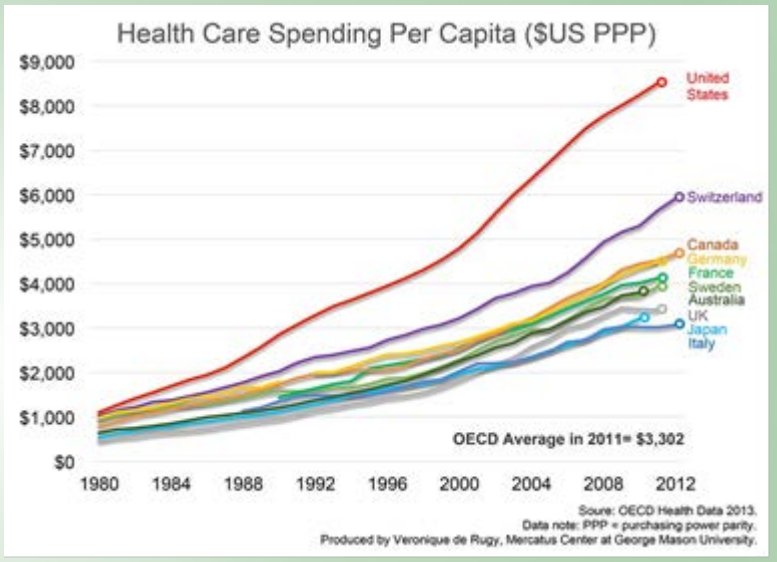
Improving Lab Test Utilization:
Overview

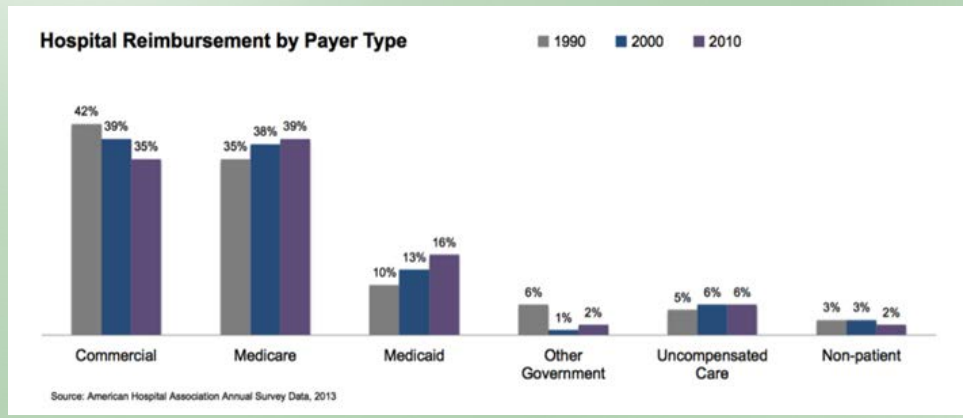
- Physicians control 80% of healthcare costs
- 5 Billion Lab tests per year
- Lab testing represents 4% of Healthcare costs
- Lab tests influence 60-70% of medical decisions
  - Basis for more expensive downstream costs
  - Radiology, Pharmacy, procedures, hospital stays
- Lab test results make up 70% of EMR

Improving Lab Test Utilization:
Overview

US and other country healthcare expenses over time



Government payers make up an increasing share of reimbursements



Improving Lab Test Utilization:
Reimbursement Models

(Fixed reimbursement models do not reimburse for additional testing)

Inpatient

- **DRGs, AP-DRGs, MS-DRGs (fixed)**
- **Per Diem (fixed)**
- **Per Case (fixed)**
- **Pct of charges (variable)**
- **Outlier protection (fixed, with variable component)**

Improving Lab Test Utilization:
Reimbursement Models

Outpatient

- **FFS (variable – provides no incentive to reduce unnecessary testing)**
  - **PAMA - Protecting Access to Medicare Act of 2014.**
- **Capitation (fixed)**
- **Bundled payments/Value based payment (incentive to reduce unnecessary testing)**
  - **ACO model**
  - **Pay for Performance**
  - **Shared Savings/Shared Risk**

Improving Lab Test Utilization:
Challenges: Overutilization

Objective: Right Test, Right Patient, Right Time, Right Cost

Challenges:

- **Overutilization (meta-analysis[1]: 21%)**

[1] Zhi, etal. PLOS ONE; 2013;8(11)378962

Consequences:

- Additional blood loss, iatrogenic anemia
- Time spent on insignificant abnormal results
- Incorrect diagnosis
- Additional follow-up tests and procedures
- Longer LOS
- Legal liability
- Higher pharmacy costs

Improving Lab Test Utilization:
Strategies

1. Stop offering the test
   - Limited to obsolete tests
   - In our assessments, these represent 9% of all unnecessary testing

2. Requisition redesign
   - e.g. limit esoteric tests
   - Post guidelines
   - Minimize bundles of tests

Improving Lab Test Utilization:
Strategies

3. **CPOE**

   In concept, the ideal approach. In practice, limited implementation

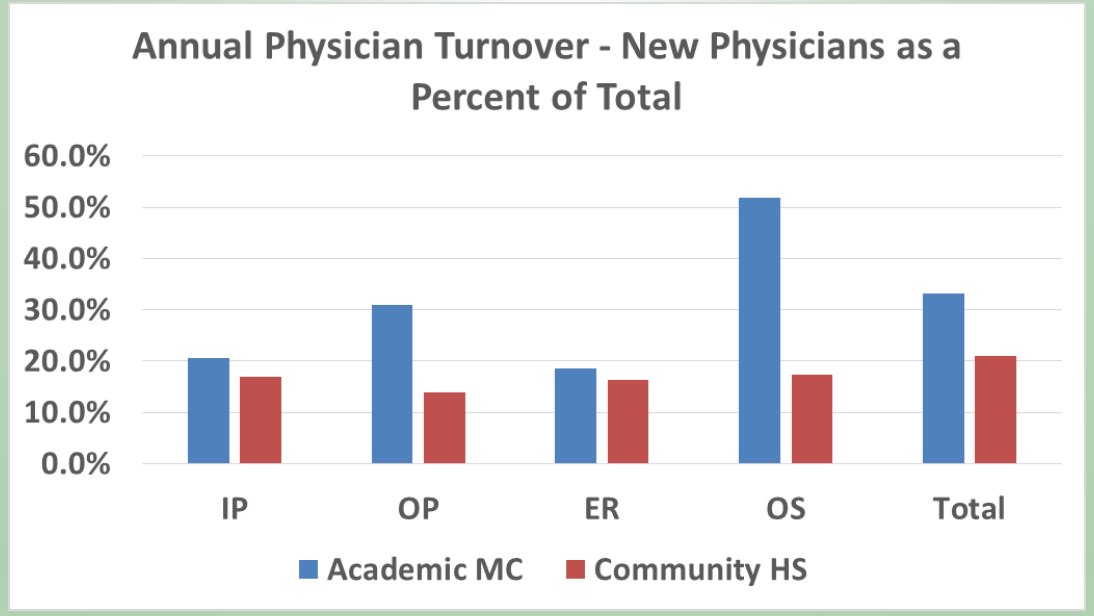
   - **EMR – few hard stops**
     - **Certain tests require consult with a genetics counselor or pathologist**
   - **Popups providing guidance, however, can be ignored**

4. **Test Formularies**

   - **Specialists can order from menus of more expensive, esoteric testing**
   - **All physicians can order from a menu of common tests**
   - **Limitation: Don't prevent standing orders**

Improving Lab Test Utilization:
Strategies

5. **Education**
   - **E.g. Algorithms/cascade, reflex testing guidelines**
   - **Limitation: up to 20-30% annual physician turnover**



Improving Lab Test Utilization:
Strategies

6. **Audits**
   - **Recommended by Mayo Clinic and others**
   - **Identify key opportunities - can be used to determine key guidance needed for CPOE**
   - **Monitor impact over time of various strategies**

Improving Lab Test Utilization: Strategies

6. Audits

- Report cards for heavy test users, outliers, peer reviews

	Test Orders per Routine Outpatient Visit					
	ICD-9: V70.0 Routine general medical examination					
	CBC	LIPOP	BCPRO	UA	Total	vs Avg of Lowest 10%
Physician 01	0.10	0.25	-	-	0.35	0.45
Physician 02	0.16	0.20	0.04	-	0.40	0.52
Physician 03	0.09	0.65	0.09	-	0.82	1.07
Physician 04	0.73	0.12	0.06	0.06	0.97	1.26
Physician 05	0.54	0.45	0.26	0.06	1.31	1.70
Physician 06	0.61	0.45	0.45	0.01	1.51	1.96
Physician 07	0.51	0.52	0.52	0.02	1.56	2.03
Physician 08	0.41	0.63	0.56	-	1.60	2.07
Physician 09	0.19	0.33	0.15	0.96	1.63	2.11
Physician 10	0.79	0.74	0.07	0.05	1.65	2.14
Physician 44	0.73	0.73	0.75	0.73	2.94	3.81
Physician 45	0.81	0.52	0.81	0.81	2.95	3.83
Physician 46	0.89	0.73	0.88	0.56	3.07	3.99
Physician 47	0.78	0.78	0.78	0.80	3.15	4.09
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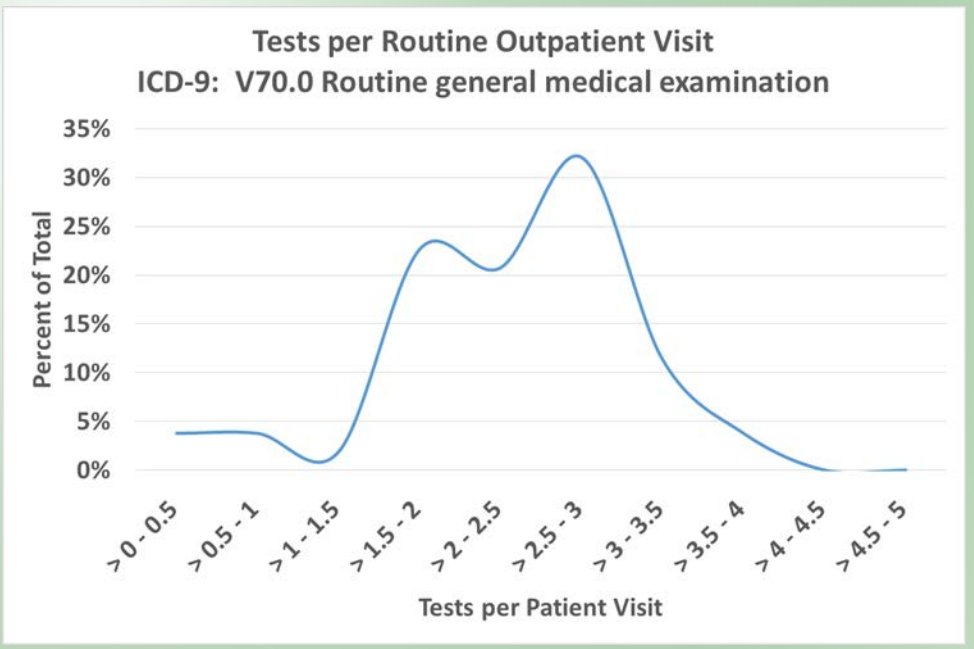
Physician 49	0.88	0.79	0.86	0.75	3.28	4.25
Physician 50	0.86	0.86	0.83	0.85	3.40	4.41
Physician 51	1.00	0.95	0.98	0.50	3.43	4.45
Physician 52	0.87	0.90	0.90	0.88	3.55	4.60
Physician 53	0.94	0.85	0.94	0.94	3.66	4.74



Improving Lab Test Utilization:
Overutilization: Savings

The identified savings per million billable tests are shown below.

- **Typical range is $170k – $350k per year for Inpatient testing alone.**
- **Data show findings scale up and down**

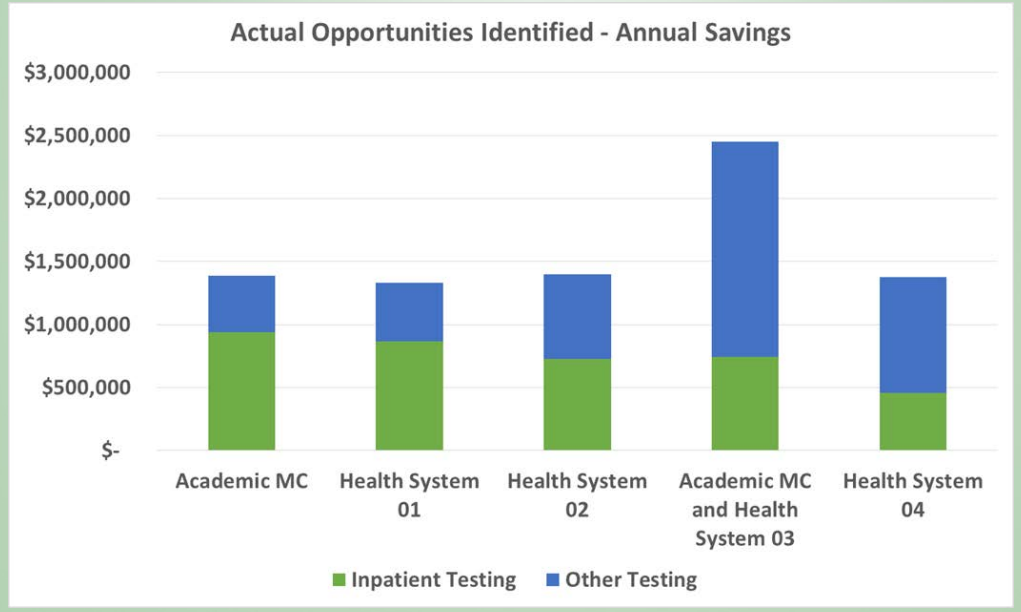
	Pct Reduction in Test Volume				
	Min	25th Percentile	75th Percentile	Max	Average
Inpatient	3.1%	4.7%	9.1%	12.0%	6.6%
Other Patient Types	0.7%	1.5%	4.4%	5.4%	3.0%

	Annual Savings per 1M Billable Tests				
	Min	25th Percentile	75th Percentile	Max	Average
Inpatient	$ 108,085	$ 172,788	$ 347,971	$ 493,773	$ 251,428
Other Patient Types	$ 25,836	$ 58,349	$ 241,302	$ 365,328	$ 162,822

- **Based on incremental/variable costs (not fully loaded costs)**

Improving Lab Test Utilization:
Overutilization: Savings

Audits of client's data has identified hundred of thousands of dollars of annual savings for clients



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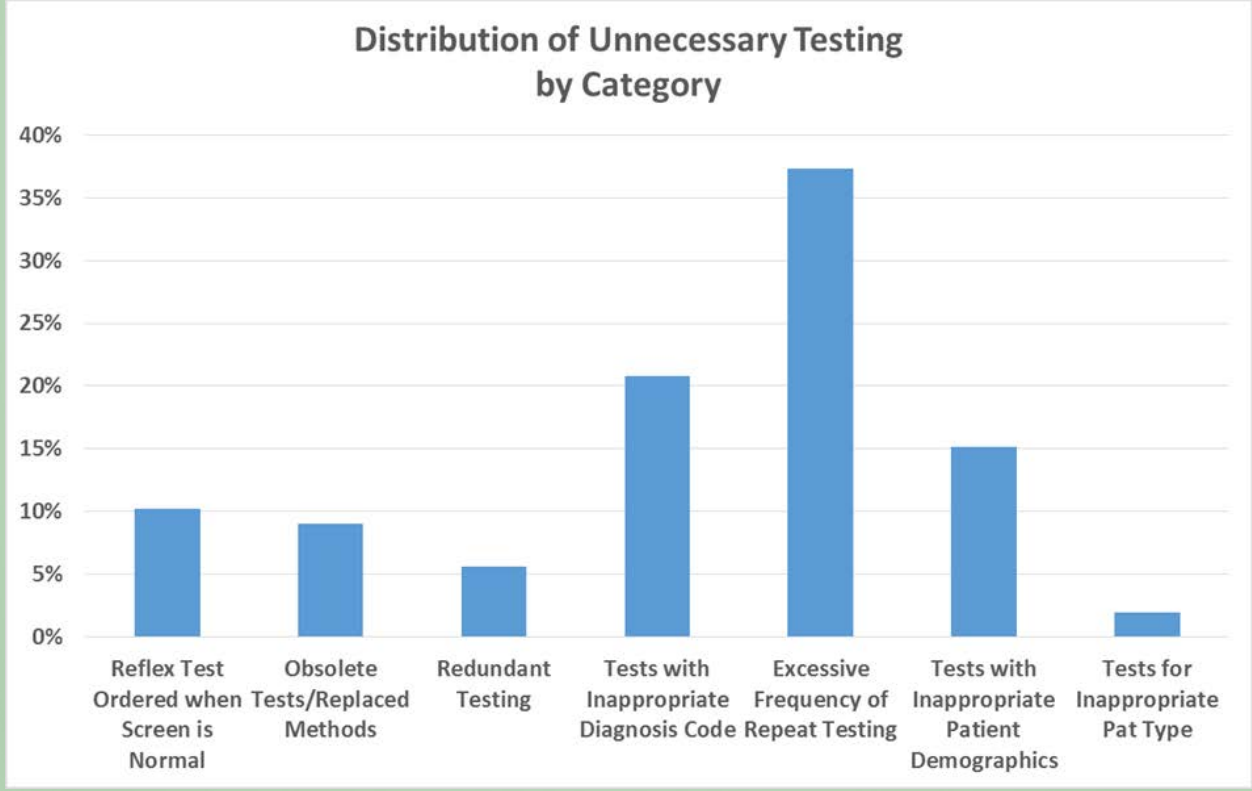
Improving Lab Test Utilization:

Overutilization: Categories of Unnecessary Testing

Based on evaluation of 100+ laboratories



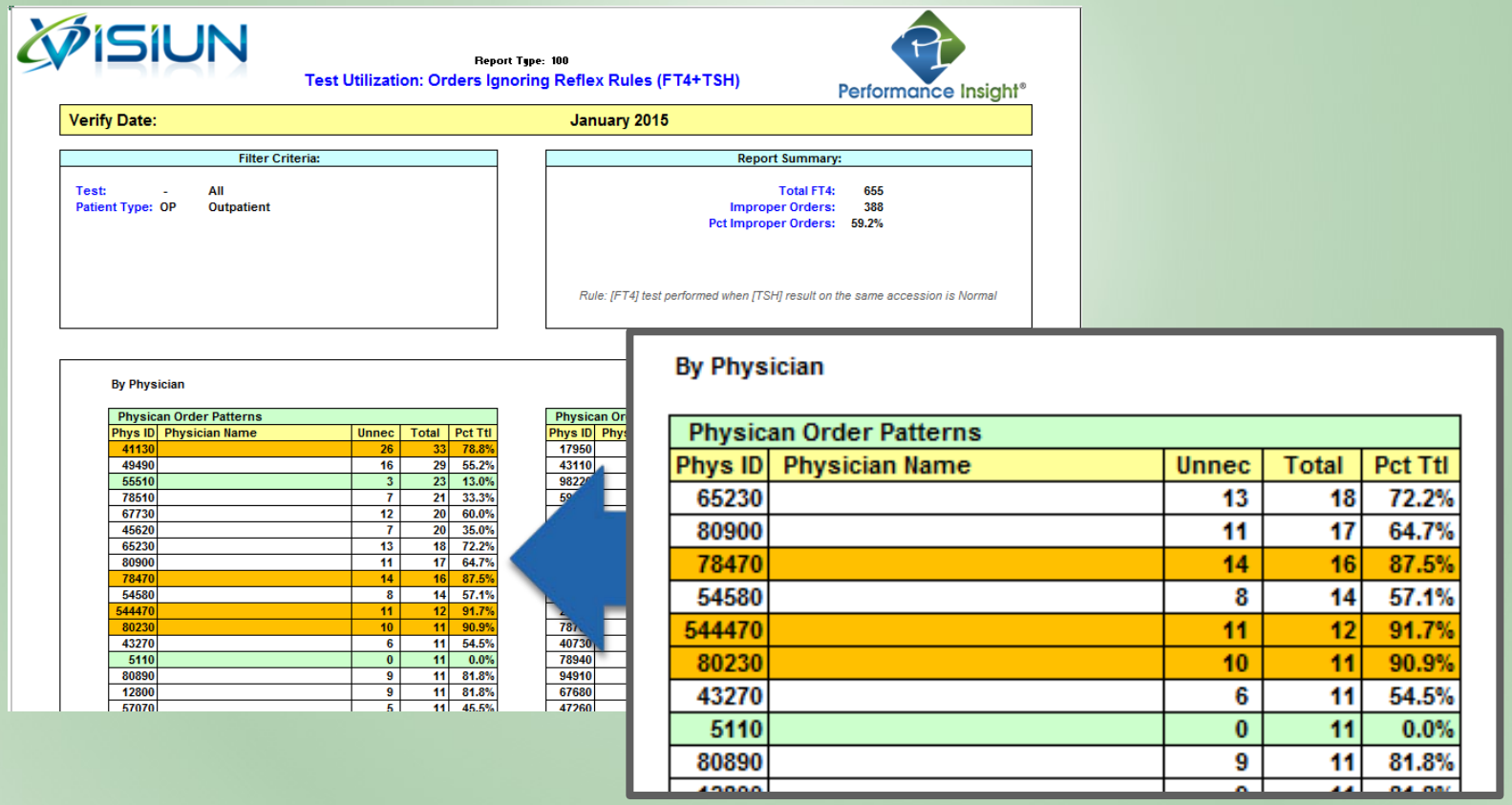
Improving Lab Test Utilization:
Overutilization

- More detail:
  - When TSH is normal, FT4 not necessary
- Health System Level review
  - One successful system (less than 1% unnecessary FT4)
  - Others reflect unsuccessful implementation of strategies (education, CPOE guidelines etc.), or no efforts at all

	Tests ordered together		
	FT4	TSH (Normal)	Unnec FT4
Heath System 01	8	1,532	0.5%
Heath System 02	629	1,259	50.0%
Heath System 03	602	1,031	58.4%
Heath System 04	2,220	3,708	59.9%
Heath System 05	2,530	4,148	61.0%
Heath System 06	2,537	3,557	71.3%
Heath System 07	3,214	4,476	71.8%
Heath System 08	315	424	74.3%
Heath System 09	1,895	2,415	78.5%

Improving Lab Test Utilization:
Overutilization

- **Physician Scorecard**



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Report Type: 100

Test Utilization: Orders Ignoring Reflex Rules (FT4+TSH)

Performance Insight®

Verify Date: January 2015

Filter Criteria:

Test: - All
Patient Type: OP Outpatient

Report Summary:

Total FT4: 655
Improper Orders: 388
Pct Improper Orders: 59.2%

Rule: [FT4] test performed when [TSH] result on the same accession is Normal

By Physician

Physican Order Patterns

Phys ID	Physician Name	Unnec	Total	Pct Ttl
41130		26	33	78.8%
49490		16	29	55.2%
55510		3	23	13.0%
78510		7	21	33.3%
67730		12	20	60.0%
45620		7	20	35.0%
65230		13	18	72.2%
80900		11	17	64.7%
78470		14	16	87.5%
54580		8	14	57.1%
544470		11	12	91.7%
80230		10	11	90.9%
43270		6	11	54.5%
5110		0	11	0.0%
80890		9	11	81.8%
12800		9	11	81.8%
57070		5	11	45.5%

By Physician

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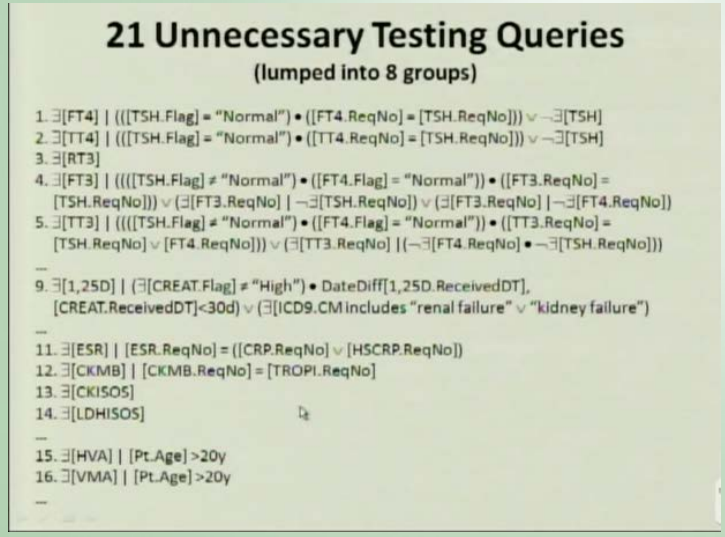
Improving Lab Test Utilization:
Overutilization: Guidelines

100+ rules derived from authoritative sources such as ABIM's Choosing Wisely, Mayo Clinic, CMS guidelines and other sources



- https://www.youtube.com/watch?v=KMVb0MsI8fI

Improving Lab Test Utilization:
Challenges: Underutilization

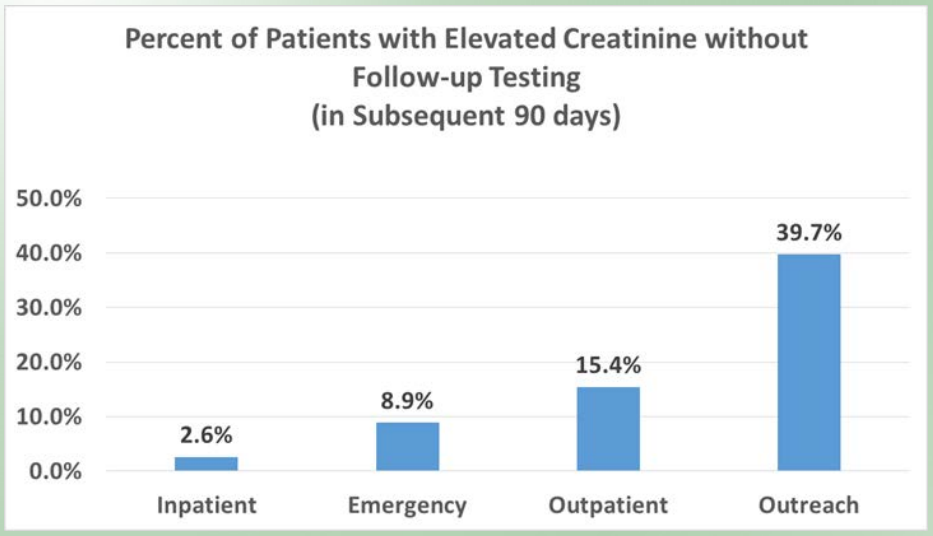
- **Underutilization (meta-analysis[1]: 45%)**

[1] Zhi, etal. PLOS ONE; 2013;8(11)378962

- **E.g. Lack of follow-up on elevated Creatinine**

Consequences:

- **Morbidity due to missed or delayed diagnosis**
- **Longer LOS**
- **Legal liability**



Improving Lab Test Utilization:
Challenges: Underutilization

From studies of closed malpractice claims (122 emergency claims, 181 ambulatory claims)

Contributing Factors to Missed Diagnoses	Emergency[1]	Ambulatory[2]
Cognitive Factors	96%	48% - 79%
Patient Related Factors	34%	46%
Lack of Appropriate Supervision	30%	
Inadequate Handoffs	24%	20%
Excessive workload	23%	

- **Cognitive factors include: mistakes in judgement, lack of knowledge, lapses in memory**
- **Most common breakdown in the diagnostic process: Failure to order the appropriate diagnostic test (55% - 58% of the cases)**
- **missed/delayed diagnosis resulted in serious harm in 48% - 59% of the cases, in death in 30% - 39% of the cases**

1. Gandhi TK, Kachalia A, Thomas EJ, Puopolo AL, Yoon C, et al. (2006) Missed and delayed diagnoses in the ambulatory setting: a study of closed malpractice claims. Annals of Internal Medicine 145: 488–496

2. Kachalia A, Gandhi TK, Puopolo AL, Yoon C, Thomas EJ, et al. (2007) Missed and delayed diagnoses in the emergency department: a study of closed malpractice claims from 4 liability insurers. Ann Emerg Med 49: 196–205

Improving Lab Test Utilization:
Return on Investment

Tangible Benefits

ROI:

- **Reduction of unnecessary and unreimbursed IP testing**
  - **Spend $1 to save $10? ROI = 800%**
- **Reduction in legal liability**
  - **How many renal failure cases presently in litigation?**
- **Acute Kidney Injury (5-7% of inpatients)**
  - **additional coding for reimbursement, 75% increase**
  - **$700 per patient**
  - **Decrease LOS by 3 - 7 days at $4 - $10k per day**

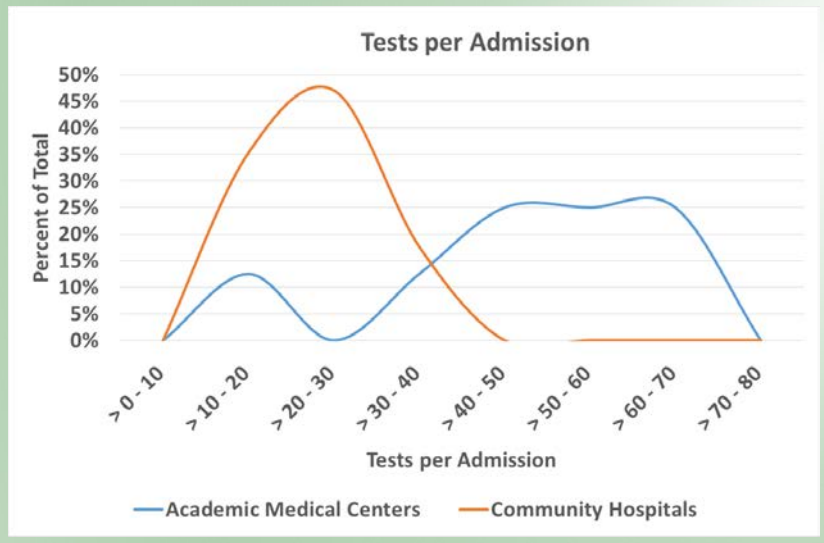
Improving Lab Test Utilization:
Database Overview

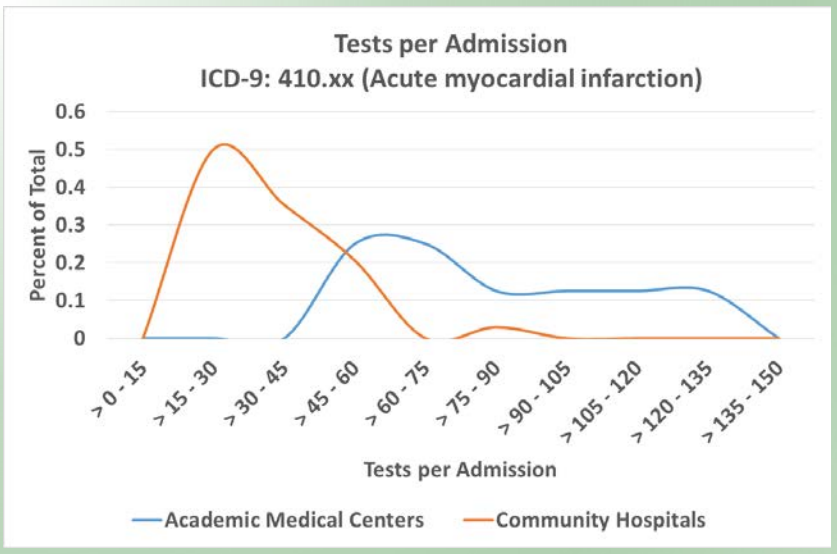
Peer Comparisons

- **Dashboard users have access to industry's largest peer comparison turnaround time database**
  - **Current 300 lab database covers all clinical path procedures (4.5 billion performance measurements)**
  - **Academic medical centers, teaching, community hospitals**
  - **Children's hospitals**
  - **Lean labs**
  - **Specialty labs (ED, Oncology, clinic)**
- **Users can network with best practice labs**
  - **Best practices may be result of Lean methods, technology or both.**

Improving Lab Test Utilization:
Benchmarks

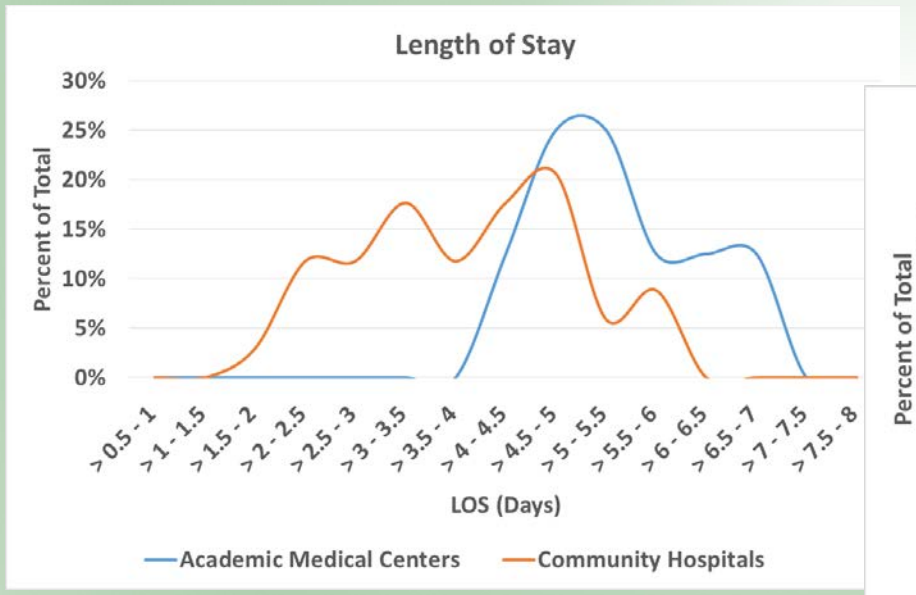
- **Tests per Inpatient admission**

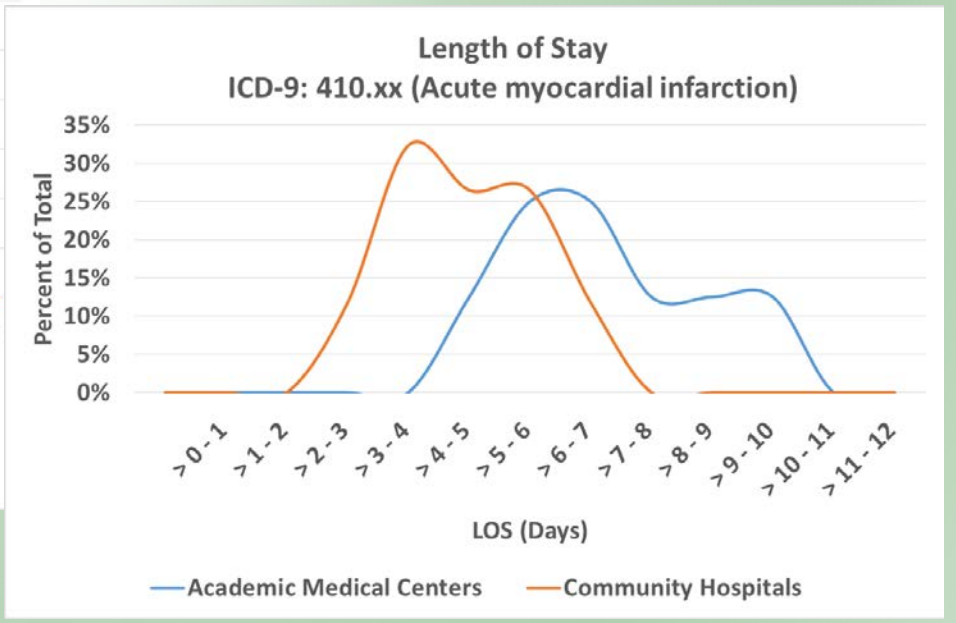




Improving Lab Test Utilization:
Benchmarks

- **Length of Stay (Inpatients)**





Improving Lab Test Utilization:
Summary

- Reimbursement changes are increasingly driving attention to the problem
- Multiple Strategies are needed; No one approach is sufficient
- Audits are a key element
- Data is available, but complex guidelines require robust analytics to evaluate
- Tremendous opportunity to improve bottom line of health systems

Improving Lab Test Utilization:
Summary

Development of and Implementation of Best Practice Protocols:

- **Requires both Analytics and Medical Expertise**

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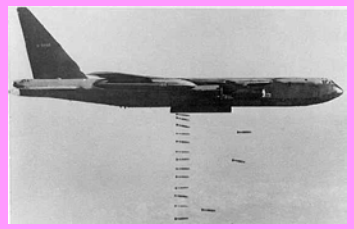

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Improving Lab Test Utilization:
Questions

Thank You!

For More Information:

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