Optimizing Productivity
The San Diego Kaiser Permanente Experience

Society for Health Systems Conference
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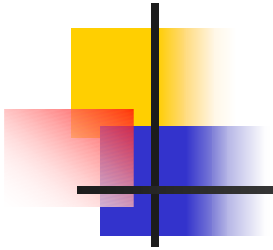
Jenny Button, Planning and Analysis
Annie Russell, Assistant Administrator of Medical Specialties
Kaiser Permanente - San Diego, California



Presentation Objective

Review an approach that was successful in:

- Identifying and quantifying variation in productivity
- Identifying implementable solutions

About Kaiser Permanente

Nation's largest non-profit health plan

- Health Maintenance Organization (HMO)
- Facilities are primarily owned by KP
- Staff are KP employees (87% union)
- Physicians are partners, owners of medical group (have exclusive contract with KP Health Plan)
- Inpatient and Outpatient Care - Primary, Secondary, and Tertiary levels
- 8.4 million members in 9 states

About Kaiser Permanente, San Diego
Current membership: ~500,000

"Sub area" boundaries for service planning

Owned Facilities:

- 13 Outpatient Medical Office Buildings
- 2 Outpatient Medical Centers
- 1 Inpatient Medical Center

← Mexican Border

About Kaiser Permanente, San Diego

Outpatient Services

- 13 Outpatient Medical Offices:
  - Adult Primary Care
  - May also provide Pediatrics, OB/Gyn, Mental Health
  - Lab, Radiology and Pharmacy services
- 2 Outpatient Medical Centers *also provide:*
  - Specialty Services (e.g. Internal Medicine, Surgical Services, Physical Medicine)
  - Higher level urgent care
  - May also provide outpatient surgery center
  - Higher level Lab and Radiology services

About Kaiser Permanente, San Diego

Inpatient Services

- 1 Owned Hospital:
  - 395 licensed beds (24 ICU, 338 Med/Surg, 33 NICU)
  - 13 ORs
  - Medical, Surgical and some Tertiary care
- Limited contract beds and OR's
  - Inpatient contract in North "sub area"
  - Inpatient contract for cardiac services

What Drove the Project?

Key Drivers

- Operational costs and need for facilities/IT upgrades escalating faster than net revenue stream
- Testing many avenues of improving cost structure
- Project Sponsors:
  - San Diego CEO team
  - San Diego "CFO"

Project Scope

Project Charter: *Fast*, focused *analytical* review of department staffing

- No time studies
- No complex modeling or statistical analysis

Analytical Approach

- Use existing data to compare productivity levels
  - Between similar sites
  - Within a site – by day of week and time of day
- Quantify the impact of reducing variation
- Meet with operations to evaluate opportunities

Project Scope

Variable Ancillary Staff

- Staff whose workload fluctuates with volume
- Receptionist, medical assistant, LVN, RN, lab/radiology technicians
- Excluded providers, managers, department clerks

Project Scope

Key Criteria Determined Departments:

- Budget
  - Budgeted FTEs
  - Variance to budget ($)
  - Planned budget reductions ($)
- Staffing Ratios
  - Premium $
  - Part time vs. full time vs. other
- Existing efforts/projects and challenges
- Support of “Vice President” level

Project Approach

Overview of Approach:

1. Determine scope of analysis – what data/functions would be included
2. Perform data analysis
3. Present and discuss potential opportunities through working meetings
   - *Participants included staff, managers and labor reps*
4. Reach consensus on opportunities to pursue

Project Approach
=> Laboratory Services

Laboratory - KP San Diego

2004 Vital Statistics

- Total Operating budget: $21,826,861
- Total Number of employees: 242
- Total number of Locations:15
- Total managers: 7
- Total lab specimens per year: 1.8 million tests/year, ~50,000 patients drawn/month
- First SCPMG hospital lab to automate test systems

Determining Scope of Analysis

Key Criteria:

- Readily available data with low complexity
- Functions with defined workload driver

Service Type	Functions	Key Workload Driver	Data Availability	Data Complexity
Outpatient Lab Services (MOB, OMC and Medical Center sites)	Specimen collection (*Technician)* Stat Testing *(Clinical Lab Scientist)*	# Venipunctures # Tubes	Very good Very good	Low Low-Med

Key Workload Driver:
Primary driver/indicator of workload

Data Availability:
By site, date, time of day, type (test, appointment type)

Data Complexity:
Does "type" drive variations in workload

Scope of Analysis - Laboratory Services

	Service Type	Functions	Key Workload Driver	Data Availability	Data Complexity
✓	Outpatient Clinic Lab (MOB, OMC and Medical Center sites)	Specimen collection (*Technician)* Stat Testing *(Clinical Lab Scientist)*	# Venipunctures # Tubes	Very good Very good	Low Low-Med
	Inpatient Lab (Medical Center)	Specimen collection (*Technician)* Testing *(Clinical Lab Scientist)*	# Venipunctures # Tests (tubes or tests) Chemistry Urine Hematology etc.	Poor Very good	Low High
	Pathology (Medical Center)	Pathology Transcription *(Transcriptionists)*	# Slides, Blocks, Cases # Cases	Good Good	High Low
✓	Blood Donor Center	Blood collection and testing *(Reception, RN, Clinical Lab Scientist)*	# Donor	Good	Low

Performing Data Analysis

Analytical Approach:

- *3+ weeks solid "data crunching" with ad hoc meetings*
- Examined volume and staffing trends
  - Provided background
- Calculated productivity level
  - Identified potential opportunities
- Quantified variation
  - Benefit of pursuing opportunity
  - Impact of operating at average ⟺ "best practice"

Analytical Approach - Laboratory

Volume Trends:

- Venipuncture, Testing and Blood Donor volumes by site: 1-year, monthly, day of week, time of day

Staffing Trends:

- "Worked hours" by site/function: 1-year, day of week
- Staff schedules by site/function: day of week and time of day

Productivity Comparisons:

- Lab Tech: Minutes per venipuncture by site, day of week, time of day
- Clinical Lab Scientist: Minutes per test by site, day of week, time of day
- Blood Donor Center: Minutes per donor by day of week, time of day

Conduct Working Sessions

Each function discussed ~one time:

- 3-4 hours for multiple functions
  - Lab meeting 1: Outpatient Clinics - Lab Tech, Clinical Lab Scientist
  - Lab meeting 2: Medical Center Lab – Lab Tech, Clinical Lab Scientist
  - Lab meeting 3: Blood Donor Center
- Reviewed data findings/opportunities
- Discussed how findings aligned with operational perspective
- Included managers, staff and labor reps
- Data review focused on graphs vs. tables of data

Reaching Consensus to Implement

Goal => Implementation

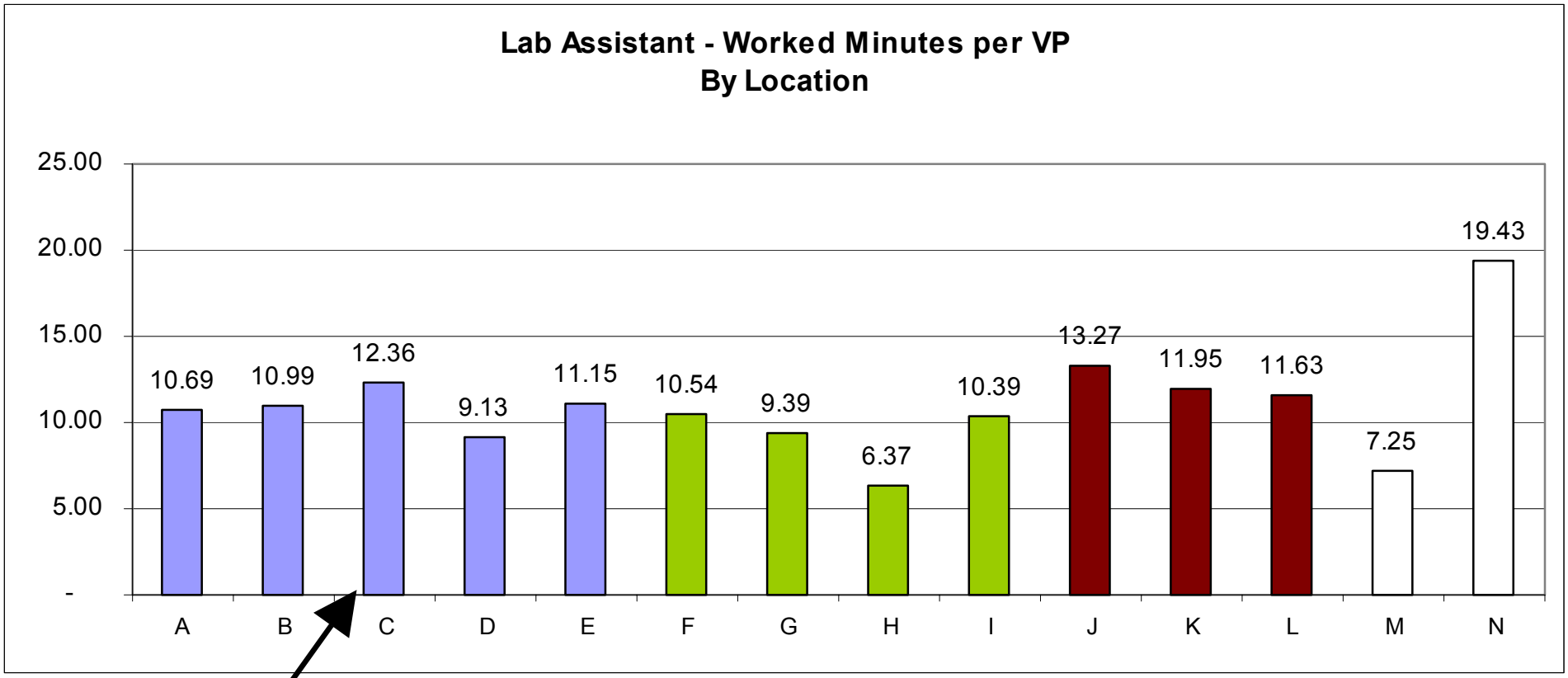
- Outpatient Clinic Labs
  - Immediate: Used findings in adjusting sick/vacation coverage
  - Within months: Collected patient wait data and used our model to compare against productivity findings – using this to implement permanent core staffing changes
  - Management engineering study in progress to further analyze consolidation of lab testing (at a sub-area level)
- Blood Donor Center
  - Within months: Received funding for blood mobile – will implement without increase in staff. High cost saving potential due to cost avoidance of blood purchases.

Techniques and Models

Staffing Efficiency:
Comparisons at the Location Level

Productivity by Location

For each location → $\frac{\text{\# Lab Assistant Hours Worked}}{\text{\# Venipunctures Performed}}$ → $\frac{\text{Worked Minutes}}{\text{Venipuncture}}$



Colored bars depict comparable sites

Key Findings - Comparing by Location

Similar sites ≠ similar productivity

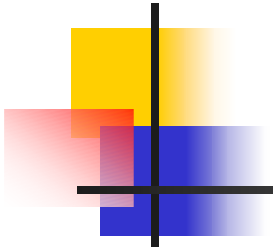
Higher volume ≠ higher productivity

- Multiple staff types/levels
- After hour and weekend services can be inefficient

Staffing at minimum/core ≠ lower productivity

- Fewer staff types/levels
- Can adjust operating hours
- May provide consolidation opportunities - site level or between sites

*Location comparison can be used to scope opportunity, but provides few **implementable solutions.***

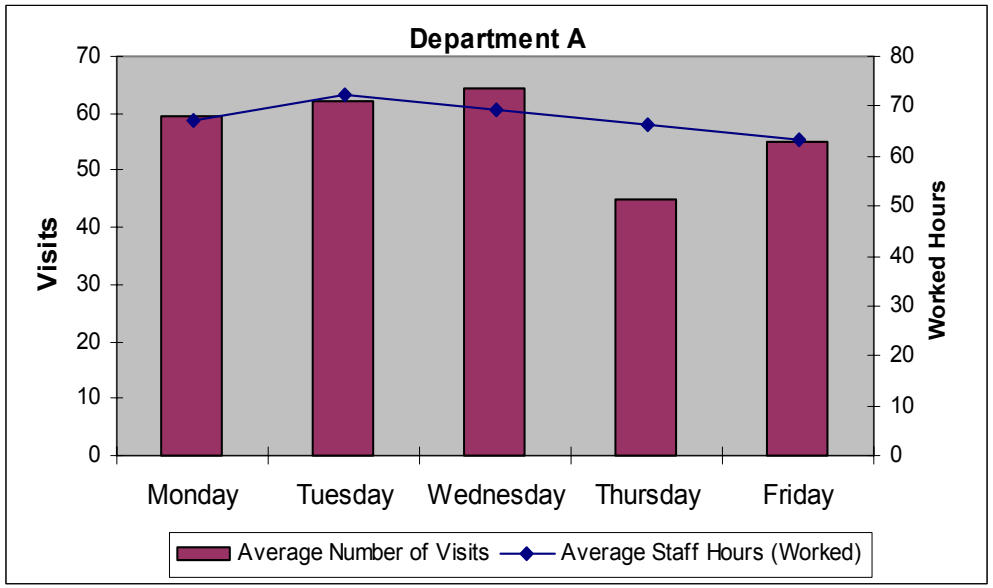


Techniques and Models

Staffing Efficiency:
Comparison by Day of Week

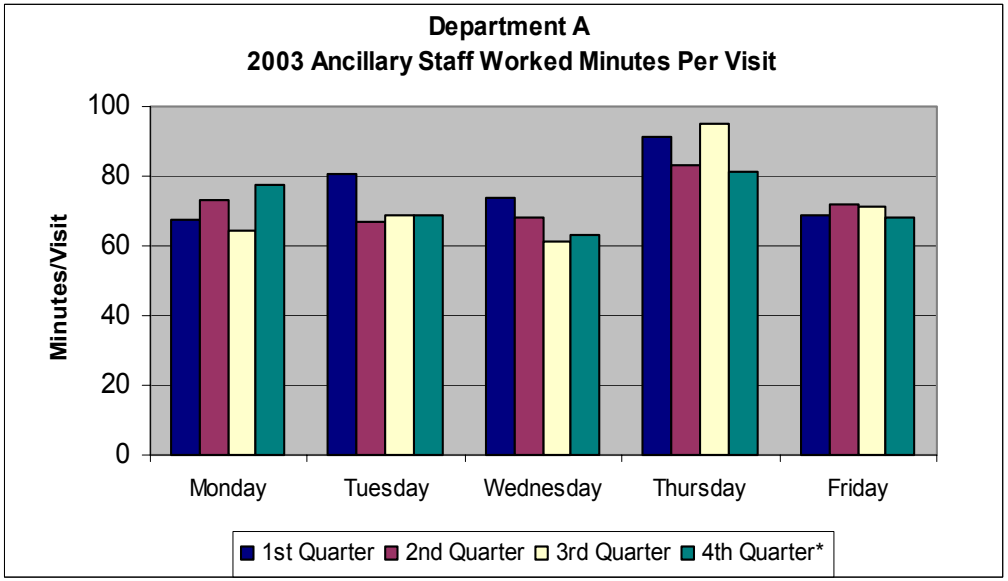
Productivity by Day of Week

For Each Day Of Week → $\frac{\text{\# Hours Worked}}{\text{\# Clinic Visits}}$ → $\frac{\text{Worked Minutes}}{\text{Visit}}$



<= Comparing the Trends

Quarterly Productivity =>

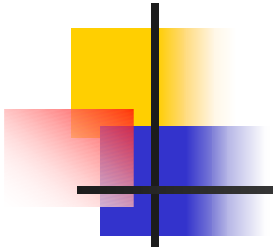


Key Findings - Comparing by Day

Solutions Vary by Department

- Useful for services/functions that are single site
- Shift/smooth demand
  - Educate patients and referral sources
  - Change service strategy and schedule
- Increase capacity on low volume days
- Δ staff composition to better match demand trend (# full time, part time, etc.)

Day of Week comparison can further scope opportunities and can provide ***implementable solutions.***

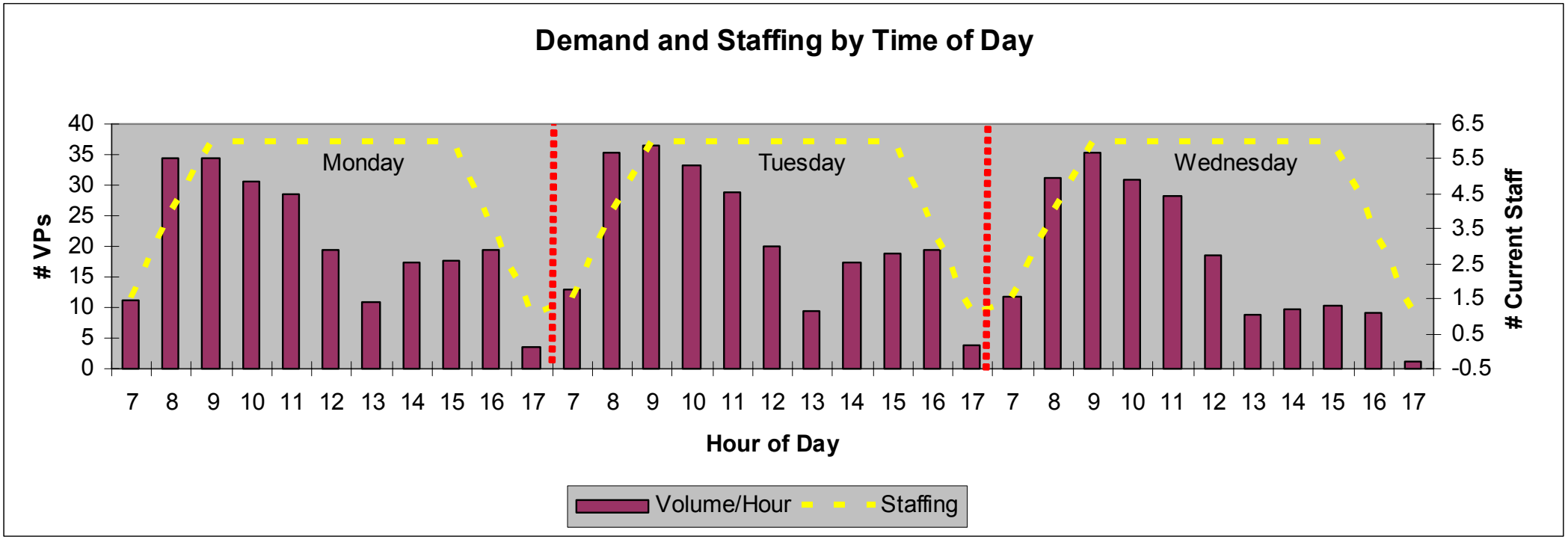


Techniques and Models

Staffing Efficiency:
Comparison by Time of Day

Productivity by Hour of Day

By Hour of Day → # Venipunctures / # Staff per Hour → Gaps between staffing and demand



Key Findings - Comparing by Time

Understand Drivers of Volume Trends

- Physician visit
- Surveillance testing
- Patient preference due to type of procedure/test/visit, transportation, etc.
- Technology/practice patterns
- Staff or provider availability/constraints
- Scheduling constraints

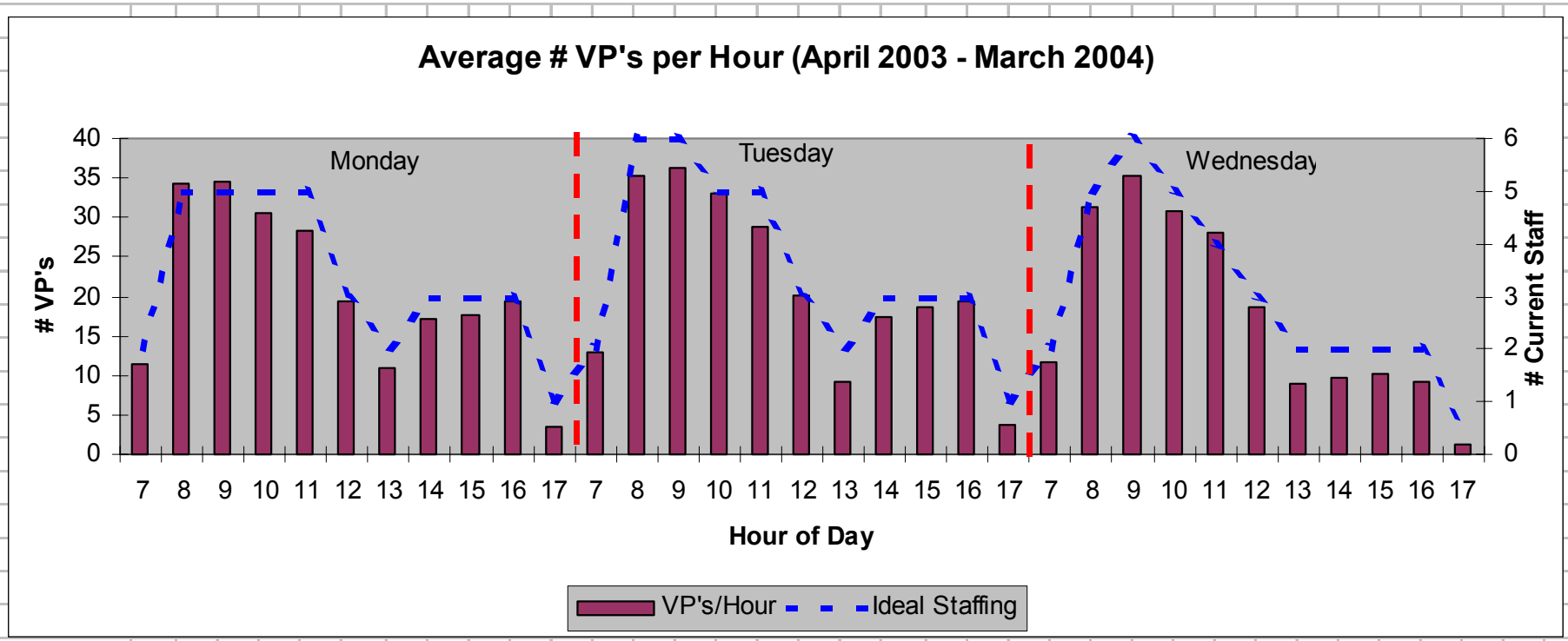
Key Findings - Comparing by Time

Adjust Staffing to Match Trends

- Adjust operating hours – starting and ending
- Consider/question start up, close down, indirect activities
- Understand causes of peak hours, low hours
- Adjust staff schedule
  - Used simplistic model to project staff needs by hour of day
  - Develop staff schedule that considers breaks, lunch, indirect time etc.
  - Adjust staff schedule to reduce premium pay (replace with regular pay shifts if supported by demand trends)

Productivity by Time of Day

Used "Min/VP" from location comparison to test alternate staffing plans

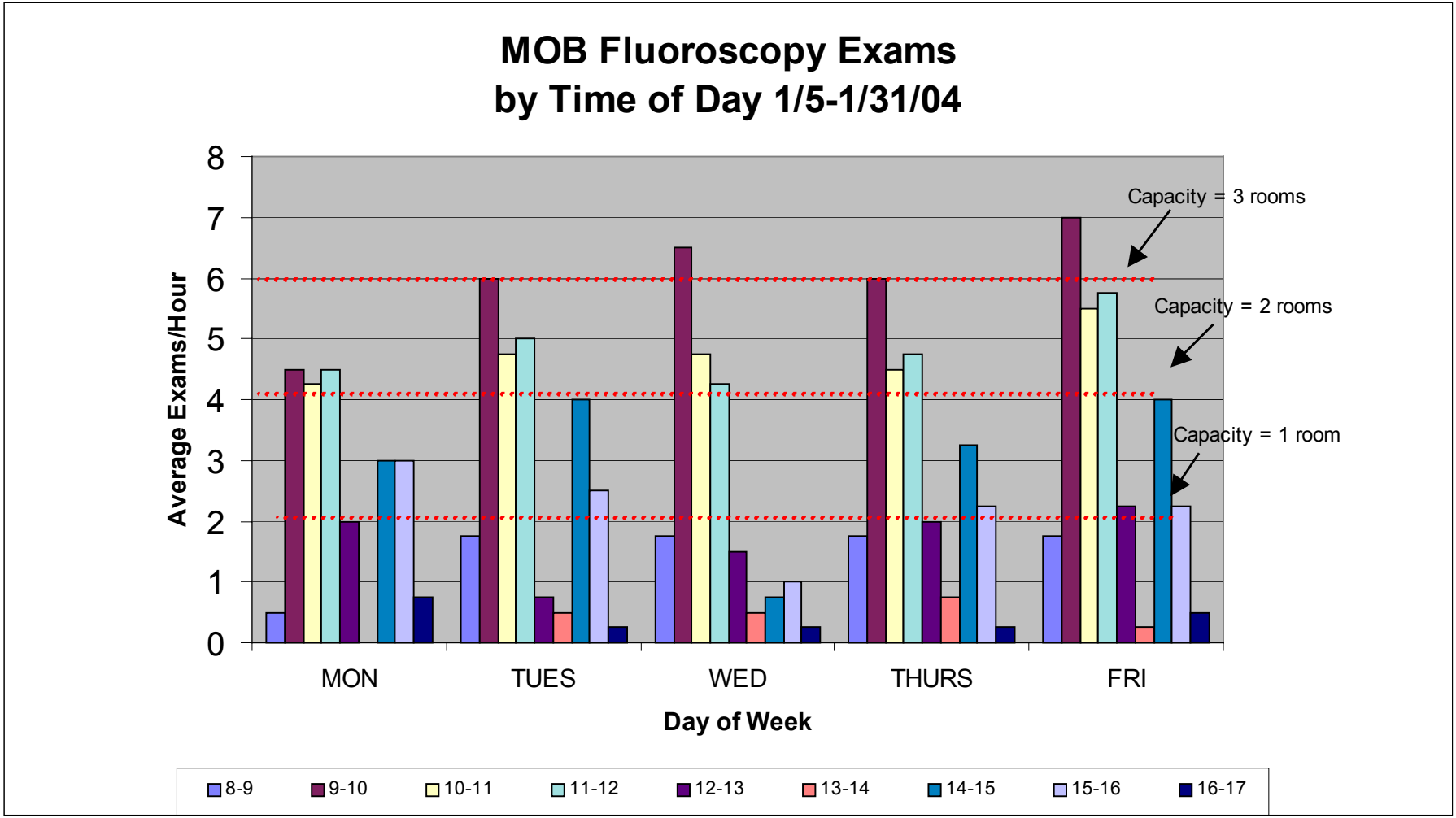


Day	Monday											Tuesday											Wednesday										
Hour	7	8	9	10	11	12	13	14	15	16	17	7	8	9	10	11	12	13	14	15	16	17	7	8	9	10	11	12	13	14	15	16	17
VP's/Hour	11	34	34	31	28	20	11	17	18	19	3	13	35	36	33	29	20	9	17	19	19	4	12	31	35	31	28	19	9	10	10	9	1
Staffing Needs - Rounded at 0.3	2	5	5	5	5	3	2	3	3	3	1	2	6	6	5	5	3	2	3	3	3	1	2	5	6	5	4	3	2	2	2	2	1
Current Staffing	1.5	4	6	6	6	6	6	6	6	4	1	1.5	4	6	6	6	6	6	6	6	4	1	2	4	6	6	6	6	6	6	6	4	1
Over/Short	(0)	(1)	1	1	1		4	3	3	1	0	(1)	(2)	0	1	1		4	3	3	1	0	(1)	(1)	0	1	2		4	4	4	2	1

* Based on Best Practice Productivity of 6.6 VP's per hour per person

Productivity by Time of Day

Compared volume to available capacity to test service strategy



Results to Date

Identified over 30 opportunities, with potential cost savings or cost avoidance of $1.8 M to $3.0 M

Department	Key Areas of Opportunity	
▪ Lab	Staffing Changes	*$500K (savings across 14 sites)*
	(Staffing to Match Time of Day and Site Trends)	
▪ Lab	New Service Strategies	*$600K (savings/cost avoidance)*
	(Consolidate Functions, Implement Blood Mobile)	
▪ Radiology	Staffing Changes	*$1.4M (savings across 12 sites)*
	(Staffing to Match Day of Week Trends, Reduce Premium Pay)	
▪ Radiology	Increase Capacity	*$575K (cost avoidance)*
	(Decrease Unfilled Slots)	

Translating into Operational Changes

Keys to Making Operational Change

- Labor Management Partnership
- Negotiate opportunities and timelines for implementation - given staff input
- Establish workgroups to implement

Key Success Factors

- Availability of data
- Joint project managers (key during analysis and meetings)
- Collaborative environment
- "VP", management and labor actively involved
- Participants' openness in development of creative solutions
- Participants' understanding of data and analysis
- Confidentiality
- Less resistance from internal benchmarking approach (versus external benchmarking methods)

Next Steps

- Complete remaining departments
- Assist departments in developing monitoring reports
- Provide analytical support to continue testing opportunities
- Departments will provide quarterly updates to sponsors to monitor progress
- Evaluated how to integrate/infuse into operations throughout the fiscal year