



A Lean Approach to Physician Schedule Optimization

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Objectives

- To describe the 21-year evolution of Aurora Medical Group within Aurora Health Care
- To identify the LEAN principles used to optimize schedule management and achieve standardization
- To apply specific tactics and processes that improve patient throughput, reduce wait times and enhance satisfaction
- To implement monitoring techniques to assure sustainability of results.



Full Disclosure

- Robert J. Trenchel, DO, MPH, has no actual or potential conflicts of interest in relation to this presentation
- Mary Beth McDonald, MBA, has no actual or potential conflicts of interest in relation to this presentation
- Karen Bowman-Dillenburg, MS, has no actual or potential conflicts of interest in relation to this presentation

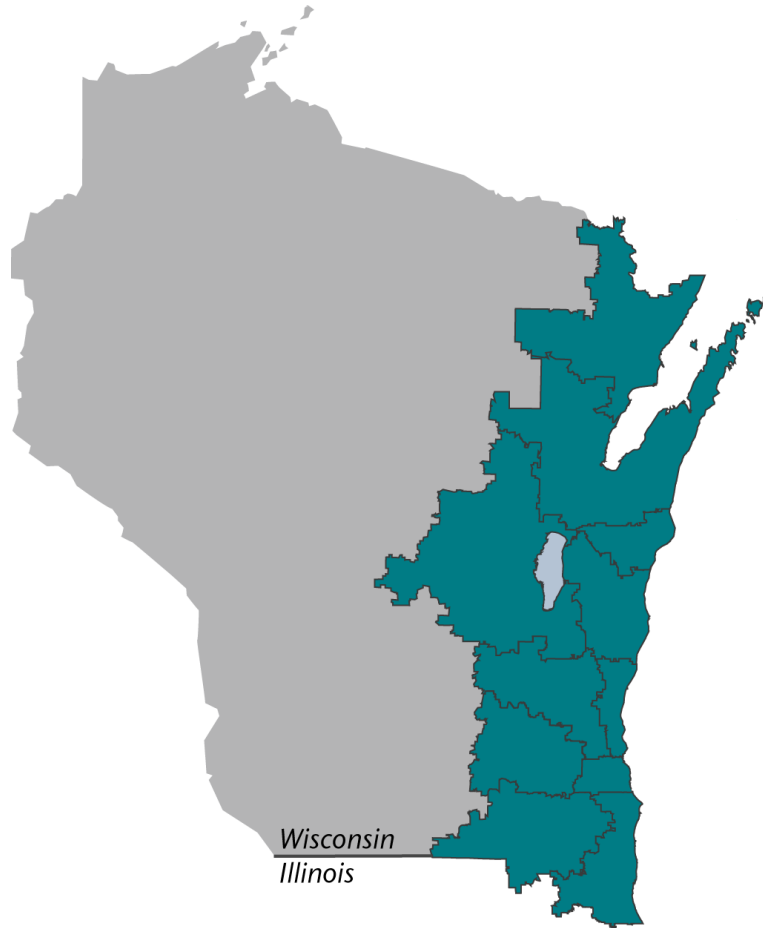
Aurora Health Care 1991 Strategic Plan

Aurora will expand its geographic coverage within Wisconsin to achieve its mission to:

- Establish strong affiliations with additional acute care and specialty hospitals
- Expand ambulatory care network through additional clinic affiliations
- Form a comprehensive integrated regional system with a complete continuum of care



Aurora Health Care Today



- 15 hospitals
- Eastern third of WI & Northern Illinois – 31 counties, 90 communities
- 1200+ employed physicians and 500+ APPs in 200 clinic locations
- Visiting Nurse Association
- 69 retail pharmacies
- 30,000 employees
- 94,000 inpatient discharges
- 4.1 million ambulatory care visits
- Revenue = \$4.3 billion; 82% driven by the physician groups



**Prevention
and Early
Detection**



**Family &
Community
Services**



**Primary &
Specialty
Care**



Pharmacies



**End-of-Life
Care**



Home Care



**Behavioral
Health Care**



Rehabilitation



**Hospital
Care**

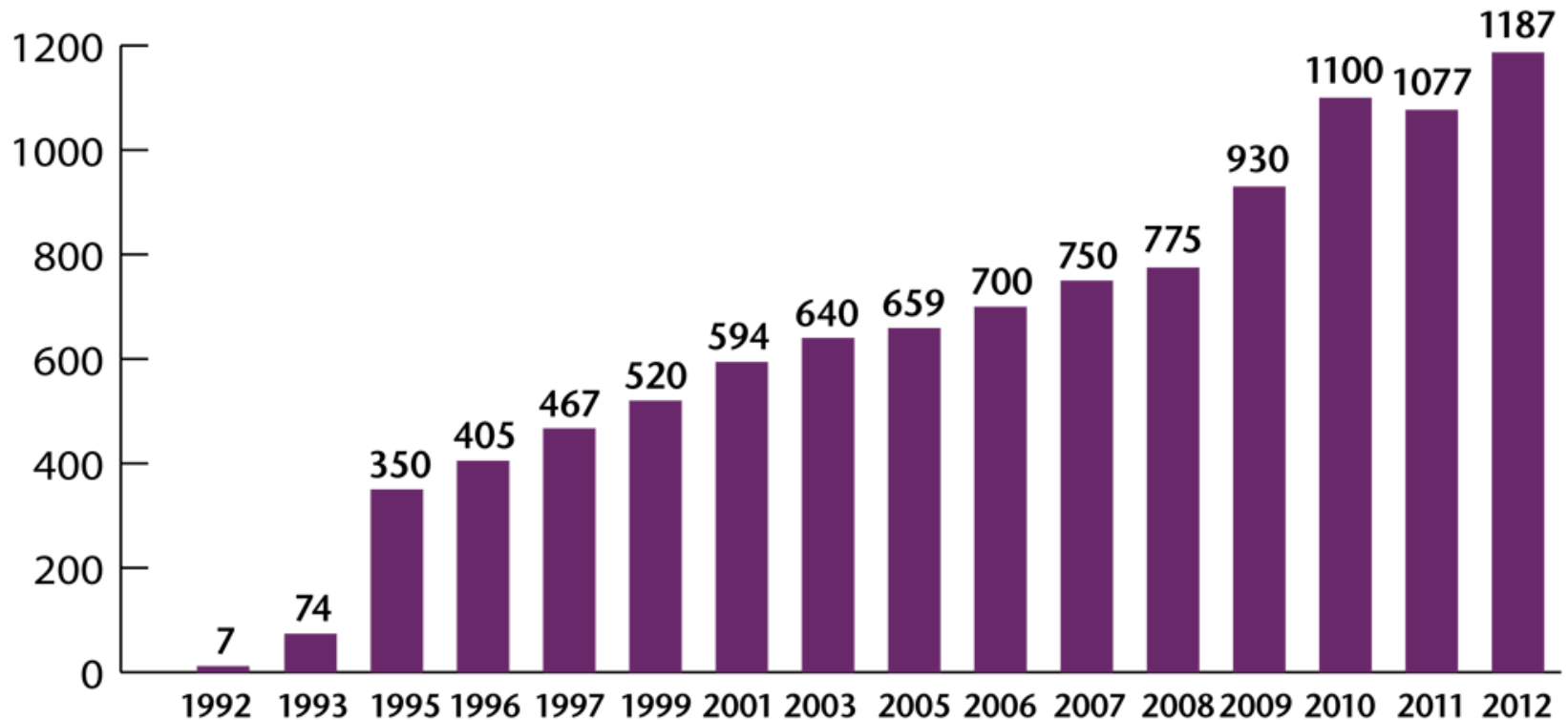


**Emergency
Care**

Continuum of Care



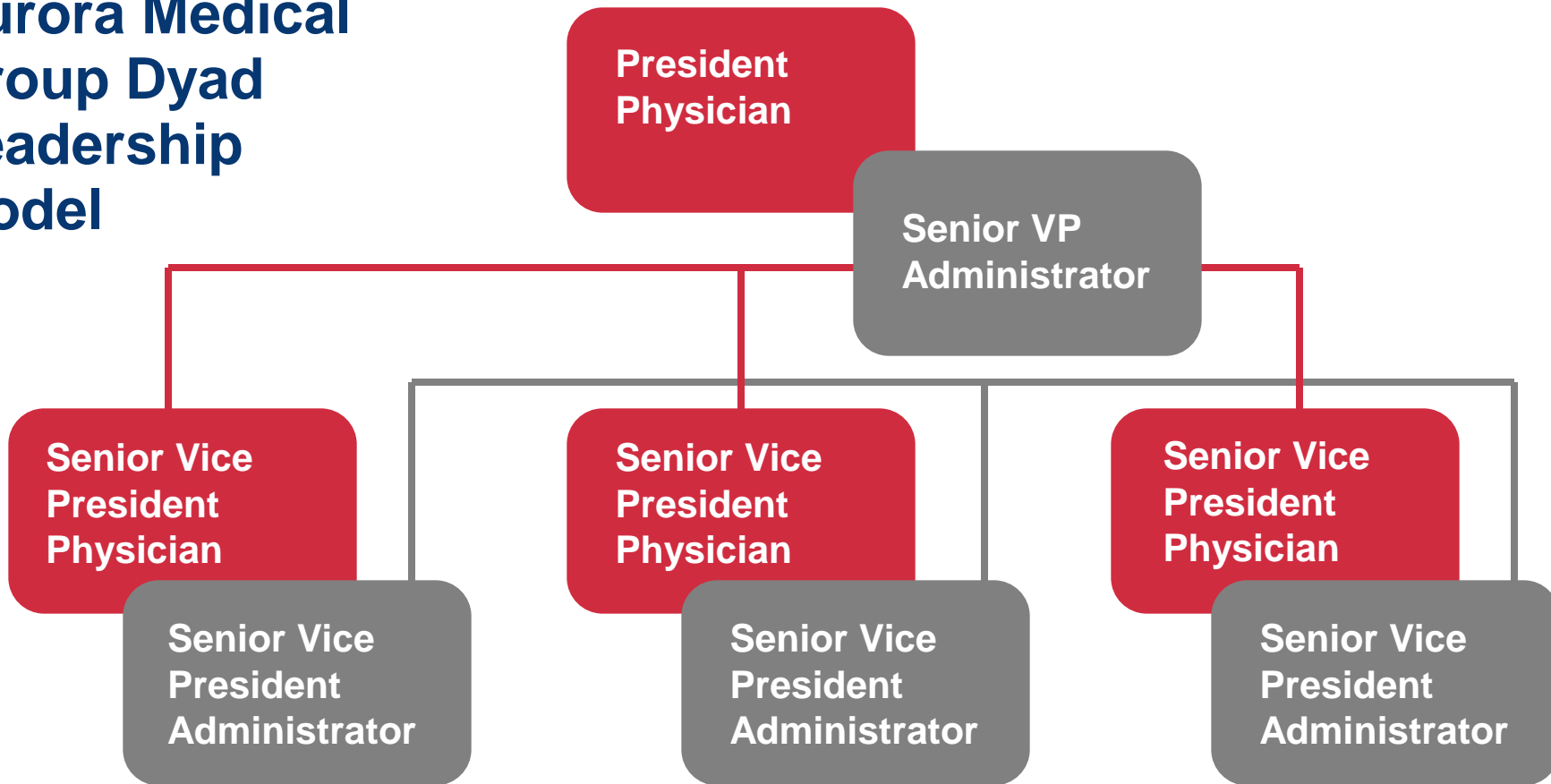
Aurora Medical Group – Growth in Number of Physicians



Nurse Practitioners, Physician Assistants, Nurse Midwives and CRNAs in 2011: 433 FTEs



Aurora Medical Group Dyad Leadership Model



Physician Management Committee/Administrative Teams

We help people live well

Our Vision *Provide people with better health care than they can get anywhere else*

Our Values

What we believe

Our Priorities

What we are each accountable to do

Our Targets

How we measure our success

Every patient deserves the best care

Improve the Patient Experience – Rapidly

Patients first, always.

- Put in place common sense, high-impact actions to significantly improve our patients' experience
- Keep up our momentum in clinical quality
- Accelerate progress in system wide clinical programs
- Implement Smart Chart according to plan

Top-quartile performance nationally in clinical quality and patient satisfaction

Responsibly managing resources

Meet our Financial Targets

In health care today, every dollar counts.

- Make our budget in each area
- Meet our other critical financial targets: cash, operating margin and growth

Operating margin and growth targets

Building a healthy workplace through accountability, teamwork and respect

Secure our Future

Health care is changing more quickly and fundamentally than ever before. We need to be prepared.

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Inside our Organization

- Innovate in clinical research, accountable care and care redesign initiatives
- Do a better job of managing both risk and cost
- Develop a high performance culture where we invest in caregiver wellness, development, business skills and leadership
- Embed our Purpose into our culture so it comes alive with each and every patient touch point, each and every day

In the Outside World

- Be a national advocate for integrated, patient centered health care reform
- Pursue value added partnerships and affiliations

FutureIndex

Caregiver and Organizational Wellness Targets

- *Accountable Care impact*
- *Organizational well-being*
- *Caregiver well-being*

Lean and Aurora Values



- **Every Patient Deserves the Best Care**
 - Lean is about maximizing value in the eyes of the patient
- **Responsibly Managing Resources**
 - By taking Waste out of processes we maximize the efficiency of our resources
- **Building a healthy workplace through accountability, teamwork and respect**
 - Lean is about employee engagement because we must have involvement from the bottom up

Lean in Healthcare



- Based on the Toyota Production System
- ...the relentless pursuit of the perfect process through waste elimination...
- Use Lean tools to work toward perfecting the process

Lean in Healthcare



A growth strategy, a survival strategy, and an improvement strategy. The goal of lean, first and foremost, is to provide value to the patient/customer and in so doing eliminate the delays, overcrowding, and frustration associated with the existing care delivery system.*

*"A Lean Guide to Transforming Healthcare" by Thomas G. Zidel

Value Added Work



- Value Added Work: any task or step for which the patient is willing to pay.
- Non-Value Added Work: any task or step in process that doesn't add value in the patient's eyes-Waste
- Non-Value Added Work but Necessary: tasks or steps in the process we need to do to run our business; maybe referred to as Business Value Added.

Waste



- Waste is anything other than the MINIMUM amount of people, time, equipment, material, and space required to ADD VALUE for the patient.
- In every process there is “Waste”
- The worst kind of “Waste” is the waste we do not see.

Lean Tools



- Value Stream Mapping
- Standard Work
- 5S
- Mistake Proofing
- Load Leveling
- Waste Walks-Go to Gemba, the Real Place

Lean Health Care Resources



- Leadership for Smooth Patient Flow
 - By Jense, Mayer, Welch, Haraden
- A Lean Guide To Transforming Healthcare
 - By Thomas G. Zidel
- Stop Rising Healthcare Costs Using Toyota Lean Production Methods
 - By Robert W. Chalice
- Lean Healthcare-5 Keys to Improving the Healthcare Environment
 - By Hadfield, Holmes, Fabrizio, Tapping
- www.patientvisitredesign.com

Industry Challenges



Time Pressure

PCP Estimated Time Required per day to Meet Clinical Guideline Recommendations
2500 patient panel

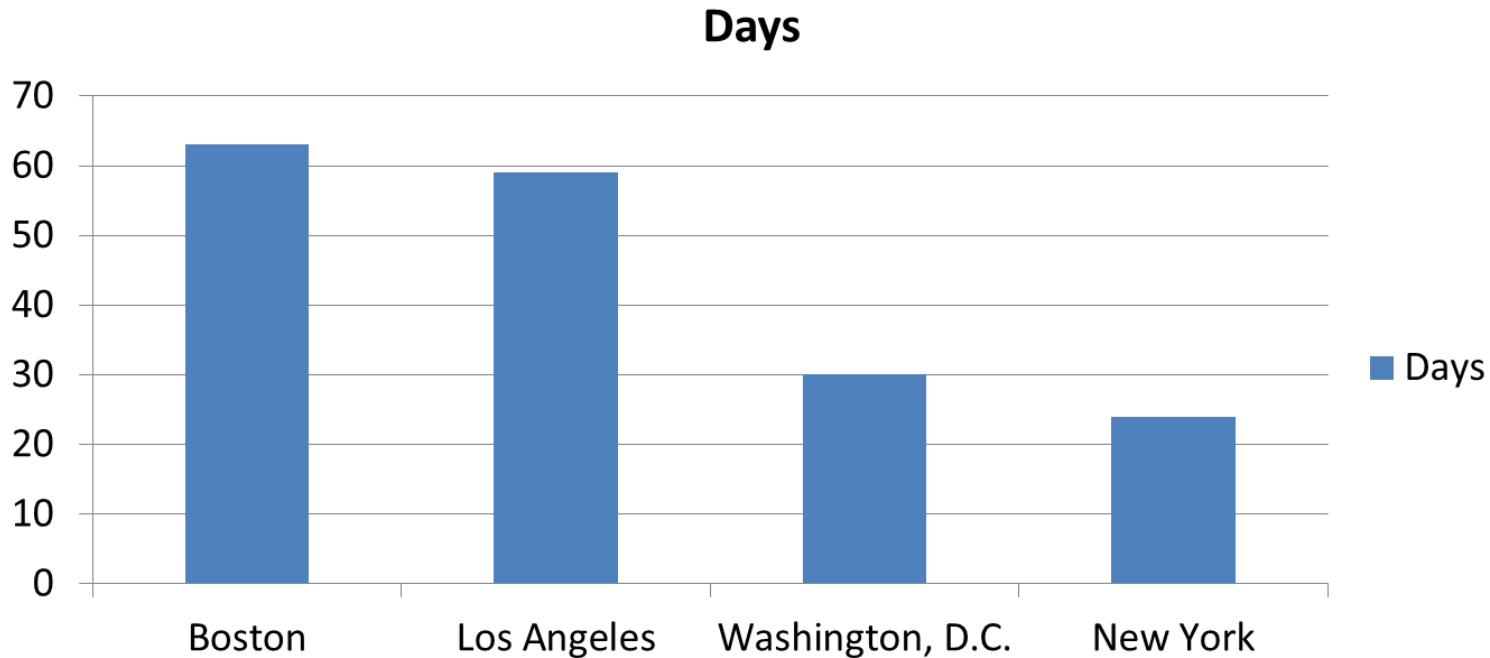
• Acute Needs	3.7 Hrs
• Chronic Needs	10.6 Hrs
• <u>Preventive Services</u>	<u>7.4 Hrs</u>
Total	21.7 Hrs

Yarnell, K. et al., "Family Physicians as Team Leaders: 'Time' to Share the Care: Preventive Chronic Disease April 2009, 6:2

Industry Challenges



Access Pressure Average Days to Appt. for Family Practice



2009 Survey of Physician Appointment Wait Times
<http://www.merrithawkins.com/pdf/mha2009waittimesurvey.pdf>

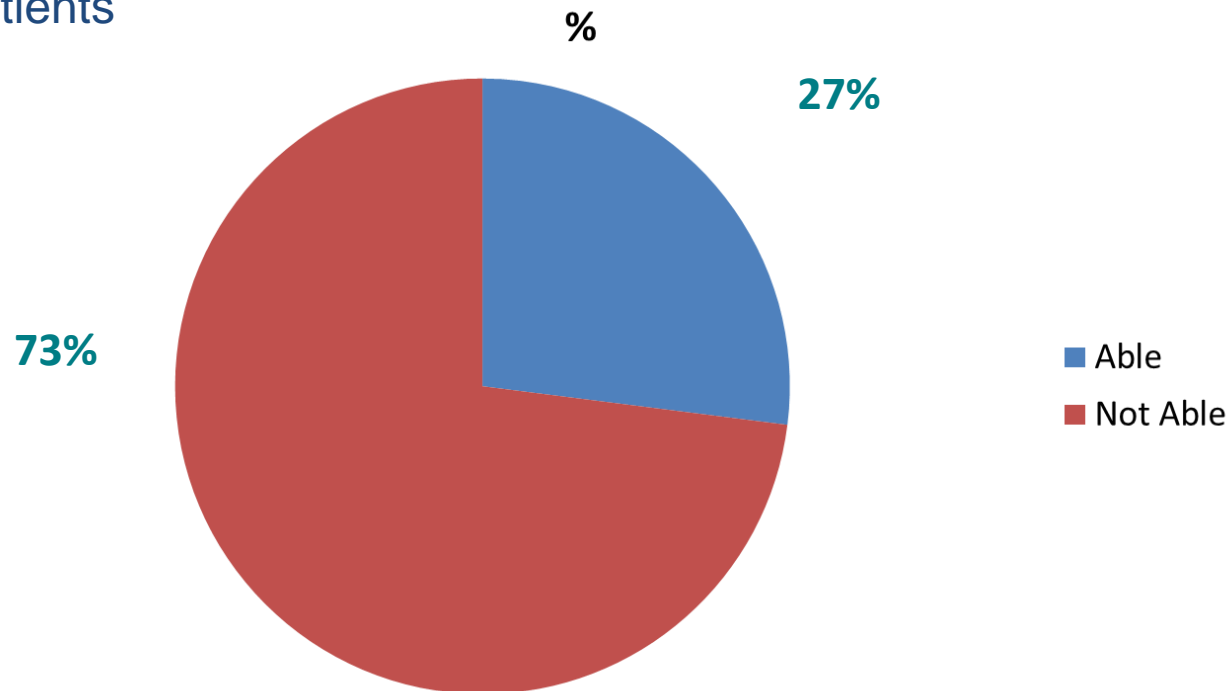
Industry Challenges



Access Pressure

US Adults Able to Contact Their PCP Easily

n = 2937 patients



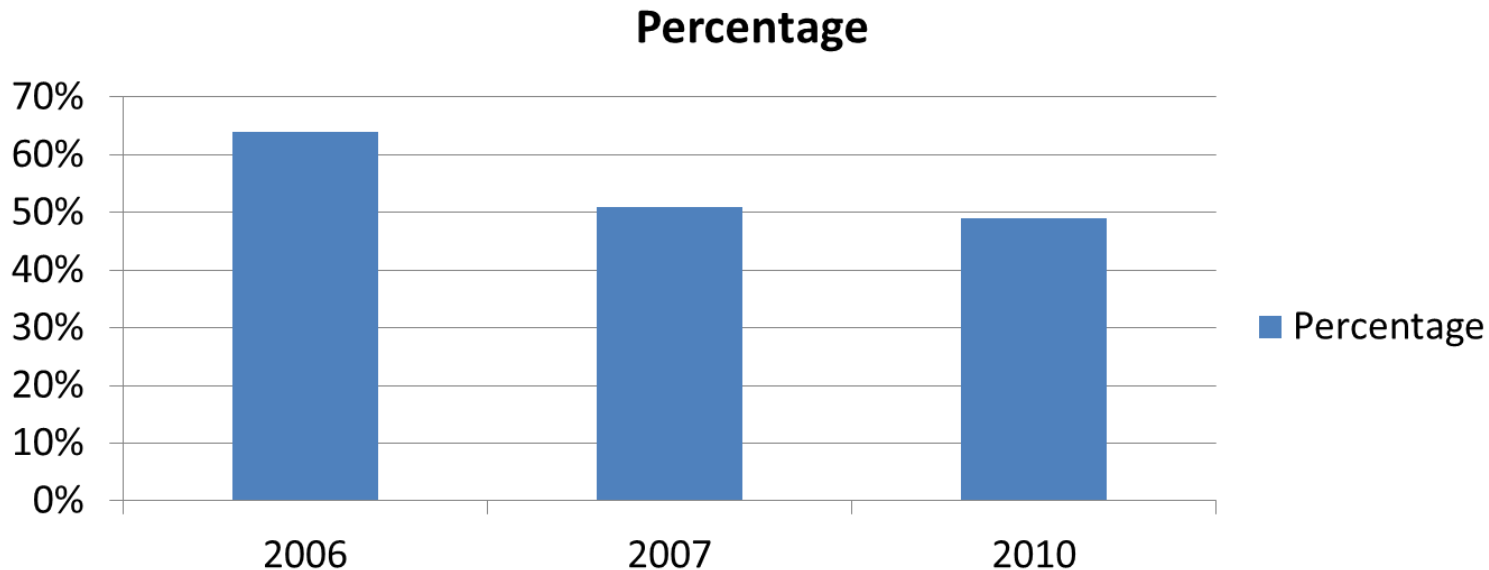
Health Policy Brief: "Patient-Centered Medical Homes"
Health Affairs, September 2010

Industry Challenges



Access Pressure

Massachusetts Internists Accepting New Patients



Massachusetts Medical Association, "Physician Workforce Study 2007, 2010"
www.massmed.org,

Industry Challenges



Compensation Pressure

n = 312

- 50% mixed reviews, practice not growing significantly or margins very narrow
- 19% working harder just to maintain income
- 4% may have to close doors next few years
- 27% robust practice, solid margins

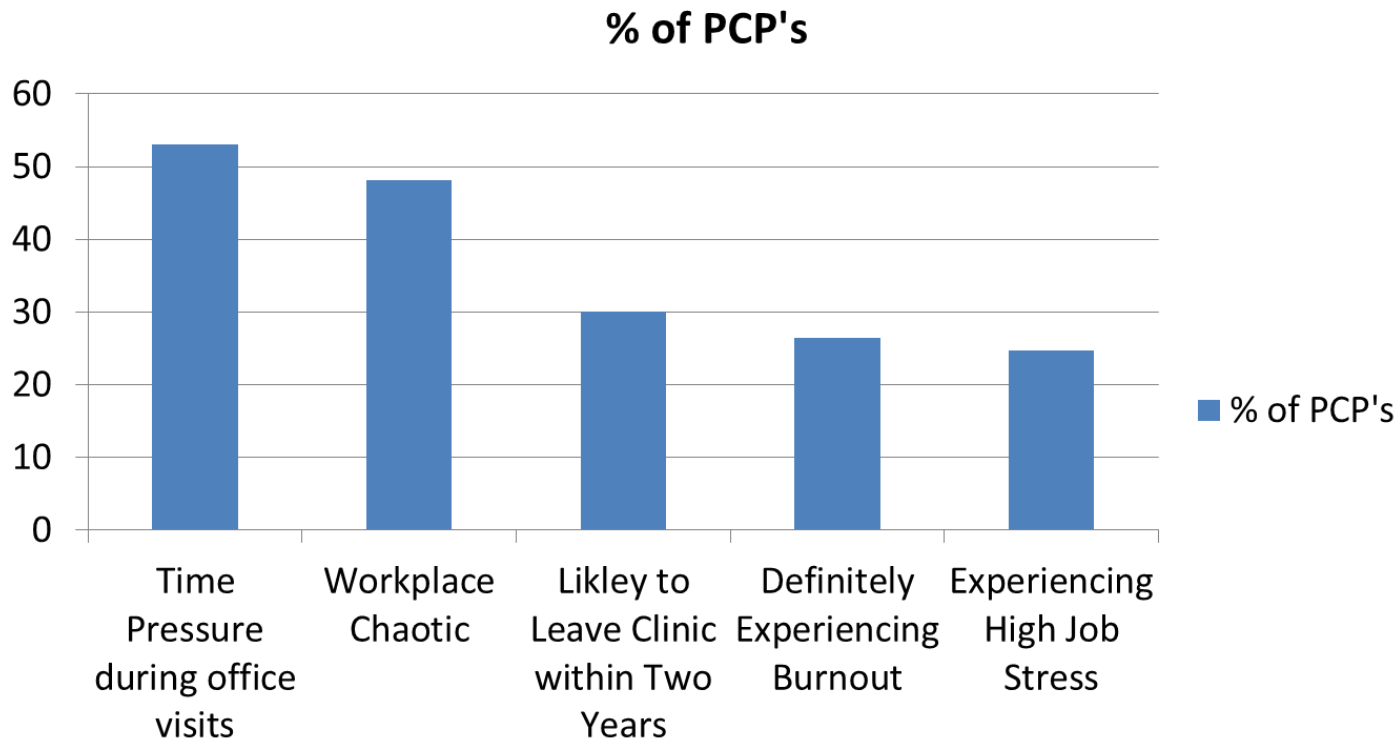
Linzer, M, et al. "Working Conditions in Primary Care. Physicians Reactions and Care Quality, *Annals of Internal Medicine*, 151:1, July 2009

Industry Challenges



Adverse Working Conditions

PCP's Experiencing widespread burnout



Merritt Hawkins and Associates, 2008

www.merrithawkins.com/pdf/2008_mha-survey-primary-care.pdf

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Industry Challenges



Physician Turnover

- \$5108 Average cost of new PCP search
- 6 – 7 months to fill a PCP opening
- \$122,000 Average practice revenue loss per PCP opening during search
- \$404,184 Average downstream hospital revenue loss per PCP opening during search

Medical Group Management Association,
2010; Recruiter Benchmarking Survey



AMG's LEAN Approach to Schedule Optimization

STUDY, PROVIDE MEANS, MEASURE

- Goal
- Triggers for Change
- Pilots – LEAN Approach
- Solution – The Schedule Wheel
- Implementation and Communication
- Measurement
- Results
- Lessons Learned

Schedule Optimization Goal



Standardize all provider schedules to:

- Improve patient access
- Reduce patient wait times
- Improve practice efficiency and patient flow
- Reduce complexity of scheduling process; increase staff efficiency

Triggers for Change



- High patient wait times impacted patient satisfaction;
- Schedule barriers lead to decreased patient access, decreased practice efficiency and physician productivity;
- Physician dissatisfaction with patient flow and work/life balance – “call for help.”

Three Pilots



- Internal Medicine Physician
- Orthopedic Surgeon
- Family Medicine

LEAN Approach



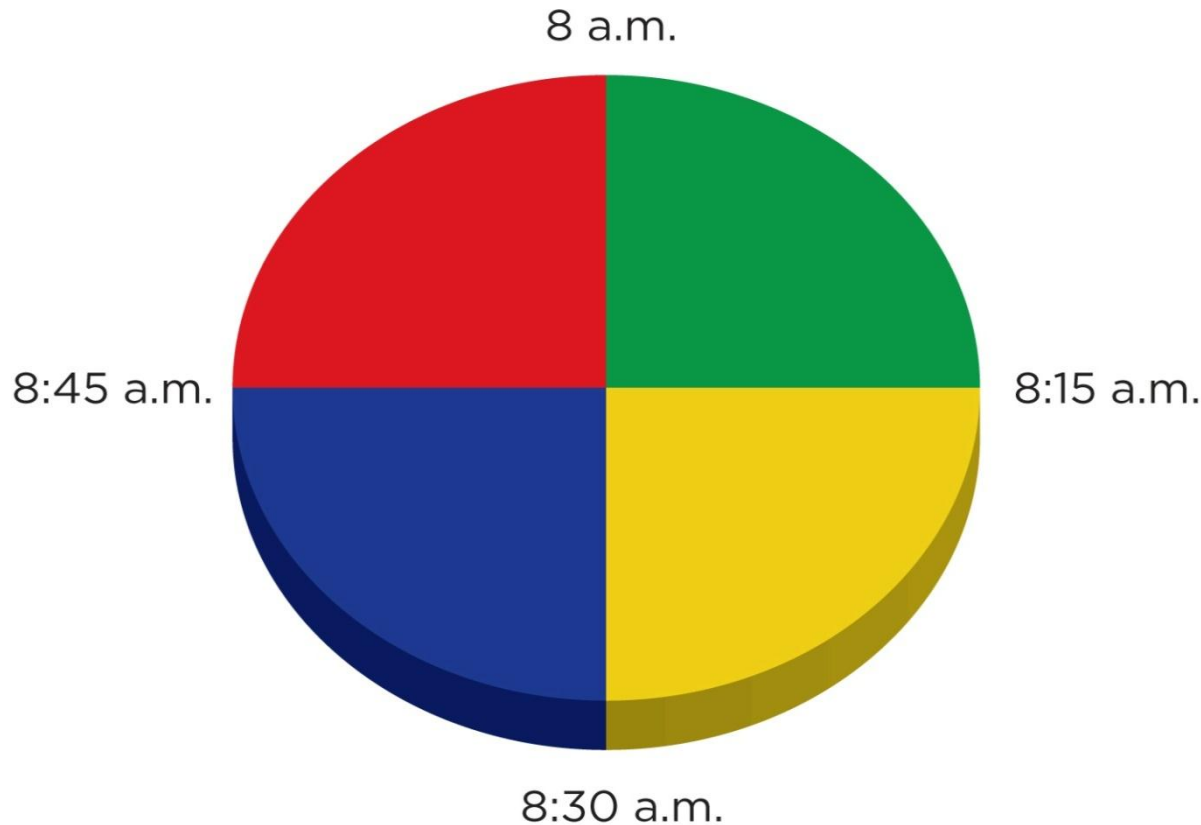
- Identify the need for improvement
- Lean expert goes to Gemba - the Real Place to identify waste
- Work closely with the content experts to make improvements - physicians, nurses, schedulers, IT
- Provide the team with the resources to work the plan
- Measure the changes
- Celebrate the success

Sample Timing Report



	All Visits	CPE/MWV/New	All Other
Nurse Rooming Time	7:38	5:50	7:15
Mins. Dr. Time in Room	15:25	20:40	13:26
Mins. Dr Enters after scheduled appt.	20:42		
Mins Pts arrive before appt time (exc. Late pts)	15:00		
% of pts late	10.0%		

The Solution: The Schedule Wheel



The Schedule “Wheel” is designed to manage a set number of patients per hour – not within a single appointment slot.

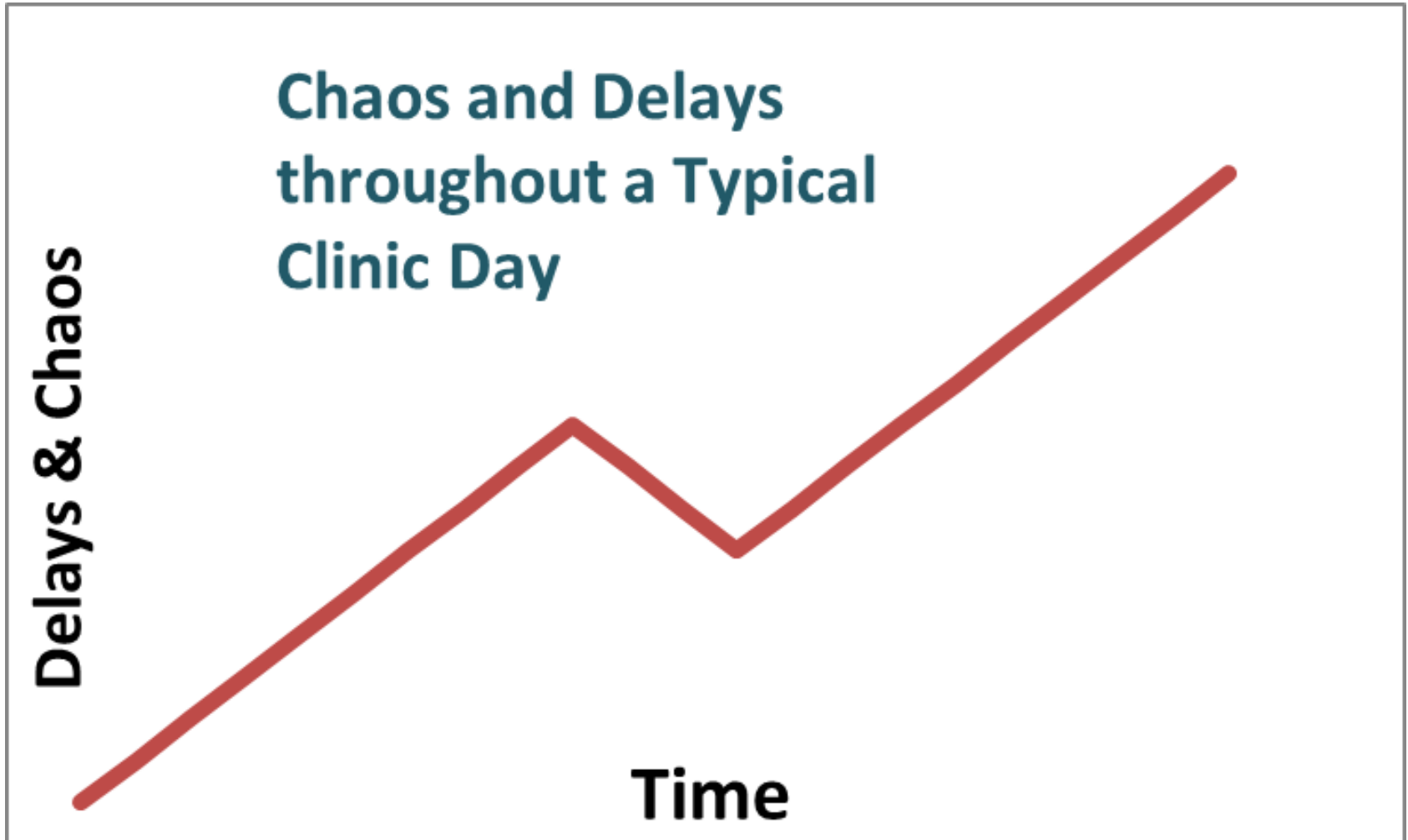
Load Leveling



Leveling work, a concept known as heijunka, is one of those concepts from the Toyota Production System that is either ignored or misunderstood by many Lean implementers. However, whether one is working on improving material flow, information flow, or other flow (such as patient flow in a hospital or surgery center), leveling the workload is a key to success.

Darren Dolcemascolo, EMS Consulting Group
"Leveling the Workload," June 2011

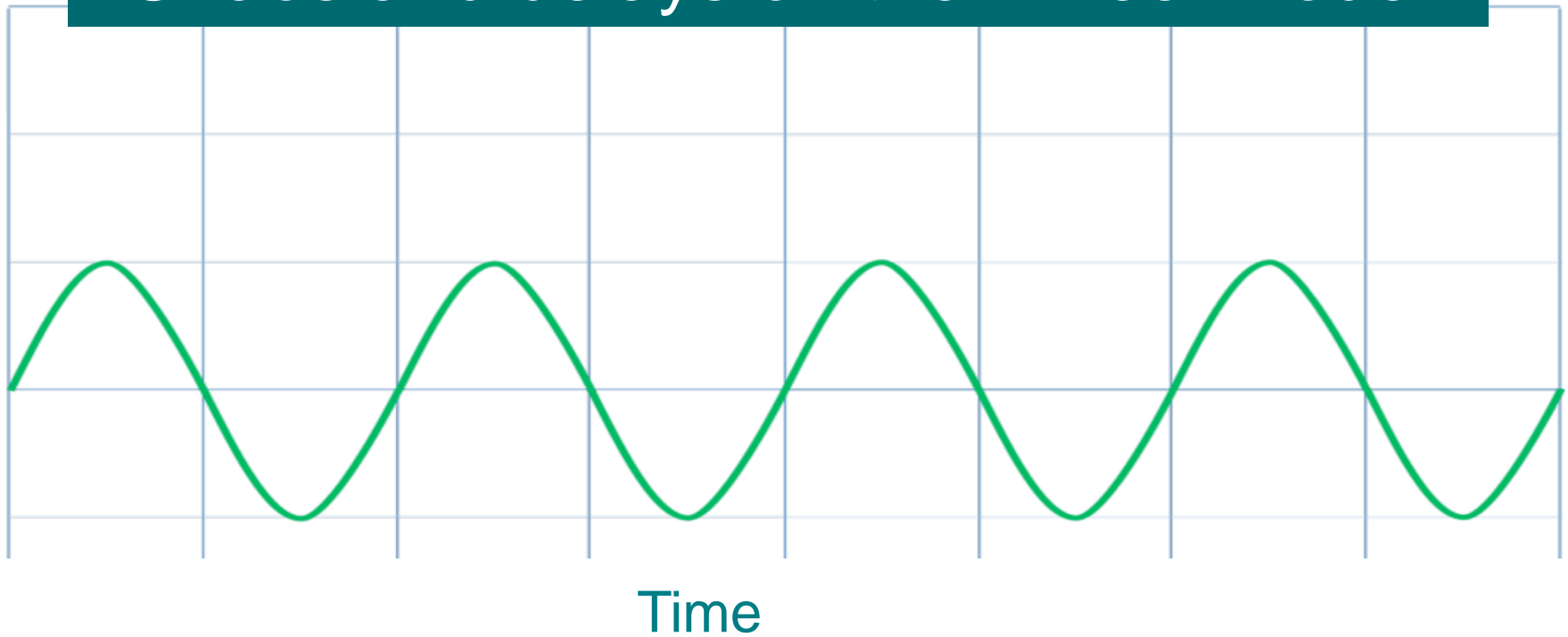
Load Leveling



Load Leveling the Day

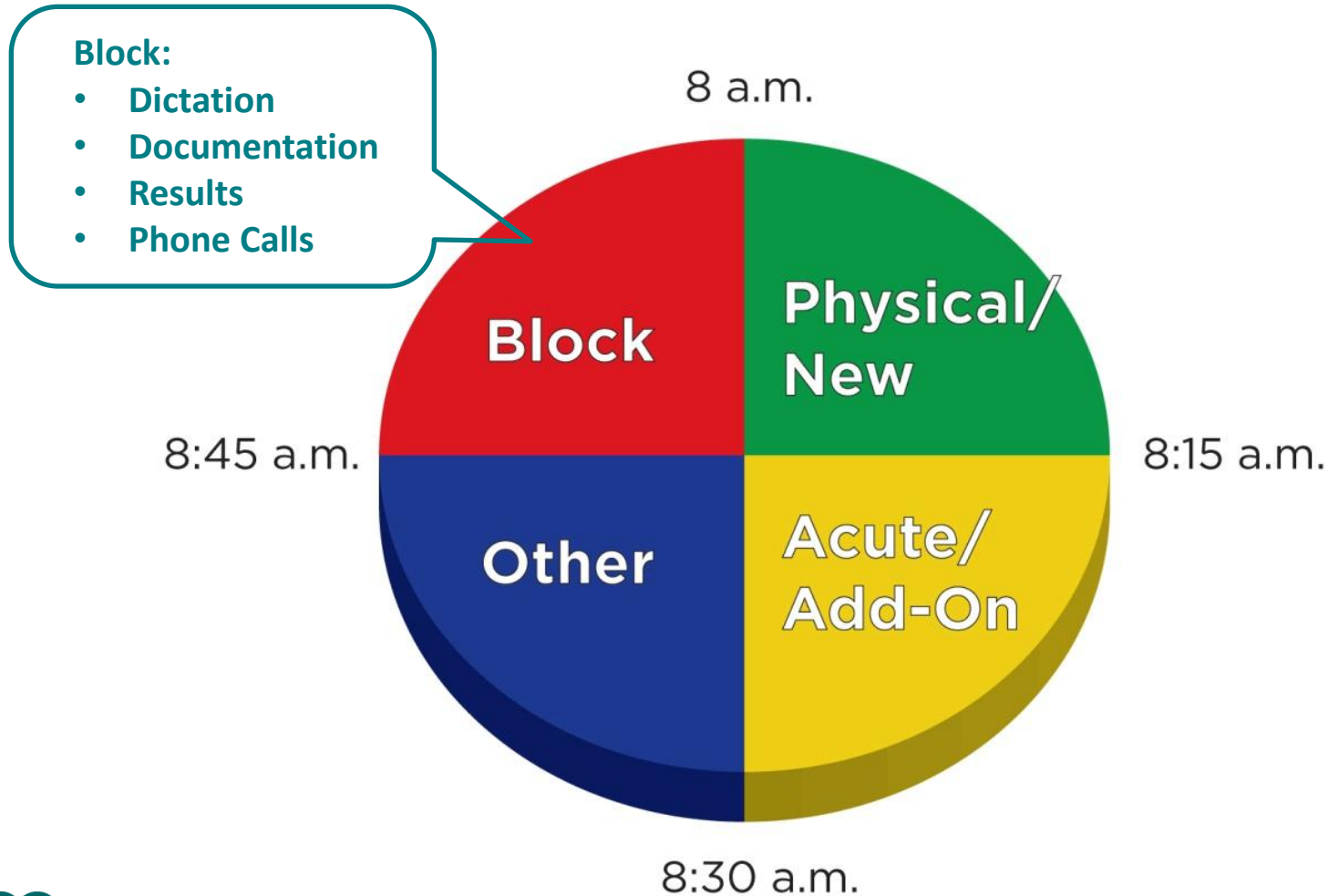


Chaos and delays on the Wheel Model



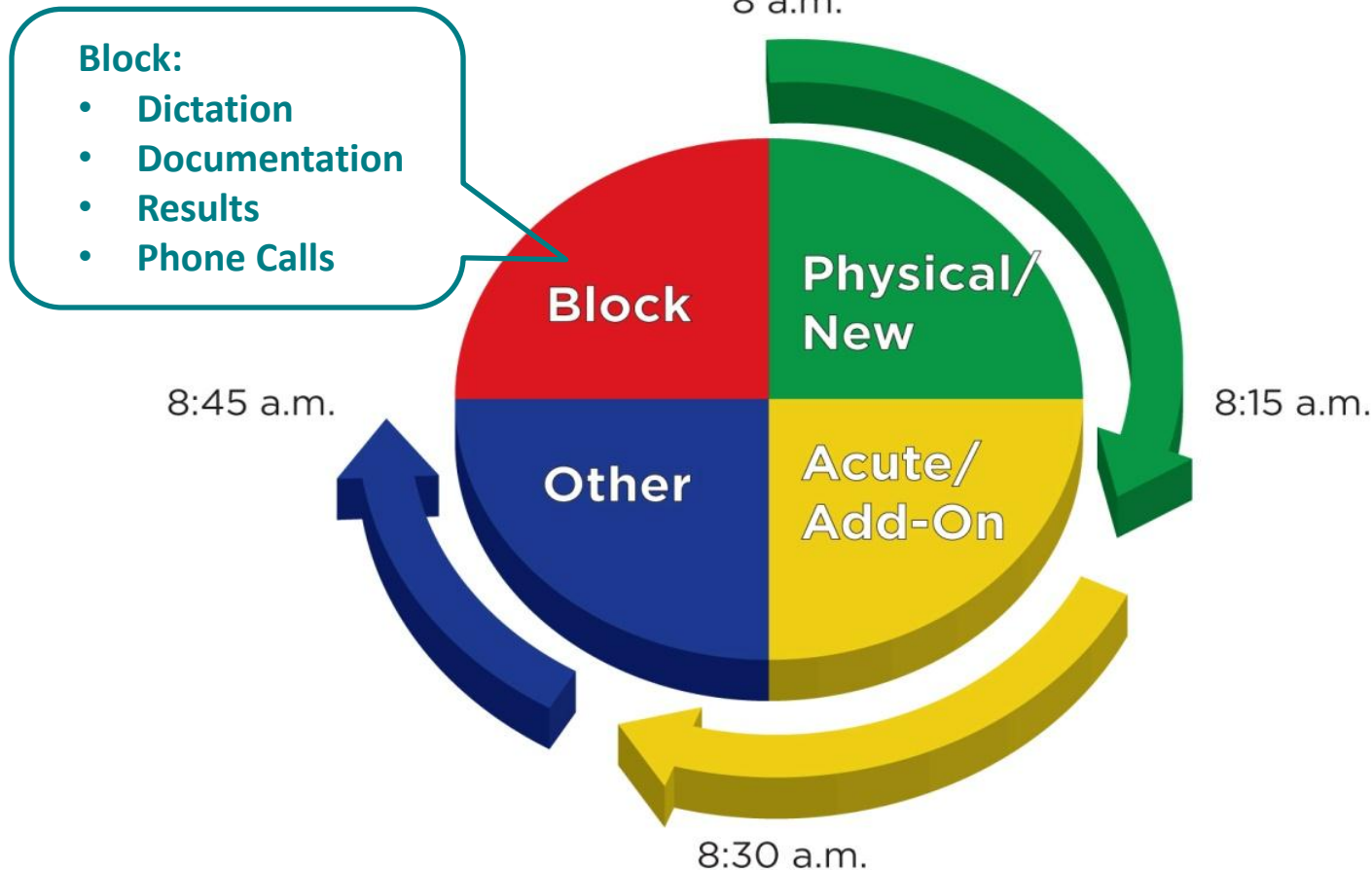
The Schedule “Wheel”

A 15-Minute Example



The Schedule “Wheel”

A 15-Minute Example



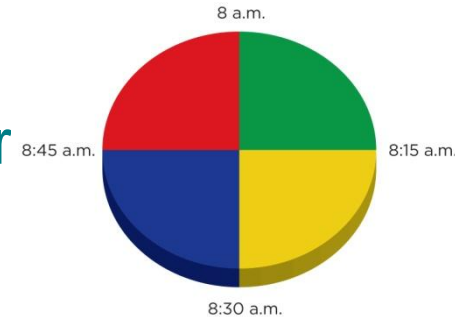
The intent is to “reset” the schedule at the top of the hour (each Wheel cycle).

The Schedule “Wheel”

How It Works



- The number of appointment slots in the hour is determined based on the current average time spent per appointment.
- The wheel repeats itself every hour.
- The first appointment is always a physical or new patient (or most complex visit type) to allow for appropriate time in the hour.
- A block is always built in to accommodate the longer time spent with a patient; for phone calls; dictation; etc.

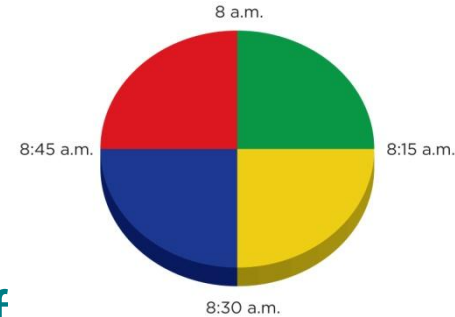


The Schedule “Wheel”

How It Works



- Dedicated AM acute slots are released day before
- Dedicated PM acute slots are released day of
- Dedicated acute slots for both Patient Service Rep and Nurse to schedule
- Clinical staff uses the block time for phone calls; documentation; etc.
- All new providers are started out on the Wheel

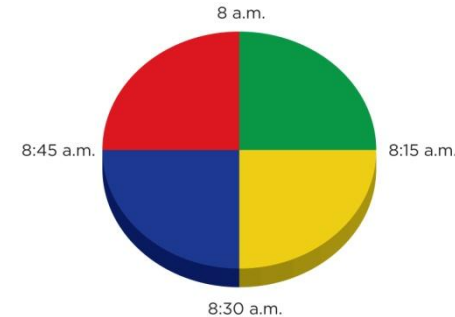


The Schedule “Wheel”

Critical Success Factors



- Physician must arrive on time.
- No double booking.
- Clinical staff must perform all rooming duties each hour prior to all other work to maximize the physician flow.
- Block time must be used appropriately and fully. It should not be shortened to start the next Wheel cycle early.
- Nursing staff is responsible for patient flow and “staying true to the Wheel.” They are the gatekeepers of the Wheel.
- Simplified protocols.



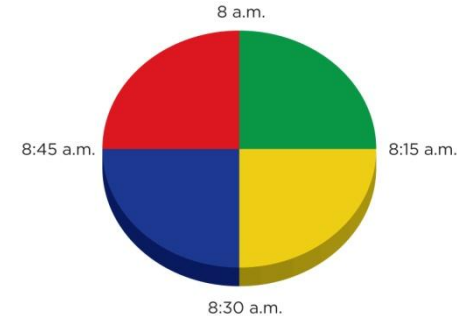
15-Minute Template



Example of morning schedule

7:30AM-3:30PM 8 Hour day	# Patients	
7:30	1	Physical/New
7:45	2	Acute/ Add On-Triage
8:00	3	Other
8:15		BLOCKED
8:30	4	Physical/New
8:45	5	Other
9:00	6	Other
9:15		BLOCKED
12:00	13	Physical/New
12:15	14	Acute/ Add On-CSR
12:30	15	Other
12:45		BLOCKED
13:00	16	Physical/New
13:15	23	Acute/ Add On-Triage
13:30	18	Other
13:45		BLOCKED

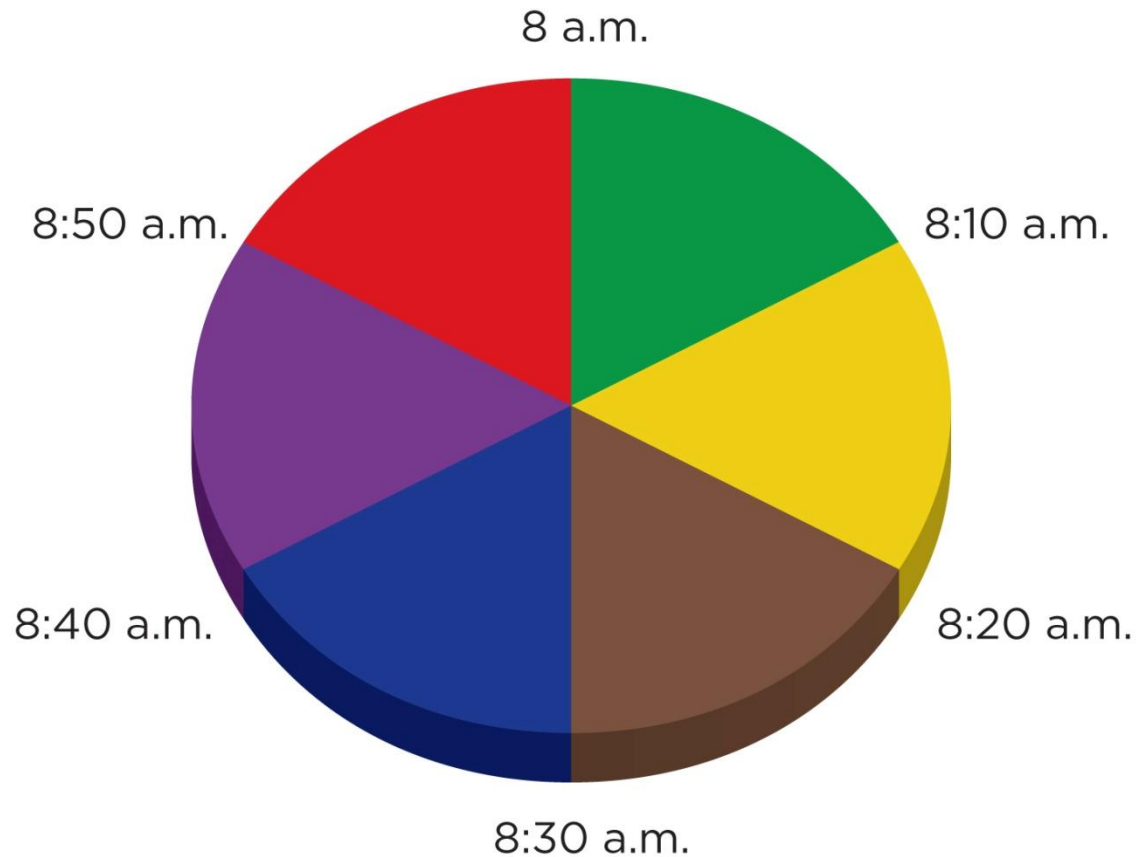
Example of afternoon schedule



Scheduled
Opened day before
Opened day of
Blocked

The Schedule “Wheel”

A 10-Minute Example



10-Minute Template



Example of morning schedule

8:00AM-5PM 8.0 Hour day	# of Patients	
8:00	1	CPE/New
8:10	2	Other
8:20	3	Other
8:30	4	Other
8:40		BLOCKED
8:50		BLOCKED
9:00	5	CPE/New
9:10	6	Acute/ Add On-Nurse
9:20	7	Other
9:30	8	Other

Example of afternoon schedule

13:00	17	OB1
13:10	18	Acute/ Add On-Nurse
13:20	19	Other
13:30	20	Other
13:40		BLOCKED
13:50		BLOCKED
14:00	21	CPE/New
14:10	22	Other
14:20	26	Acute/ Add On-Nurse
14:30	24	Other
14:40		BLOCKED
14:50		BLOCKED

Scheduled
Opened day before
Opened day of
Blocked

Implementation Steps



- Operations Improvement team leads the project.
- Use Project Management Approach to get a clinic or provider on the model
 - Define the scope, timeline, and resources needed to accomplish the goal
 - Plan the necessary steps needed to achieve the goal by assigning responsibilities and developing a schedule of activities
 - Implement the plan and monitor the progress along the way and modify if necessary

Typical Operations Improvement Team Support



- Identify the sites or providers with market leadership where a need has been identified
- Conduct time studies and observations if needed to develop appropriate schedule.
- Meets with providers to review schedules and discuss processes.
- Conduct formal staff and provider training – critical to success.
- On-site “Go Live” support.
- Regular reporting – during “Go Live” and monthly.

Communication and Physician Engagement



- Careful early adopter selection:
 - Respected physician
 - High producer
 - Leadership position
- Spend time with the physician explaining the “why,” the parameters and set expectations
- Provider reports on pilot results to peers
- Never underestimate the power of a hallway conversation

Communication and Physician Engagement (cont.)



- Assure providers that this is not only about their efficiency but that of their staff as well
- Assure providers that just as much emphasis is placed on the administrative team to achieve compliance

Measurement



- Arrived appointment per available hour
- Visits
- RVUs
- Care management
- Patient satisfaction
- Provider satisfaction

Sample Monthly Report



AMG Scheduling Pilot-2012				
Dr. XX	Baseline 3/2011- 3/2012- Avg	2012/May	2012/Jun	2012/Jul
Arrived appts/available hour	3.1	5.3	4.5	4.7
Appointment count/month	244	338	302	276
Available hours/month	79	63.5	67.3	58.33
Monthly Increase in Visits		140	94	93
YTD Increased Visits		140	234	327
Average Net Medical Revenue/visit		\$ 384	\$ 384	\$ 384
Increased Net revenue/month		\$ 53,760	\$ 36,180	\$ 35,838
YTD Increased Net Revenue		\$ 53,760	\$ 89,940	\$ 125,778

Sample Observation During “Go Live”



Provider: Dr XXX

Location: AMG Clinic

Date: Tuesday, September 4, 2012

- Patients seen: 13
- No Shows: 0
- Late Patients: 0
- Average time after appointment time Doctor entered exam room: 6 minutes 55 seconds
- Average time doctor in room for all patients, all visit types: 13 minutes 11 seconds
- Arrived appts/available clinic hour: 2.6. Baseline: YTD thru July 1.9 arrived appts/available clinic hour

Sample Observation During “Go Live” (cont.)



Notes/Observations:

- This is the second week of utilizing the new schedule.
- On average doctor enters exam room for top of the hour CPEs, 1 minute and 30 seconds after appointment time. This indicates that he is back on schedule every hour.
- Average time doctor spends in the room with CPEs is 19:52 and all other visit types is 10:30. So even though he walks in the exam room for his second patient in the hour after the scheduled appointment time, on average he should be seeing all 3 of his patients in less than the 45 minutes allotted to see patients each hour.
- Doctor’s regular rooming nurse will be on leave starting September 13th. She will train her replacement in regard to the new schedule. I’ll also follow up with the new rooming nurse.

Pilot Results – Internal Medicine



- A decrease in patient wait times by 39%
- An increase in patients per scheduled hour by 36%
- An average increase of 111 visits per month; equates to monthly NMR increase of \$18,870
- An increase in patient satisfaction with wait times by 6 percentile points

Pilot Results – Orthopedic Surgeon



- A decrease in patient wait times by 25%
- An increase in patients per scheduled hour by 56%
- An average increase of 109 visits per month; equates to monthly NMR increase of \$41,856
- An increase in average RVUs per month of 29%

Pilot Results – Family Physicians



- An increase in patients per scheduled hour by 32%
- An average increase of 69 visits per month
- Which equates to an average monthly NMR increase of \$13,432

Current Implementation Status



- 45 Providers
- 5 Specialties
- 3 Distinct Markets
- 15 Facilities

Results



Lessons Learned



- Process-dependent vs. people-dependent - resource intensive
- The schedule is the best place to start when redesigning a practice for optimization.
- However, the other “ills” need to be addressed – the Schedule Wheel is not just a plug and play.
- Downstream impact can be significant (e.g. Lab downstream).
- Effective communication at all levels – priority.

Lessons Learned (cont.)



Data-driven Process:

- Some providers blame the Wheel for their inefficient practice styles (data do not support).
- Hard to sell the concept to the “resisters” who view this as giving up control.

Next Steps



- Leads to scorecard for practice efficiency:
 - Staffing models
 - Exam room requirements
 - Panel size
- Studying more specialties
- Broad implementation



Thank You!