Courageous Interventions to Improve the Utilization of Clinical Laboratory Tests

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Financial Disclosure Statement

• Univ Washington Intellectual Property licensed to CareCore National Inc., (Guide to Lab Utilization)

• Bio-Rad: Consultant
Objectives

1. Describe the value equation for patients as it applies to lab testing and how utilization management can increase value to patients.

2. Compare and contrast genetic testing to other laboratory tests with regards to the value equation.

3. Describe 2 interventions that increase the likelihood the correct lab test will be ordered.

4. Summarize the lab utilization guidance service administered by Seattle Children’s in collaboration with more than 20 adult and pediatric hospitals across the USA.
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Overview

• Utilization Management:
  • Background
  • Data from insurance claims
  • interventions

• Seattle Children’s UM plan

• Pediatric Laboratory Utilization Guidance Service (PLUGS)

• Conclusions
Why improve lab utilization?
Does the value equation differ between different kinds of testing?

- ↓ patient costs
- ↓ direct lab costs
- ↓ societal costs
- ↓ false + results
  - especially with ↓ pretest probability
  - ↓ worry
  - ↓ false Dx, associated harms
- ↓ unnecessary work

Value = Quality / Cost

Kim JY et al. Utilization management in a large urban academic medical center. AJCP. 2011;135:108-118
Healthcare Trends influencing Utilization Management

• Lab including AP ~$60B industry
  • Lab: ~4% of total spend and growing
  • “Molecular” = 15% of lab, 22% trend

• Capitation is a key Obamacare theme:
  • Bundled payments = capitation
  • ACOs = those who are capitated

• UM initiatives ride the capitation wave
Overutilization is gaining increased attention....
Root causes of lab overutilization

- Labs
  - more is better..
  - dissatisfaction...
  - $$ incentive...
  - fee for service
  - gene patents..
  - coding system..

- Patients
  - google...
  - wellness movement...
  - malpractice fear..
  - $ incentive...
  - Mktg pressure...
  - Patient pressure...

- Health system

- Care providers

↑ testing
Univ Washington- CareCore collaboration to study lab utilization in commercially-insured populations in the USA (2008 – present)

- Study of national, regional lab insurance claims databases

- Characteristics of largest insurance dbase we studied:
  - 1 year of data (2009)
  - 3.5 million covered individuals (members)
  - 8.2 million doctor’s visits in 48 states
  - Total spent on lab was $668 million.
  - Lots of overutilization.
    - Example: 2.3% of members had ANA test (about $1 million spent).
    - Prevalence of Lupus in population is 0.2 – 1.5 per 1000


Major domains of overutilization
Bundling and nonstandard tests are drivers in all domains.

- Wellness
- CVD risk
- Woman’s health (cervicitis, vaginitis)
- Nutrition and metals
- Flow cytometry
- Allergy
- Autoantibodies (e.g. celiac test bundles)
- Inpatients: Daily labs
- Genetic testing, especially by non-geneticists

Eckert LO, Astion ML, Tait JF, et al. 2011. *Infectious Disease Society for Obstetrics and Gynecology*
Nonstandard Tests during 1st eval of vaginal / cervical infections:
1 year of results from an insurance database
(Eckert LO et al. 2010. Am College Obstet Gyn Ann Meeting)

• Used our largest annual database of 3.5 million covered individuals

• 26% of 82,400 visits for eval of vaginal /cervical infections had unnecessary\(^1,2\) molecular testing.
  
  • **Recommended:** C. *trachomatis*, N. *gonorrhoeae*, T. *vaginalis*, herpes simplex
  
  • **Not recommended:** *Candida* species and subspecies, G. *vaginalis*, staphylococcus, streptococcus, enterococcus, and cytomegalovirus

• 22% ( > $1,400,000) of molecular spend on these evals is waste.

• One lab responsible for 50% of unnecessary testing.

\(^2\)Eckert LO, NEJM 2006;355:1244-52
Overuse/ Misuse of Allergen-specific tests
Novel biomarkers are overused (4.4% waste of $)

<table>
<thead>
<tr>
<th>Allergen specific test</th>
<th># visits (Dates of Service)</th>
<th>$ spent (% of total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IgE allergy test</td>
<td>18553</td>
<td>$2,315,447 (95.7%)</td>
</tr>
<tr>
<td>IgG-IgG4 allergy test</td>
<td>28</td>
<td>$71,420 (3.0%)</td>
</tr>
<tr>
<td>ALC antibody</td>
<td>48</td>
<td>$33,267 (1.4%)</td>
</tr>
</tbody>
</table>

• Astion M, Tait J, et al. CareCore collaboration, unpublished data
• Used our largest annual database of 3.5 million covered individuals
• >500 clinical labs represented in the >18,000 dates of service
For allergen-specific IgE testing, 28 tests per doctor’s visit is the norm! (N = 18,553 doctor’s visits)

- Ave units of allergen specific IgE: **28** (SD:13, Range: 12 – 71)
- **54%** of workups are associated with testing > 21 allergens
Overbundling and Nonstandard Testing for Cardiovascular Disease Risk

- Standard test panel for screening consists of cholesterol, HDL chol, LDL chol, and triglycerides and gets reimbursed about $20.

- Some labs claim expanded panels improve risk assessment and choice of Rx.

- CRP is minor part of this debate

From a Niche lab ($500):

- Panel = traditional panel plus ~16 tests:
  - Proprietary tests
    - LDL particle size assay
    - HDL particle size
  - Genetic risk markers
  - Lp-PLA2, Homocysteine, Vit D, BNP…
  - CRP, Lipoprotein (a), others

- Evidence lacking for added value (when used in screening)

- Tests not in guidelines (USPSTF, NCEP)

### Payment detail

<table>
<thead>
<tr>
<th>Time period</th>
<th>1 year (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic area</td>
<td>1 eastern state plus part of another eastern state</td>
</tr>
<tr>
<td># of unique patients who had the panel</td>
<td>1946</td>
</tr>
<tr>
<td>Total $ spent</td>
<td>$1,091,294</td>
</tr>
<tr>
<td>$ per patient</td>
<td>$561</td>
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</table>

Cost impact of overbundled, unnecessarily broad CVD risk screening

- 5% of all lab testing is on CVD risk testing
- About 13% of CVD risk testing is of limited or no added value relative to conventional markers

<table>
<thead>
<tr>
<th>Routine Cardiovascular lab testing:</th>
<th>13% of the bill is on testing of limited value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proven Tests</td>
<td>87%</td>
</tr>
<tr>
<td>Unproven Tests</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: Commercial payer 2008 data
The research on insurance claims databases led to a UM product for the insurance industry that now touches 6.1 M covered lives.
INTERVENTIONS to improve utilization require backbone and energy.

I’m revitalized and ready to decrease Vitamin D testing.
Where should we focus our interventions?

It is most realistic to focus on care providers.

- Patient Pressure
- Marketing Pressure
- Perverse Financial Incentives

MD, RN, PA, other

Test order

Test result

Lab

Common weaker interventions to improve lab utilization

- Memos
- Call for enhanced vigilance
- Training
  - Distribution of materials
  - Formal continuing education

MEMO 10/07/10
To: All Providers in Clinic X
From: Dr. BigEgo, Clinic Chief
Re: Lab test utilization

Stop ordering the wrong tests, and start ordering the right tests. Please, don’t order too many tests. Be more careful. You all don’t know what you are doing.
Utilization Management – Overview of Interventions

**Gentle**
- Posting of guidelines on the requisition
- Computerized reminders regarding utilization guidelines

**Strong**
- Privileging
- Sendouts formulary
- Forbidding tests
- Requirement for higher level collaboration or approval (e.g. Pathologist or genetic counselor consultation)

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Seattle Children’s Hospital approach to utilization management (UM)

- Utilization management committee, meets weekly
  - 2 genetic counselors
  - 4 - 6 Doctoral level staff including pathologists, medical geneticists, and clinical chemists
  - 2 lab managers
  - Subcommittees for special topics (e.g. exome testing)
- 1 GC, 1 doctor on call for UM each week.
- All UM cases recorded in database. Dbase allows case tracking, consistency in case resolution, and enables research and QI
- Emphasis is on sendout tests, but all aspects of UM are covered.

Typical UM committee work

- Policy and Procedures
- Review of subcommittees / ad hoc groups
- Periodic review of sendouts / send-ins
- Research / Academic progress
- Case review
Seattle Children’s Hospital: What test requests are placed under active management with review?

- Tests > $1000
- Tests ordered for multiple genes
- Requests to use alternate labs
- Requests for banned tests or labs
- Request for test labeled in lab system as “Under Management” (e.g., reverse T3)


Examples of Banned Tests

- IgG Allergy
- IgM Helicobacter
- Genetic scoliosis prognosis
- Lab asked to draw blood and mail “special” kit to “special” lab.
  - Autism spectrum
  - Fibromyalgia panel
- Hair testing that is not arsenic
1,25 Dihydroxyvitamin D Intervention

Problem:

• 1,25 Dihydroxyvit D is common send-out with > 300 tests/yr

• Retrospective chart review found 68% of 1,25 Vit D were ordered in error and 25 Vit D was intended.

Intervention

• Email describing use of the two Vit D tests, and asking if provider wants to change to 25 Vit D.

• Email managed by front-line sendouts staff.

1,25 Vitamin D Intervention

The lab received a request for 1,25 dihydroxy vitamin D on your patient. In our lab, we found that this is ordered accidentally 68% of the time.

Utility of 25- Vit D vs. 1,25 Vit D

Two options:
1. Cancel and add-on 25-OH Vit D
2. Proceed with original order

Effect of an email to doctors on Vitamin 1,25 D orders (2012-2013, 7 months)

After intervention:

- 58% (n=134) of the 1,25 Vit D orders were changed to 25 Vit D.
- 1,25 Vit D now <10 /mo

"Thank you so much for the email. You are correct I wanted 25-hydroxy. I will cancel and reorder."

"Thanks so much for your help (and education.) You are exactly right—please cancel the order of 1,25 and I’ll add on for 25 hydroxy."

I am not making these up.
“Dear Seattle Children’s Send-out Team,
I’ve created a list of our privileged providers who do not need to be contacted regarding ______ orders. Simply, send these tests out. ”
Genetic Counselors as a form of enhanced supervision

• In this study: 1 / 3 of genetic test orders were in error and correcting the order improved patient care and saved $ for patients and hospitals.

Email template to physicians who are not Medical Geneticists but who are ordering expensive genetic tests

Lab received expensive, unusual request on your patient:

You have 3 options:

1. Involve genetics or lab GC
2. Hold for pre-authorization
3. Proceed after telling $cost to patient

Info on completing insurance pre-auth
Utilization Management Case: Two improvements on one order

- Female with macrocytic anemia since 6 wks of life
  - **Save 1**: Immunologist ordered Fanconi breakage testing.
    - UM test (send to 1 of 2 reference labs based on CBC)
    - Same test was normal in 2005
    - Immunologist approved cancelling repeat test
  - **Positive outcomes**:
    - **Cost savings ~$750**
    - **Cancelled duplicate order**
• **Save 2:** Immunologist ordered simultaneous Dyskeratosis Congenita and Shwachman-Diamond sequencing
  - Tests ordered for multiple genes
  - Diamond Blackfan Anemia sequencing panel also in progress.
  - Immunologist approved sequential testing.
  - DBA sequencing detected mutation. Other tests canceled.
  - *Positive outcome: Cost savings* ~$2400

• **Total savings for this patient** = $3150!
UM Results:
25% of genetic test requests are canceled or decreased

<table>
<thead>
<tr>
<th>Order Classification</th>
<th>All Cases (n = 696)</th>
<th>Genetic Cases (n = 483)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved</td>
<td>70% (478)</td>
<td>75% (364)</td>
</tr>
<tr>
<td>Sequential</td>
<td>10% (67)</td>
<td>14% (62)</td>
</tr>
<tr>
<td>Cancelled</td>
<td>21% (143)</td>
<td>11% (51)</td>
</tr>
</tbody>
</table>

Order Modification Rate Over Time
(N=696 cases)

% of Test Requests

- Approved
- Sequential
- Cancelled

Seattle Children's
HOSPITAL • RESEARCH • FOUNDATION

UW Medicine
SCHOOL OF MEDICINE
The rate of order modification for genetic tests is higher among non geneticists (N=483 cases).

Non-Genetics Providers
- Approved: 72%
- Sequential: 12%
- Cancelled: 16%

Genetics Providers
- Approved: 83%
- Sequential: 15%
- Cancelled: 2%
It is more laborious to resolve cases involving non-genetics providers (N=483 cases of genetic testing)
Financial Implications to date (N=876 genetics cases reviewed)
$440 sendout cost avoidance per genetic test requisition under management

$2,221,880*
Total genetic requests

25% order modification

$385,151
savings

$1,836,729
Actual

~$440 saved per request

*Data collected September 2011 – Jan 2014
Providers like the service

10 questions on a semi-quantitative sliding scale
“Not at all satisfied” to “ Couldn’t be better”

Examples of Questions

• “I have experienced testing delays that have impacted patient care because of the UM process (not including insurance pre-authorization).”

• “I appreciated knowing the cost of the test(s) before they were sent.”

• “The information provided by the UM team regarding sample holding and DNA banking was useful.”
“Our interaction in hem/onc with the UM program has been overwhelmingly positive... This program is definitely appreciated.”

“I LOVE the UM team and what they do to improve patients' care.”

“I love this program. It should be expanded. When I hear from patients how much they have had to pay out of pocket, I reconsider ordering tests... Can we see the cost of every test we order in real time? Or even afterwards?”
Survey completed by 100 providers

Provider Satisfaction

Neutral, No opinion,
Seattle Children’s Hospital: Results from the Pilot

- Summary re genetic sendouts:
  - 25% requests canceled or modified
  - $440 = ave savings per case

- Qualitative results:
  - Proactive insurance preauth
  - Proactive sequential testing

From our pilot, PLUGS is born...
The solution: PLUGS

Pediatric Laboratory Utilization Guidance Services

• Helps hospitals and health systems implement lab utilization management programs that decrease germline genetic testing costs and ordering errors.

  • Decreases the send-out bill for germline genetic testing by 20 – 40% while improving the accuracy of genetic test orders.

  • Decreases the send-out bill for non-genetic tests by 10% while improving test ordering.

• Decreases patient complaints by reducing out of pocket expenses and unnecessary testing.

• PLUGS has a focus on testing in pediatrics and young adults but can help reduce testing expenses in all settings since germline genetic tests are used in adult settings.
Our mission: Significantly reduce pediatric send-out testing expenses while increasing the value of testing to patients.

Our vision: be the #1 provider of services that promote pediatric test utilization management (UM) programs in hospitals and health systems.
PLUGS currently has an Annual Fee of $4000. Members Receive...

1. Utilization Management (UM) Tools:
   • Communication tools that help providers reduce unnecessary testing and correct their test orders.
     • Friendly phone scripts
     • Email templates
     • Tips and Tricks from PLUGS experts
   • Database for recording and analyzing cases in the lab’s test UM program
   • Test policies
   • A tool to assess the risk of errors in the lab’s send-outs area
   • A survey for obtaining feedback from care providers regarding the lab UM program
   • FAQ
PLUGS currently has an Annual Fee of $4000

Members Receive…

2. Education in Laboratory Utilization Management
   • Extensive materials on how to get a UM program started in a lab or hospital
   • Cases
   • Webinars
   • Literature references and summaries
   • Discounts on education provided by PLUGS partners

3. A needs assessment performed by PLUGS faculty regarding the lab’s UM strengths and weaknesses.

4. Communications
   • Office Hours/Call Center.
   • Website: www.seattlechildrenslab.org/plugs
   • Weekly Newsletter
   • Member teleconferences with presentations by members

5. Discounts on consulting engagements with PLUGS faculty. Consulting includes on site workshops, analysis, and face-to-face meetings with hospital executives.
Communication templates to help with:

- Insurance preauthorization
- Convincing provider to involve genetic counselor
- Other common UM problems.

Test-Specific policies & procedures

Communication template to help provider order correct genetic test
PLUGS: UM Database

• Customized tools to track cases, review data and provide metrics

• Data can be used to show benefits of utilization management such as cost savings, and improved accuracy of test ordering.

• Database template in Microsoft Access 2007 with built-in queries for quick cost calculations and data reports
Examples of topics explored through print format, short-video segments, & subsections of the weekly PLUGS newsletter

• Utilization Management Pitfalls
• How to talk to providers about genetic testing... the “BE” series
• How to start a UM program in 3 steps
• The UM Committee: More than a fling
Some current PLUGS Members

Members:
- Akron Children's Hospital
- Boston Children’s (Claritas Genomics)
- Children's Hospital & Clinics of MN
- Children's Hospital of Colorado
- Children’s Hospital of Philadelphia
- Children’s Medical Center of Dallas
- Children’s Mercy Hospital
- The Hospital for Sick Children, Toronto
- Intermountain Health
- Lurie Children’s Hospital Chicago
- Mayo Clinic
- Nationwide Children's Hospital
- Phoenix Children’s Hospital
- St. Louis Children’s Hospital
- University of Utah / ARUP
- York Hospital (WellSpan Health System)

Current Member List as of 1.09.14
PLUGS: Office Hours

Members can talk to a genetic counselor or doctoral-level provider regarding:

- Specific tests / algorithms
- Tips for communicating with docs
- How to implement UM strategies for genetic testing

OFFICE HOURS

Dial +1 (855) 860-6346 to speak with an experienced genetic counselor or lab medicine faculty member!

8:00 am to 4:00 (CST)
Monday – Friday
excluding holidays
The savings from reducing incorrect genetic testing will pay for a PLUGS membership in about 5 days. The other 360 days of savings are for the client health system and their patients.
Goal: PLUGS will provide UM service for CHA hospitals and the pediatric component of adult-oriented health systems.

CHA= Children’s Hospital Association
PLUGS fulfills the academic mission and expresses itself thru many channels. As a lab business, it is a hedging strategy riding on the capitation trend.
PLUGS is academically important

Papers


Abstracts:


Editorials

Conclusions and Thanks!

- Stronger UM interventions are structural

- SCH experience:
  - $440 cost avoidance per genetic test under management
  - Banning useless tests
  - Email scripts as guidance
  - Privileging

- From our lab UM experience, we helped create a UM product for insurance companies and launched PLUGS, an outreach to hospitals with components of service, research, and teaching

\[
\text{Value} = \frac{\text{Quality}}{\text{Cost}}
\]