Benchmarking and Productivity: Leveraging Data to Drive Results

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Disclosures

- Neither Steve Rough nor Philip Brummond have relevant financial relationships to disclose nor any actual or potential conflicts of interest in relation to this presentation.
Learning Objectives

- Discuss industry benchmarking standards and how pharmacy leaders must understand the development of these reports
- Explain steps for developing an action plan that supports practice advancement, departmental growth, and effectiveness
- Develop strategies for responding to variances to industry benchmarks
Schedule

- 70 minutes didactic session and listserv survey result review
- 20 minutes open Q&A
- 90 minute lunch break
- 50 minutes case overview and small group activity
- 30 minutes case report out and group discussion
- 10 minutes final summary and Q&A
Getting to Know the Audience

How many use external benchmarking?
Getting to Know the Audience

How many perform internal benchmarking?
Getting to Know the Audience

How many are held accountable to benchmarking metrics in the budget process?
Getting to Know the Audience

How many completed our survey?
Getting to Know the Audience

Who has more questions than answers related to benchmarking?
What does Pharmacy look like to Senior Leadership?

- A high cost department that I don’t understand
  - Expensive drugs and employees
- Budget is a black hole
- An expense to be managed rather than an investment to be optimized
- When they talk quality it’s often not well understood
- Lot of questions:
  - A vital clinical resource?
  - Critical for quality and safety?
  - Key to organization’s success?
  - A department very different from most others?
UW Health Pharmacy Department

Review of Expenses

Pareto Chart of Pharmacy Expense

Drugs and personnel expense make up 99% of total pharmacy expense

- Drugs: 85.7%
- Personnel: 13.3%
- All other: 1.1%
UW Health Pharmacy Performance vs. AMC Peers
(Action-OI Data)

Tradeoff between pharmacist labor and total pharmacy cost of care (labor + drugs)
Benchmarking
Which company is credited with establishing benchmarking?

A. Toyota
B. Xerox
C. Apple
D. GE
Xerox Corporation, 1970s

- Measured themselves against industry leaders
- Products, services, practices
- Systematic identification and implementation of best practices

Comparing to oneself over time (Internal Benchmarking)

Comparing your institution to other institutions of similar size, pharmacy services offered, etc. (External benchmarking)
Background: Benchmarking

- Benchmarking is increasingly applied within health systems as a tool for continuously evaluating department success
- Pharmacy departments are often expected to incorporate benchmarking data into their annual budgeting process
- Productivity monitoring systems are gaining prevalence among hospital administrators
  - Expectation is to drive out waste and lower cost
  - Pharmacy managers required to explain metrics related to performance and constructively identify their shortcomings and pitfalls
Background: Benchmarking

- Benchmarking software available through a limited number of commercial vendors
  - Systems unable to effectively measure department operational and overall performance
- Through effective benchmarking, pharmacy departments should be able to identify opportunities for improving the department’s overall value
  - Workflow efficiency, financial performance and patient care services
- If applied ineffectively, benchmarking systems can lead to staffing changes that negatively impact the safety and quality of patient care
Is benchmarking all theoretical?

- Few studies investigating external benchmarking
- No published gold standard for health-system pharmacy productivity: internal or external
- Belief that benchmarking improves cost control, quality, and profitability – no objective data
The Ultimate Value?

- Develop a pharmacy workload monitoring system that analyzes the impact of pharmacy services on patient outcomes and quality
- Measure overall effectiveness and value of pharmacists patient care services
- Define pharmacy workload as all activities related to providing pharmacist patient care services (eliminate widgets)
The Ultimate Value?

- Need valid and more reliable methods and metrics to assess pharmacy workload and staffing effectiveness
  - linkages between pharmacy investment in best practice and overall hospital performance
    - Total cost of care
    - Avoided costly adverse drug events
    - Regulatory compliance
    - External quality scores
    - Nursing and physician satisfaction
    - Population health
How should we assess pharmacy services?

Productivity workload ratios tied to distributive/ labor outputs

Productivity workload ratios tied to clinical activities

Practical metrics

- Workload metrics
- Labor metrics
- Cost metrics
- Outcome metrics

- There is no single perfect metric – will need a combination...
Polling Question

Pharmacy benchmarking systems should measure the impact of pharmacy services on patient outcomes and total cost of care?

A. True
B. False
Polling Question

Pharmacy benchmarking systems should measure the impact of pharmacy services on patient outcomes and total cost of care?

A. True
B. False
External Benchmarking
External Benchmarking: Definition

- System whereby hospitals submit department level data into a vendor-managed financial and operational comparative database, to enable comparison of department operational and financial performance versus similar (peer) organizations
- Provides a process for measuring costs, services and practices against “best in class” organizations
- Target key areas for cost control
Where Does Our External Benchmarking Data Come From?

- Payroll system for paid hours, worked hours
- Charge master for procedure volume
- General ledger for supply expenses
- Monthly financial reports and billing/coding data for revenues
- Manual departmental statistics for orders processed
Common External Benchmarking Metrics

❖ Cost-based ratios
  • Total pharmacy cost per intensity weighted (adjusted) discharge
  • Drug cost per intensity weighted (adjusted) discharge
  • Labor cost per intensity weighted (adjusted) discharge

❖ Labor productivity ratios
  • Hours worked per intensity weighted (adjusted) discharge or patient day
  • Hours worked per CMI weighted (adjusted) discharge or patient day
  • FTEs per order processed (or doses billed, or occupied bed)
  • Pharmacists per 100 beds
External Benchmarking “Gotchas”

- Department definitions and revenue adjustments
- Inability to identify peer group characteristics and extent of best practice implementation
- Drug expense classes not reported
- Case mix index (CMI) to approximate patient acuity
- Clinical activity (workload performance) measures are ambiguous, unclear and lack meaning
- Normalizations not applied consistently for high cost drugs
- Rebates, credits, disproportionate share
External Benchmarking “Gotchas”

- Reporting instructions are vague
- Labor and cost ratios, and key performance indicators, are flawed
- Worked hours may not factor in “skill mix” nor “labor cost”
- No evaluation of quality or safety
  - No measure of overall value derived from pharmacy
- Orders have little to do with pharmacist clinical work
  - Different computer systems will counts “orders” differently
Revenue Adjustments

EXP/100 INT ADJ DPT ADJ PT DY: Drug

- “Inpatient Drug expense per 100 intensity adjusted department adjusted pt days”
- Inpatient Drug Expense/((PIS*100)*(Dept Gross Rev/Dept IP Rev)*Patient Days)
- “Gross Revenue” should include inpatient and clinic/ambulatory revenue
- Inpatient is very misleading, because it really includes “clinic administered drugs”

NOTE:

- Total Dept Gross Revenues/Inpatient Revenue in ratio denominator
- Designed to “adjust” for clinic drugs to back into accurate “inpatient costs”
- Higher Outpatient markup will make you a star performer
- Reporting retail or clinic revenues but not associated drug cost will make you a star performer
- High cost ambulatory clinic drugs = disproportionate share of revenues
- 2005 survey - 50% of hospitals don’t report drug costs properly!
Flaws with Combining Inpatient and Ambulatory

- Inconsistency in where (and if) clinic administered, procedure area and oncology medications are reported
- Some top performers do not report clinic drug expense according to the reporting instructions (gaming?)
- Some-physician owned practices have the cost for clinic drugs
- Vendor instructions flip-flop and data coordinators don’t keep up
- Single patient infusion can exceed $200,000 per year (huge cost/dose)
- No clinic CMI or Pharmacy Intensity Score – how do you account for large infusion centers, transplant clinic, etc?
### Example (Double Jeopardy!)

<table>
<thead>
<tr>
<th>Hospital A</th>
<th>Hospital B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500k clinic drug cost (outsourced to MDs)</td>
<td>$15 million clinic drug cost (infusion, onc)</td>
</tr>
<tr>
<td>80 clinics with 10 FTE RPh</td>
<td>80 clinics, 0 RPH, 1 FTE pharmacy technician</td>
</tr>
</tbody>
</table>

*Low drug cost, $1.3 million pharmacy labor costs*

*High drug cost, $40k pharmacy labor costs*

**If you don’t report clinics expense separately from inpatient:**

- Hospital B’s Administration says “Why aren’t our pharmacists doing as good of a job at controlling drug expense as Hospital A? We want you to cut your IP drug costs by $15 million next year.”

- Hospital A’s Administration says “We want you to be more labor efficient, find a way to cut 10 FTEs of inpatient pharmacist expense so we can manage our labor costs as well as hospital B.”
Acuity Adjustment

- Acuity adjustment is ideal
- Enables direct comparison among institutions, regardless of patient mix
- Current adjuster (CMI) is from CMS (total resource use), plus regional wage index adjustment
- CMI based on “overall” resource consumption
- Inadequate for medication expense (BMT vs hip replacement example)
- Pharmacy Example: CMI assigns similar acuity ratings to patients who require vastly different levels of medication resources to achieve a positive outcome
- Thus, using CMI to adjust for hospital acuity can identify poor performers as benchmarks and good performers as deficient!
Beware of CMI Groupings

- In the absence of adequate acuity adjustment, meaningful peer grouping is necessary

- Goal is to identify the right peers

- Pharmacy Intensity Score developed by UW Health Pharmacy Department and adopted by Solucient in early 2000’s
What is Pharmacy Intensity Score?

- Pharmacy Intensity Score = resource-based relative value intensity (R-BRVI) grouping system that utilizes pharmaceutical resource consumption data to produce DRG-specific drug use requirements (weights)
- Data collected via Clinical Data Base to assign a weight to every DRG (0.1 to 100; DRG with highest median drug cost per admission assigned value of 100)
- $\sum(\text{DRG intensity weights} \times \text{DRG volumes})/ \text{Total Admissions} = \text{Pharmacy Intensity Score}$
- Can now adjust ratios for pharmacy intensity rather than CMI intensity with some vendors
- Caution: pharmacy intensity score adjusted annually, need to watch closely
### How do CMI and Pharmacy Intensity Score Match-up?

<table>
<thead>
<tr>
<th>DRG</th>
<th>CMI Weight (Range: 0.1-18.7)</th>
<th>P.I.S. (Range: 0.1-100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMT</td>
<td>6.1 (32.6%)</td>
<td>100</td>
</tr>
<tr>
<td>Kidney Tx</td>
<td>3.2 (17.1%)</td>
<td>27.5</td>
</tr>
<tr>
<td>Hip Replacement</td>
<td>3.2 (17.1%)</td>
<td>7.8</td>
</tr>
<tr>
<td>CABG</td>
<td>7.3 (39%)</td>
<td>19.5</td>
</tr>
<tr>
<td>Acute Leukemia</td>
<td>3.5 (19%)</td>
<td>14.5</td>
</tr>
<tr>
<td>Cardiac Valve</td>
<td>5.7 (31%)</td>
<td>17.8</td>
</tr>
</tbody>
</table>

Treated as same “acuity” in CMI-based system despite 3-fold difference in PIS system.
More Gotchas

Productivity measured by doses charged or dispensed

- Does not capture clinical interventions and outcomes
- Internally prepared medications vs. manufacturer-packaged doses
- Technology counting 10 units of insulin as “10 doses” vs. “1 dose”
- Cheap, time-intensive medications

Patient days

- Bulk of pharmacist intervention/medication cost is within the first half of hospitalization
- Impacted by hospital system management of patient discharges
- Increased hospital efficiency → improved patient outcomes, decreased patient length of stay, but same cost of medications
- As hospital reduces LOS versus peers, pharmacy looks worse!
Patient Days versus Admissions

- Can result in substantial declines or improvements in performance depending on how well your discharge process is managed.
- If hospital doesn’t manage discharge process well, department will look better if they choose “patient days” as their indicator of performance because most pharmacy drug expense is on the front end of admission.
- Changes in organizational assignment of “temporary” or “observation” status for inpatients patients can increase or decrease one’s reported patient days, resulting in immediate better or worse performance versus peers if “patient days” is used in the denominator.
Metric Suggestions

- Drug cost / admission
- Total pharmacy cost / discharge
- RPh worked hours / order (or 100 orders, or discharge)
- Tech worked hours / dose dispensed
- Evaluate all metrics based on pharmacy intensity score and CMI weightings
- Use quality outcomes measures whenever possible
- Never evaluate a labor metric without a corresponding cost metric!
Metrics to Avoid

- Patient days in denominator
- Revenue adjusted (adj)
- Hours worked
- Hours paid
- Orders processed
- Number of clinical interventions
Necessary Improvements in Commercial Systems

- Meaningful department breakouts
  - Inpatient = true inpatient
  - Outpatient = clinics, infusion centers (onc and non-onc), procedure areas, dialysis, amb surg, cath lab, ED, etc
  - Retail
  - Other (informatics, administration, drug policy, research, consulting, etc)
- Modernized characteristic surveys reflective of extent of best practice implementation for safety (model example included in white paper)
- Improved drug expense breakout reporting (model example included in white paper)
- Shift from CMI to PIS for all cost and labor metrics
- Eliminate clinical activity measures (or make optional)
Necessary Improvements in Commercial Systems

- Consistently applied normalizations for high cost drugs
- Consistency in handling rebates and expired drug credits back to pharmacy
- Clear flagging of 340b sites
- Clear reporting instructions and clear metric definitions
- Improved quality assurance review of data (rules to test for data integrity and reliability)
- Meaningful key indicator (labor AND cost ratio) metrics
Tips for Success: External Benchmarking

- Understand system or vendor limitations
- Have a department expert on benchmarking
- Implement a plan to achieve improvement
- Have meaningful peer groups
- Utilize meaningful metrics
- Compare nursing productivity ratios with peers
- Tie productivity results to clinical outcomes and total cost of care

- Educate administrators regarding flaws of external benchmarking systems
- Regularly review the results and data integrity
- Understand how the ratio equations depict department favorably and unfavorably
- Understand why your scores differ from peer groups
- Advocate against being in the lowest percentile for labor productivity
- Understand how your department’s data is collected
- Know your data coordinator and invest time in understanding reports
- Know your data coordinator and invest time in understanding reports
- Determine opportunities for labor- and cost-efficiency improvement
- Know your data coordinator and invest time in understanding reports

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Polling Question

Which of the following can be measured with commercially available benchmarking and productivity monitoring software?

A. Patient outcomes
B. Pharmacists impact on total cost of care
C. Predefined pharmacists staffing efficiency metrics
D. Extent to which pharmacy clinical services are implemented
Polling Question

Which of the following can be measured with commercially available benchmarking and productivity monitoring software?

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B. Pharmacists impact on total cost of care
C. Predefined pharmacists staffing efficiency metrics
D. Extent to which pharmacy clinical services are implemented
### Working with Commercial Vendors and Consultants

<table>
<thead>
<tr>
<th>Lack expertise in defining and measuring pharmacy practice</th>
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<tbody>
<tr>
<td>Cost-minimization goals often conflict with pharmacy department’s goal of expanding clinical services and implementing best practices</td>
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<table>
<thead>
<tr>
<th>Often downplay pharmacy departments services</th>
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</thead>
<tbody>
<tr>
<td>Typically assess ratio of staffing to widgets produced</td>
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</table>

<table>
<thead>
<tr>
<th>Available systems do NOT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure total cost of care as related to individual department costs/services</td>
</tr>
<tr>
<td>Measure patient outcomes</td>
</tr>
<tr>
<td>Must defend against claims of consulting benchmarking organizations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pharmacy managers need to explain metrics and identify shortcomings</th>
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<tbody>
<tr>
<td>Many do not have objective data to support services</td>
</tr>
<tr>
<td>Spend more time justifying why monitoring system is flawed than using it</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pharmacy is unique: largest cost is not personnel</th>
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<tbody>
<tr>
<td>Inverse relationship → decrease in pharmacist staffing often leads to higher overall hospital costs (e.g., medication errors, adverse drug events)</td>
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</tbody>
</table>
Advice when working with benchmarking consultants

❖ Ask consultants to share their details
  • Peer group
  • Characteristic survey data
  • Year data was submitted
  • Cost and labor metrics (the right ones)
  • Insist on comparing based on contemporary metrics and quality standards

❖ Strive to achieve savings targets through drug cost savings
Caution...

“If all you have is a hammer, everything is a nail”

- Today’s systems do not evaluate the impact of pharmacy services on patient outcomes, quality and total hospital cost of care (silo approach)
- Still no measure of the overall effectiveness and value of pharmacist patient care services
- Need to continue to strike a balance between productivity, cost, efficiency, quality, satisfaction and outcomes measures
- Only way to improve is by going down
Philosophies for Success

- Medications are good investments
- Clinical pharmacy services are good investments
- Quality and safety drive efficiency
- Engage physician leaders in decision making
- Work to tie pharmacy performance to achievement of organizational goals as alternative to external benchmarking
- Set annual cost reduction goals and achieve them
Philosophies for Success

- Your budget is a plan, not a suggestion
  - Manage expenses and productivity to budget
- Accurate and rational budgeting and forecasting
- Sell the 80:20 rule
- Explain and actively manage variances
- Understand the impact of pharmacy resources on both the revenue and expense sides of the hospital business
- Set high performance expectations for pharmacists around cost management
Conclusions

- Challenges are numerous
- Benchmarking solely on labor productivity ratios will eventually lead to the demise of the profession
  - Quality costs more!
- Need new ways to demonstrate the “overall” value of pharmacist patient care services
- For cost/efficiency comparison purposes, internal productivity monitoring is much more valuable than external benchmarking (see 2010 AJHP white papers)

Polling Question

In benchmarking, pharmacy data is often extracted and compiled under one entity including both inpatient and outpatient data?

A. True
B. False
Polling Question

In benchmarking, pharmacy data is often extracted and compiled under one entity including both inpatient and outpatient data?

A. True

B. False
References

References

Survey Results
Question & Answer
(20 minutes)
Lunch Break
(90 minutes)
Case Overview and Small Group Activity (50 minutes)
Case Report Out and Group Discussion
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Final Summary and Q&A (10 minutes)