Strategic Savings: Approaches and Ideas for Keeping Lab Budgets Under Control

Kevin Alby, PhD, D(ABMM)

Director of Microbiology, Brown University Health

BROWN Health UNIVERSITY

Disclosures

- No relevant disclosures

Objectives

- Understand constraints currently impacting laboratory budgets as well as what this means for the future
- Evaluate strategies to make the budget stretch further
- Learn to develop strategies to consolidate budgets across areas

Outline

- Introduction
- Options for making strides with supplies
- Tackling send-out testing and bringing in new testing
- Uses of creative staffing
- Final thoughts

Introduction

- Laboratory budgets are unique to each facility with many moving pieces.
- Approaches that work well at one facility may not work at all at others.
- The goal of this presentation is to present some options to think about.

Why Laboratory Budgets are Challenging

- Based on assumptions that past performance can accurately predict future needs
- Are oftentimes asynchronous
  - Attempts to minimize shipments leads to bulk orders
  - Seasonal patterns impact microbiologic testing
    - GI pathogen testing in the summer
    - Respiratory viral testing needs in June vs January
  - External events can impact hospital and/or laboratory volume
    - World Cup 2026 is expected to bring millions of visitors to a region

Why Laboratory Budgets are Challenging

- Complicated reimbursement models make it difficult to track the income a lab generates
  - Inpatient vs outpatient
  - Medicare vs Medicaid vs private insurance vs self-pay
- Complicated care models make it difficult to track institutional savings a lab is responsible for
  - Reduced antibiotic costs
  - Reduced length of stay
  - Reduced subsequent/additional laboratory testing

Areas to Consider

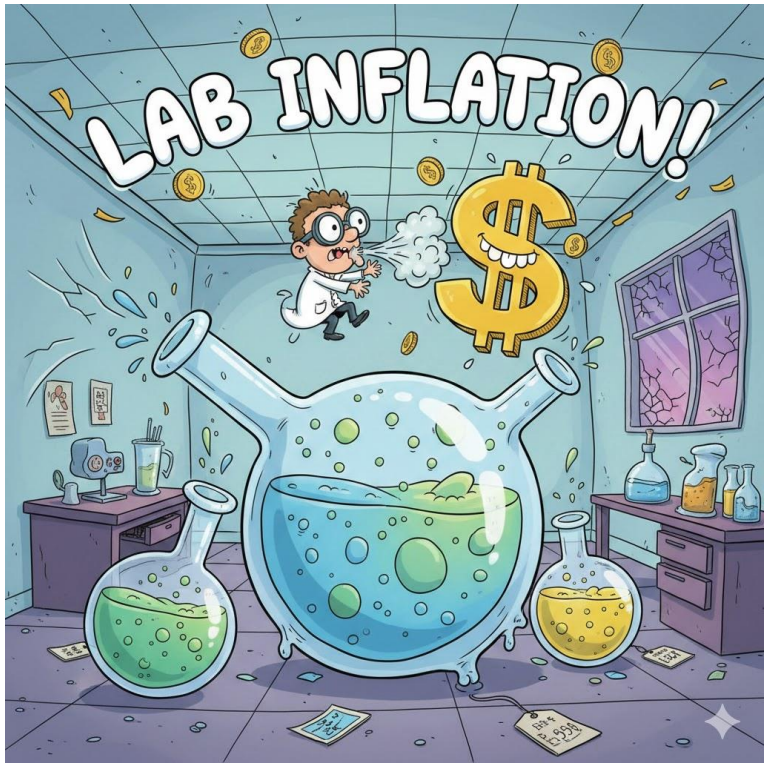
- What is the budget spent on?
- What is being asked to trim?
- What data is informing the budget?
- What benefits are there to increasing revenue?
- Are institutional savings tracked or given credit for?
- What operational support is available?

Outline

- Introduction
- Options for making strides with supplies
- Tackling send-out testing and bringing in new testing
- Uses of creative staffing
- Final thoughts

Laboratories Operate in the Real World

- Accumen survey of 50 laboratory leaders in 2024 (ADLM Abstract)
  - Diagnostic reagent prices increased ~10%
  - Equipment prices increased ~7%
  - Some product lines have had increases of up to 20%



https://doi.org/10.1093/clinchem/hvae106.204

Opportunities for Managing Supply/Equipment Costs

- Order frequency/size
- Institutional contracts
- Capital procurement methods

Ordering Frequency/Size Considerations

- Is there a per shipment charge?
- What space is available for storage?
- What is the outdate on the products?
- Does QC need to be performed on the stored items?
- Do larger shipments reduce time spent ordering and stocking?
- Are there direct cost benefits to setting a standing order?
- Can this be shared across sections of the laboratory to provide more purchasing power/benefit?

Institutional Contract Considerations

- Many institutions partner with major suppliers (Cardinal, Medline, others) for their medical supplies used throughout the hospital
- There may be implications for laboratory supplies/reagents as part of these contracts
- What products are used in the lab that are interchangeable between manufacturer?
- Has the institution streamlined contracts with vendors?
- Have different parts of the laboratory combined contracts with vendors?

What Makes Microbiology Special

- One of the largest expenditures in the microbiology lab is the culture media
- This has a shorter shelf life than most other laboratory reagents and requires cold storage

Using Expired Reagents as a Metric for Change

- Labs are usually very good monitoring the inputs of how much is ordered
- It is also important to monitor the type and amount of reagents that are discarded
- To make the most of the ins/outs of lab reagents, additional information should be captured
  - Time of year and/or major events
  - Were discarded reagents short dated to begin with
  - Did reagent use track with overall volume

Equipment Expenditures

- Typically falls into one of three bins
  - Capital purchase
  - Reagent rental
  - Lease

Capital Purchase

- Most straightforward pricing
  - X for instrumentation
  - Y for service contract
  - Z for consumables
    - It is important to be aware of reagent escalation clauses in the contract
- Equipment is owned at can depreciate at the institution's preferred rate

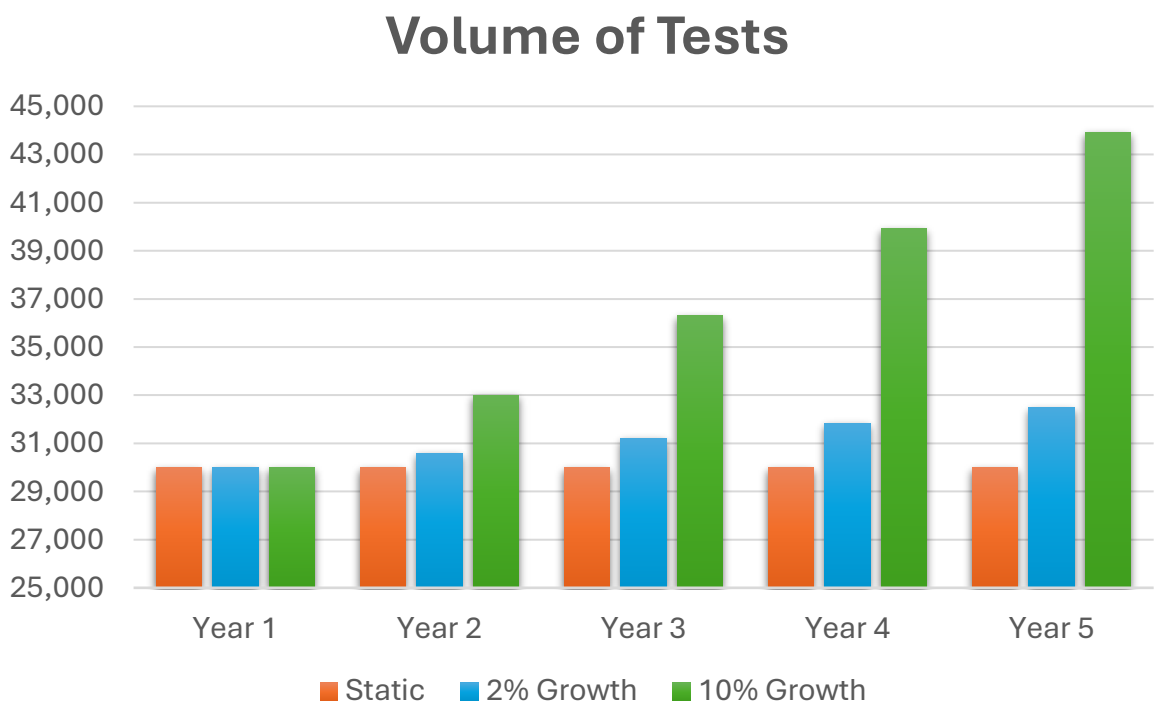
Reagent Rental

- Way to get equipment without upfront capital
- Can include upgrade clauses to help get new technology in the door faster
- Requires reagent commitments
- Oftentimes ends up costing “more” in the end

Equipment Lease

- Not as widely available
- Sometimes offered as lease to own
- Can be used for surge capacity if only going to be needed a short time
- 3rd party companies are starting to enter the lease space, especially outside of microbiology

Importance of Considering Growth



	Static	2% Growth	10% Growth
Year 1	30,000	30,000	30,000
Year 2	30,000	30,600	33,000
Year 3	30,000	31,212	36,300
Year 4	30,000	31,837	39,930
Year 5	30,000	32,473	43,923
Total	150,000	156,122	183,153
Cost @$0.10	15,000	15,612	18,315

Outline

- Introduction
- Options for making strides with supplies
- Tackling send-out testing and bringing in new testing
- Uses of creative staffing
- Final thoughts

Tips for Tackling Send-out Testing

- Testing restrictions
- Leakage after go-lives
- Purging of the catalog

Value of Selective Testing

- The diagnosis of viral encephalitis is a rare event
- Positivity rates range from 1-2 percent in healthy adults

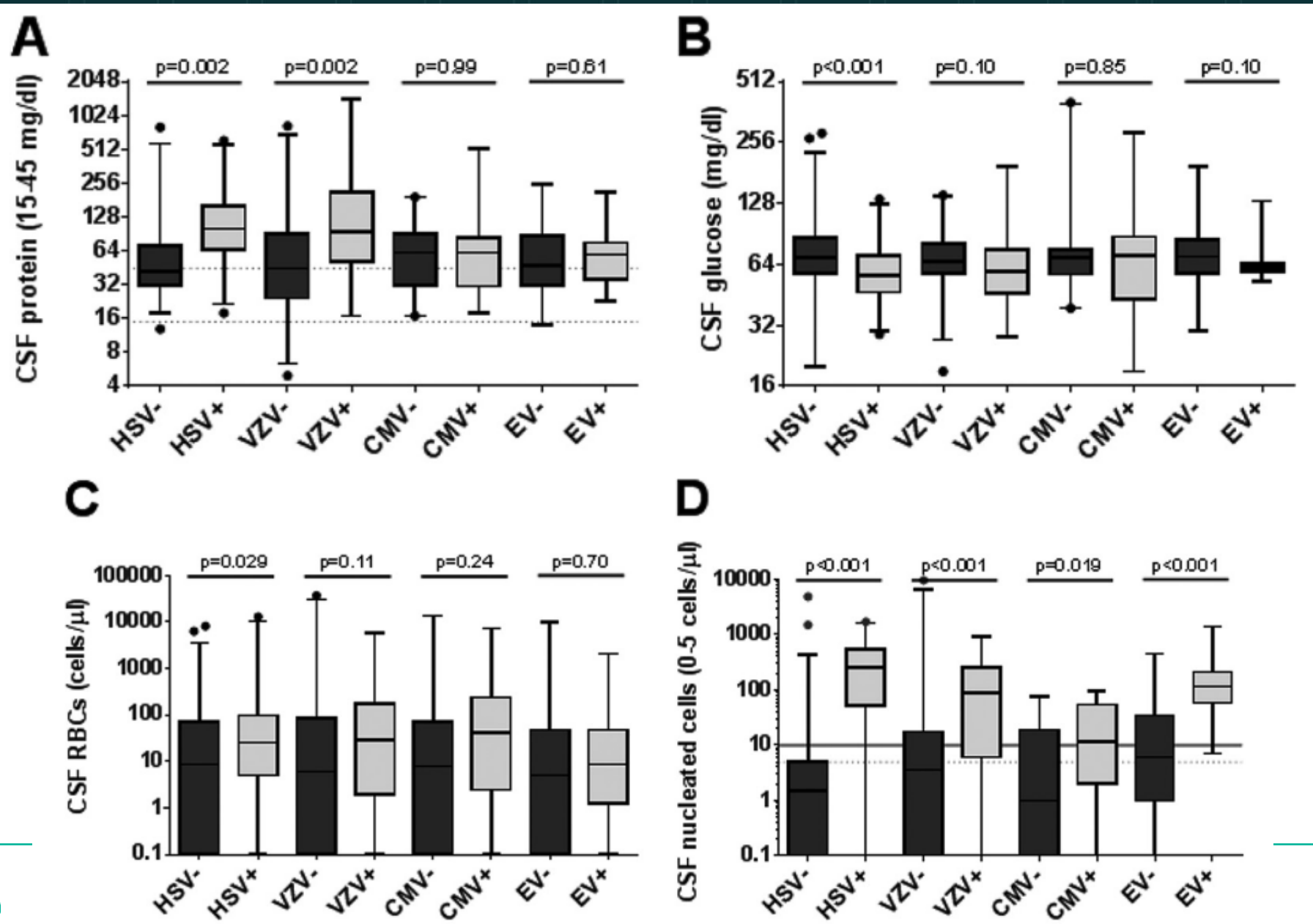
TABLE 1 Frequency of testing and rates of positive viral NAAT results with adult CSF samples (2008–2012)

Test and result	No. (%) of samples	Age (median [IQR])[a] (yr)
HSV-1/2		
Negative	4,743	52 (38–65)
Positive	56[b] (1.1)	50 (37–63)
VZV		
Negative	1,561	53 (40–65)
Positive	27 (1.7)	45 (36–57)
CMV		
Negative	1,408	52 (39–64)
Positive	20 (1.4)	46 (39–63)
EV		
Negative	956	52 (36–64)
Positive	20 (2.0)	28 (25–36)
Total		
Negative	8,668	52 (38–65)
Positive	123 (1.4)	51 (36–63)

[a] IQR, interquartile range.
[b] Thirteen samples were positive for HSV-1 and 43 were positive for HSV-2.

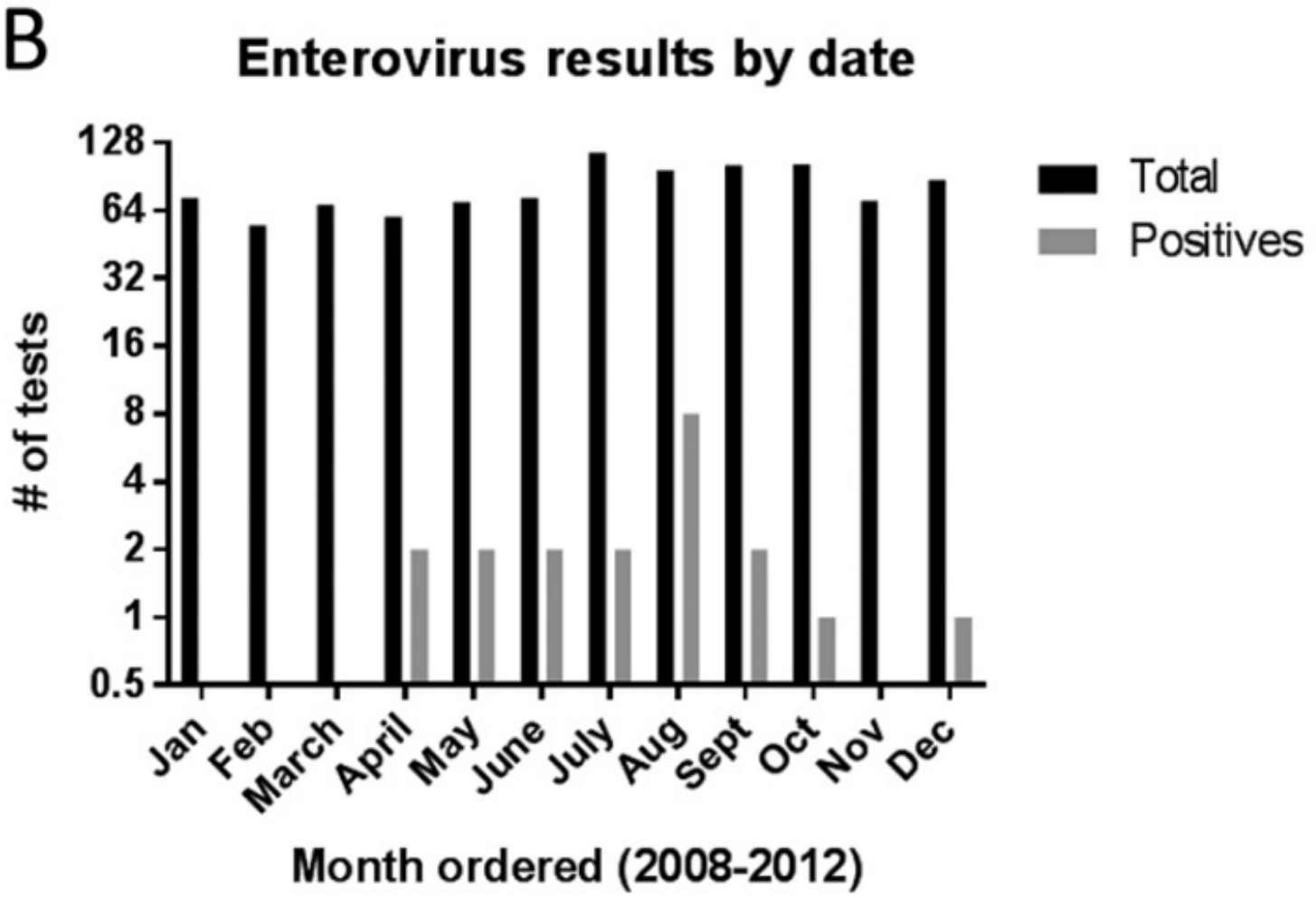
Wilen, J Clin Microbiol, 2015. 53(3):887-895

Analysis of Parameters of Positive Tests



Wilen, J Clin Microbiol, 2015. 53(3):887-895

Time of Year Predicts Positivity for Some Targets



Wilen, J Clin Microbiol, 2015. 53(3):887-895

Cost Savings Associated with Selective Testing

- Criteria
  - >10 WBC for immunocompetent patients
  - Seasonal (April-October) Enterovirus testing
- Savings – $60,000 annually

TABLE 4 Effects of implementation of acceptance criteria

Parameter	HSV-1/2	VZV	CMV	EV	Total
No. of NAAT assays requested/performed in 2013	365	190	164	90	809
No. of NAAT assays requested in 2014 (% change from 2013)	294 (−20)	166 (−13)	139 (−15)	83 (−8)	682 (−16)
No. of NAAT assays performed in 2014 (% change from 2013)	173 (−53)	112 (−41)	97 (−41)	56 (−38)	438 (−46)
No. of NAAT assays rejected (% of requested)	121 (41)	54 (33)	42 (30)	27 (33)	244 (36)
Realized savings ($)	12,422	5,047	4,335	2,200	24,004
Annualized savings ($)	33,117	13,454	11,556	5,864	63,992

Wilen, J Clin Microbiol, 2015. 53(3):887-895

Is the Correct Test Being Sent Out?

- UK study assessing cost of bacterial 16s vs targeted PCR (2015-2019)

Samples referred	Number sent	Cost(£)/positive 16S rRNA	Cost(£)/positive 16S rRNA and negative culture
Pus	84	149.17	227.68
CSF	149	959.19	1278.92
Tissue/Biopsy	131	481.89	674.65
Joint Fluid	157	621.96	898.39
Pleural Fluid	45	463.50	463.50
Bronchial Alveolar Lavage	9	154.50	154.50
Other	32	274.67	549.33
All samples	607	400.78	568.37

Sample referred	Number sent	Cost(£)/positive targeted PCR	Cost(£)/positive targeted PCR and negative culture
Pus	18	317.94	317.94
CSF	62	410.67	410.67
Tissue/Biopsy Culture	49	324.56	370.93
Joint Fluid	40	264.95	302.80
Pleural Fluid	31	182.52	182.52
Bronchial Alveolar Lavage	6	79.49	79.49
Other	4	N/A	N/A
All samples	210	278.20	292.84

Aggarwal *Sci Reports* 2020 10:7965

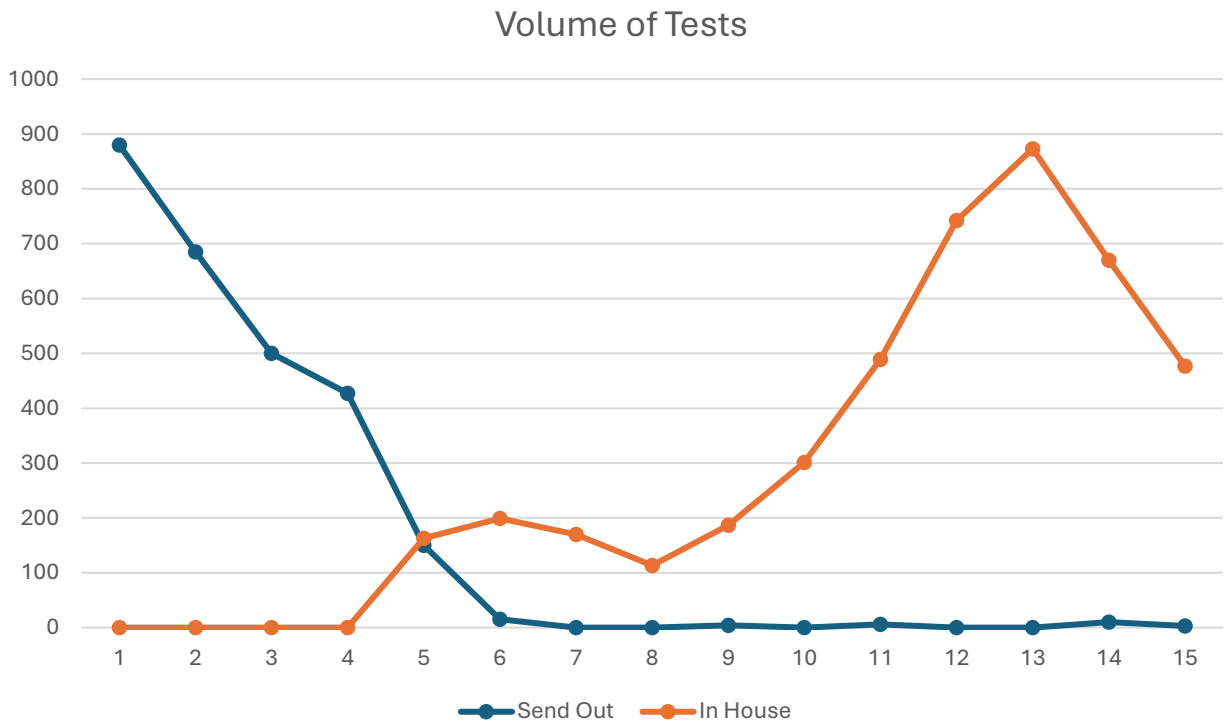
Diagnostic Stewardship as a Budgetary Tool

- Set up institutional guidelines
- Limit the ability to order expensive tests without review
- Empower those doing the review to make final decisions
- Track, monitor, analyze

Determining What Should Be Brought In House

- Most reference labs will provide reports based on what is being sent-out
- Remember to look a things that are sent to labs other than the primary reference lab
- Key considerations
  - Volume of the test
  - Cost of the test
  - Availability of the test on in use platforms
  - Importance to key stakeholders outside the laboratory

Importance of Monitoring Tests Once Brought In House



Send out	880	685	500	427	150	15	0	0	4	0	6	0	0	10	3
In house	0	0	0	0	163	199	170	113	187	301	489	742	873	670	477

Why You Should Look at the Bottom of the Send-out List

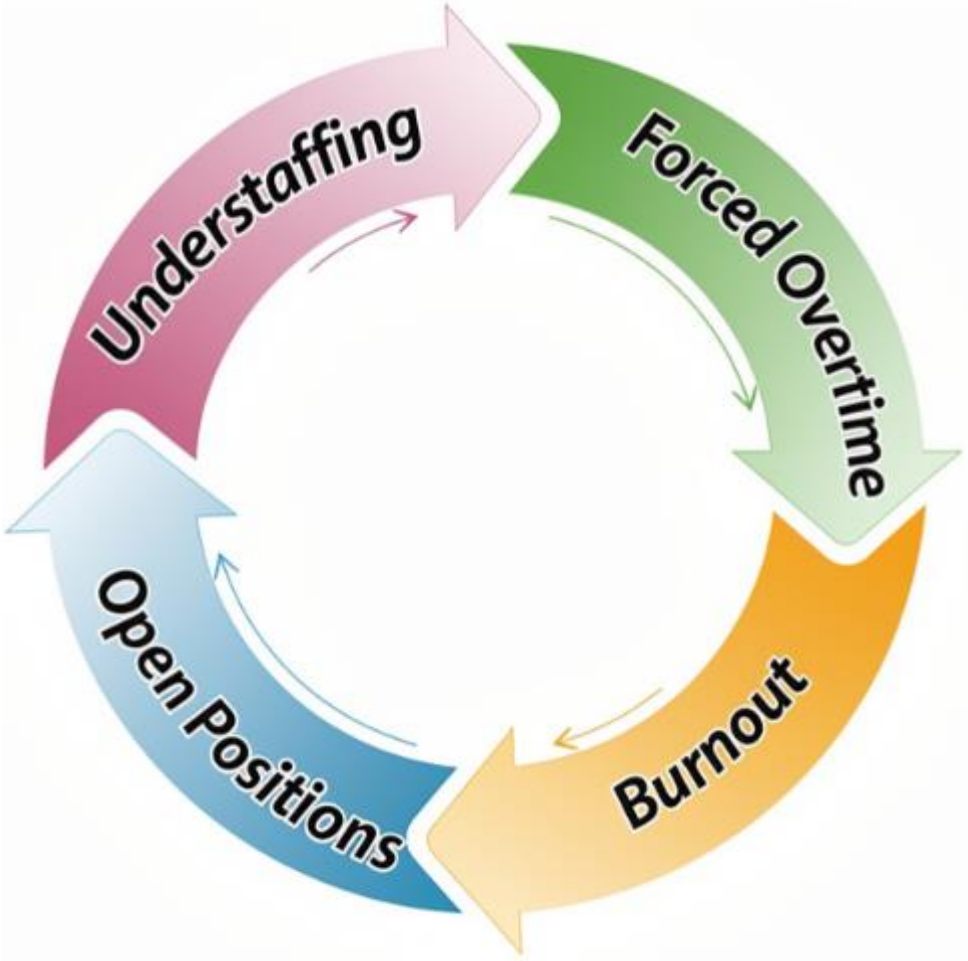
- Things I have found that total nearly 100 tests combined over the past year!
  - CMV rapid culture
  - Respiratory viral culture
  - HSV culture (not for resistance)
  - Nocardia culture

Outline

- Introduction
- Options for making strides with supplies
- Tackling send-out testing and bringing in new testing
- Uses of creative staffing
- Final thoughts

Staffing Challenges

- Laboratories are no different than the rest of healthcare when it comes to staffing concerns
- Understaffing can create a negative feedback loop that makes it challenging to recover from



Staffing Challenges

- Siemens commissioned a survey of more than 400 US laboratorians in the summer of 2024
  - 1 in 5 reported burnout
  - 28% of those >50 plan on retiring within 5 years
  - 9% are considering leaving the industry altogether
  - 39% reported limited staffing to be a top challenge
  - 22% reported making a lower risk error due to being overworked/burnt out
  - 29% reported not having made an error but being concerned about making one due to workload/burnout

https://www.siemens-healthineers.com/en-us/lab-shortage-impact-survey-2024

How Can Staffing Challenges Lead to Budget Changes (and Savings)?

- “Diagnostic Stewardship” approach to staffing
  - Right size your staff
  - Right people your tasks
  - Right time your people

Laboratory Shortages are Here to Stay

GW School of Medicine & Health Sciences

View Programs | Admissions | Tuition & Aid | FAQs | Student Experience | Technical Requirements

Home / News / The Laboratory Workforce Shortage: A Silent Crisis Impacting Health Care

The Laboratory Workforce Shortage: A Silent Crisis Impacting Health Care

September 8, 2025

ASCLS The American Society for Clinical Laboratory Science | MEMBERSHIP | EDUCATION | COMMUNICATION | PARTICIPATE

Addressing the Clinical Laboratory Workforce Shortage

Kiggans, Ross Introduce Bipartisan Legislation to Address Shortage of Clinical Lab Professionals

Sep 23, 2025 Healthcare Press Uncategorized

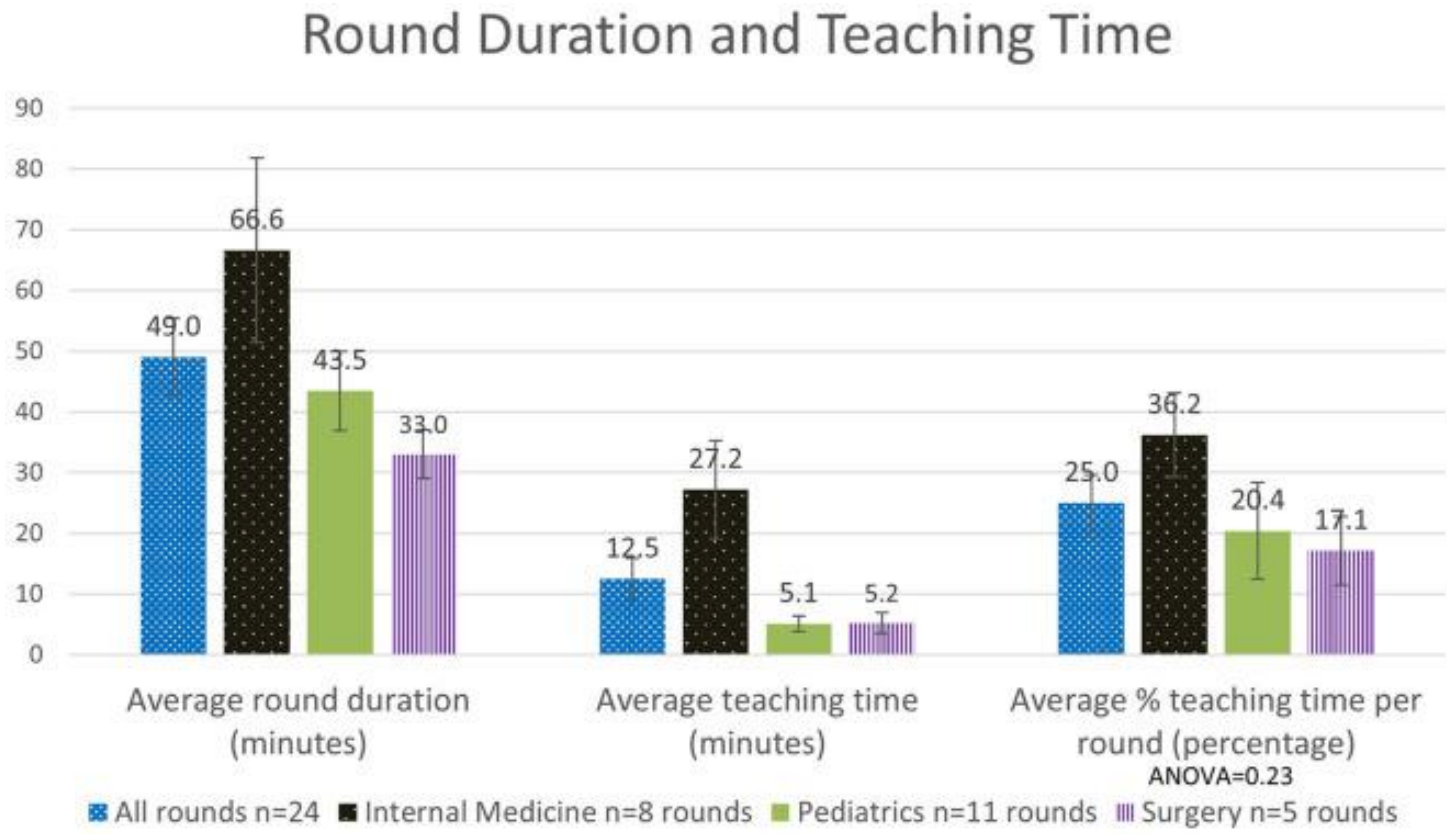
BROWN Health UNIVERSITY

Right Sizing the Staff

- It is important to start from a place of appropriate FTEs
- Making sure budgeted staffing reflects the uniqueness of microbiology
  - Try to make the argument that microbiology test units are not equal to other areas of the lab
  - Try to benchmark to other microbiology specific lab sections when using larger conglomerate sets (e.g. Vizient)
- Find ways to quantify non-billable units
  - QA activities
  - Teaching
  - Research

How Can We Quantify Teaching?

- We need good studies in the laboratory space
- There are emerging data in undergraduate medical education about the time spent teaching medical student



Right People for the Tasks

- Not all tasks in the microbiology laboratory require someone with an MLS degree or ASCP designation
  - Can use MLTs and/or Bachelors in sciences to do many tasks in microbiology
  - Can use additional individuals for support tasks/roles
  - Shared individuals throughout the lab for tasks that do not require a full person

The Biggest Way Laboratory Staffing Shortages Impact Budget

Microbiology Staffing Needs Lag Test Volume

- Cultures are generally not finished the same day they are received
- Different culture types have different lag periods
- Input volumes may be highest M-F, but that is not when the testing is completed

Chemistry							
Tests Ordered	1000	1000	1000	1000	1000	500	500
Tests Completed	950	1000	1000	1000	1000	600	450
Microbiology							
Tests Ordered	1000	1000	1000	1000	1000	500	500
Tests Completed	500	750	1000	1250	1250	750	500

Microbiology Staffing is Amenable to Creative Solutions

- Many “business review” type analyses look at the input and when testing is received because this is what makes sense for the rest of the lab
- Micro still does require considerations of when testing is received but also when results are being generated, and this can be *days* later

What Types of Solutions are There?

- Think in terms of work-hours needed as opposed to people
- Mixing types of full-time staffing
  - 5x8s
  - 4x10s
  - 3x12s
- Promote/utilize uneven hourly distribution
  - 7 hours on Monday but 8.5 on Thursday and Friday
- These approaches can provide more work hours at the end of the week and the weekend when the work is needed as opposed to using overtime

Summary

- While there are a lot of challenges in laboratory budgets there are also lots of opportunities
- Collaboration with other disciplines within the laboratory and beyond is important to identify areas for budget refinement
- The laboratory staffing challenges have arrived and will continue for the foreseeable future – now is the time to start thinking outside of the box

Thank you!

kalby@brownhealth.org

BROWN Health UNIVERSITY