

Western Australian Four Hour Program



Finding Solutions Around Patient Flow

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- The Western Australian 'Four Hour Rule'
- Structure of the state program
- Key challenges and lessons regarding patient flow
- Results to date



Delivering a Healthy WA



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Opinions of your speaker

- Access block has many contributing root causes across the whole hospital (and beyond)
- Attempts to improve access block by incremental change using generic solutions are seldom successful or sustainable
- A detailed diagnostic process is required to achieve a nuanced quantitative understanding of the root causes of access block for your patients in your hospital
- To improve access block you require
 - Strong consistent political and executive commitment and governance
 - An urgent stretch target to drive innovation
 - A collaborative patient-focused data-driven methodology to create solutions based on the identified root causes



- Change in health care needs to be based on a strong set of values that resonate with everyone

- In our case...
 - Quality patient care is effective, safe, personal and timely

 - Every patient counts, and to them, every minute counts

 - The most important resource in health is its workforce

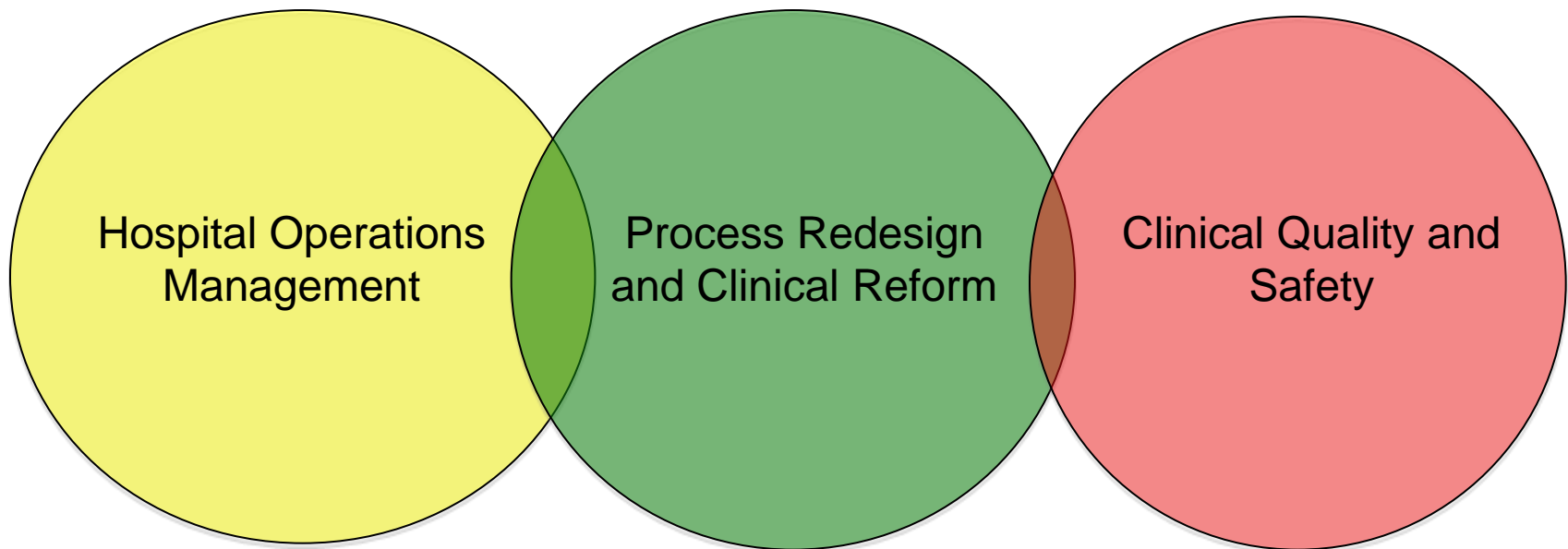
Four Hours?

- In the vast majority of clinical situations four hours is an appropriate timeframe for
 - assessment
 - provisional diagnosis
 - commencement of treatment
 - disposition
- In some cases emergency physician-led diagnosis or therapeutic intervention may take longer, but the ED stretcher or corridor is not where patients want to be managed
- A two-three hour timeframe is what our patients expect

Scales and Subscales
Royal Perth Hospital
Adult Admitted 0-34 nights

	Mean Score
Access Scale: Getting into hospital	61.1
Getting into hospital	55.1
Access to hospital upon arrival	46.6
Arriving on the ward	37.6
Making admission easier	88.9
The admission process	87.2
Time and Care Scale: Time and attention paid to patient care	84.1
Time waited for the doctor	76.1
Care provided by the nursing staff and doctors	91.8
Informed Scale: Information and communication	79.7
Information provided to patients and family	87.5
How health care professional communicated with patient	71.0
Needs Scale: Meeting personal as well as clinical needs	87.1
Consistency Scale: Continuity of care	66.4
Involvement Scale: Involved in decisions about your care and treatment	68.4
Rights and complaints	47.5
Exercising your rights	85.5
Expressing your rights	83.5
Residential Scale: Food and residential aspects	56.9
Food	49.5
Residential aspects	62.4
Outcome Scale: Patient rated outcome of hospital stay	84.3
Improvements in health	86.7
Recovery process	79.3
Overall indicator of satisfaction: weighted by ranked issues of importance	74.1





Where to start?



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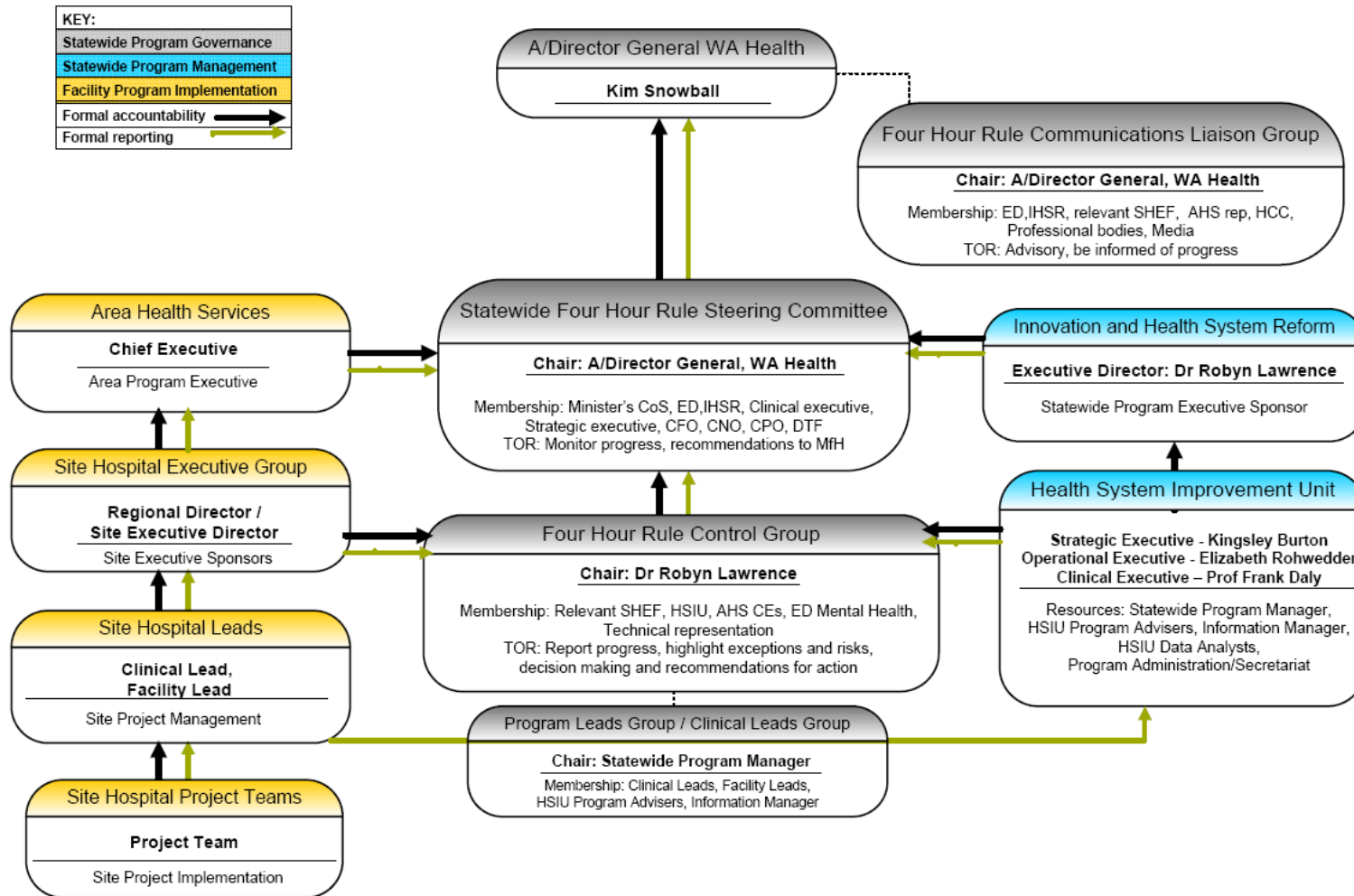
Don't just stand there.... Do nothing!



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- Determine governance
- Ensure you know exactly what problems you are trying to solve
- Define the timeframes
- Use an agreed standard methodology
- Make a plan that addresses factors critical to quality
- Stick to your plan
- Ensure you know how you are going to measure success

Western Australian Four Hour Rule Redesign Governance



Western Australian Clinical Service Redesign Methodology

- Tailored to WA Health, using principles from 6 Sigma, Lean, project and change management
- Suited to large organisations and systems
- Centred on the patient journey and experience
- Incorporates the voice of the patient and carer
- Data-driven but led by clinicians
- Follows a 'DMAIC' process



Four Hour State-Wide Dashboard

Dashboard indicators by group

Activity and Utilisation Measure
ED Attendances
Admissions from ED (Total)
-Admissions from the ED (Mental Health)
% of ED Attendances transferred to another hospital
System Integration and Change Measures
% ED Attendances with LOE \leq 4 hours ¹
% ED Attendances with LOE > 12 hours
% ED Admissions with LOE \leq 4 hours
% ED Transfers with LOE \leq 4 hours (Total)
-% ED Transfers with LOE \leq 4 hours (Admitted)
-% ED Transfers with LOE \leq 4 hours (Departure)
% ED Departures with LOE \leq 4 hours
% Admitted patients discharged before 10:00am

Quality and Clinical Outcome Measures
Unplanned re-attendance to ED within 48 hours (%)
- Attendances (%)
- Patients (%)
In Hospital Mortality for Admissions from ED (%)
No. of MRSA infections/ 10,000 bed days
No. of Sentinel Events
No. of Complaints
Hospital Resources and Capacity Measures
No. of Same day beds (weekday)
No. of Same day beds (weekend)
No. of Multiday beds
Multiday bed occupancy (%)
% Multiday beds occupied by patients admitted from ED
Ambulance Ramping (hours)

- Departmental, divisional and hospital quality and safety indicators
- Australian Council on Health Care Standards
- November 2009 Australian Health Ministers Agreement
 - Hospital standardised mortality ratio (HSMR)
 - Death in low-mortality Diagnosis Related Groups (DRGs)
 - In-hospital mortality rates for acute myocardial infarction, heart failure, stroke, fractured neck of femur and pneumonia
 - Unplanned hospital re-admissions of patients discharged following management of acute myocardial infarction, heart failure, knee and hip replacements, depression, schizophrenia and paediatric tonsillectomy and adenoidectomy
 - Healthcare associated *Staphylococcus aureus* bacteraemia infections, including MRSA

Four Hour Program - Roll-out

- Nov 08 — WA Health delegates undertake UK Tour
- Feb 09 — Ministerial announcement Four Hour Program
- Apr 09 — **Stage One:** RPH, SCGH, FH, PMH
- Oct 09 — **Stage Two:** Rockingham, Armadale-Kelmscott, Swan District, Bunbury, Joondalup HC
- Apr 10 — **Stage Three:** Regional Resource Centres, Nickol Bay Hospital, Peel HC, King Edward Memorial Hospital
- Apr 11 — Stage One sites complete implementation
- Oct 11 — Stage Two sites complete implementation
- Apr 12 — Stage Three sites complete implementation

The methodology applied to the program

First 6 months

Understand problems at patient level

- Define problem
- Measure impact
- Analyse root causes
- Improve process by developing solutions

Next 18 months

Implement new processes derived locally

- Enter **Control** by...
- Implementing solutions
 - Revisiting DMAI
 - Measuring impact

24 months/ongoing

Maintain new processes

- Reach 85% target
- Maintain solutions and target of 95%

- Patients presenting to the ED seen admitted, discharged or transferred within 4 hours (85%; 95% and 98% deadlines)

- Criteria critical to quality (staff and patients)
 - Mortality rate
 - ED representation rate 48 hours
 - MRSA infections
 - Hospital quality and safety indicators

Critical to Quality Requirements



Source: RPH Unplanned Admissions CSRP Staff Survey, 11 June 2008
RPH Unplanned Admissions CSRP Process Mapping workshop, 11 May to 3 June 2008

Define

Process maps

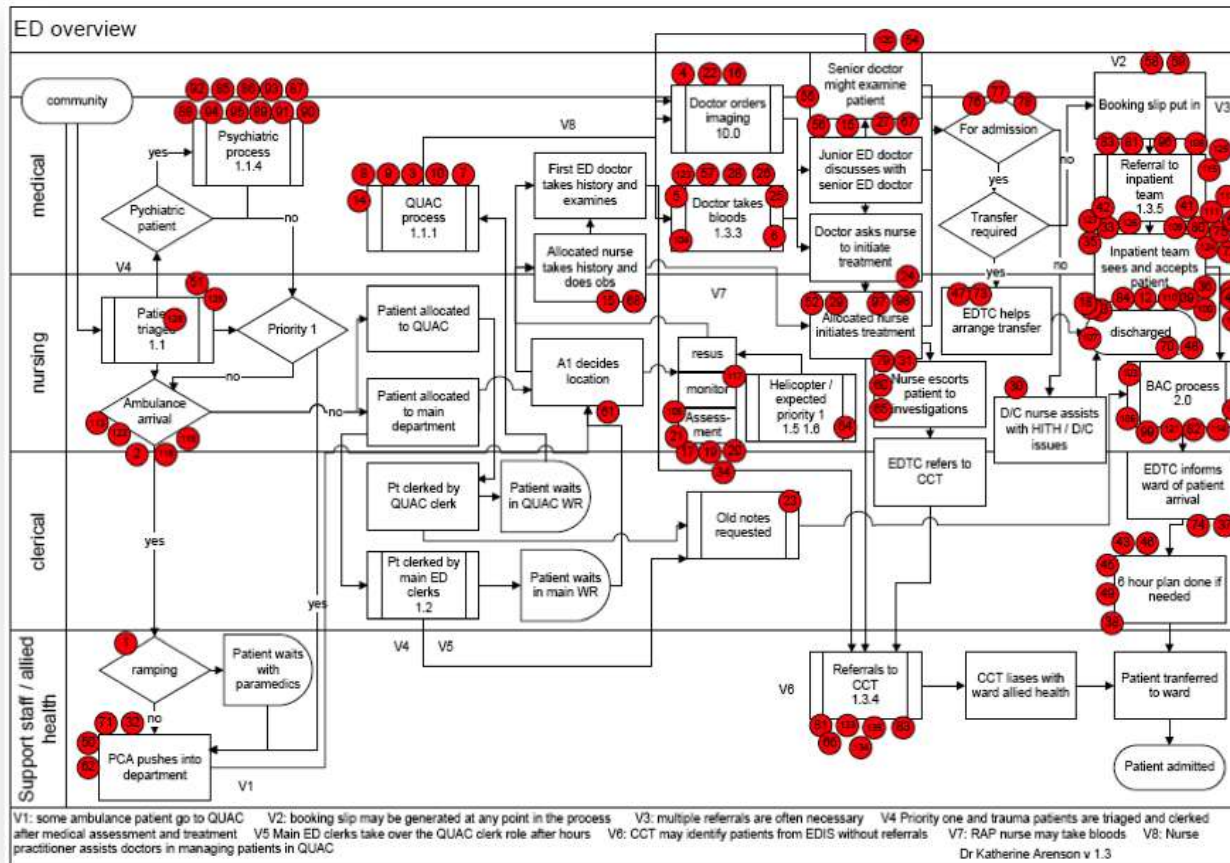
- Emergency Medicine
- Medical
- Surgical
- Psychiatry
- Critical care
- Bed management
- Ward management
- Discharge



Define



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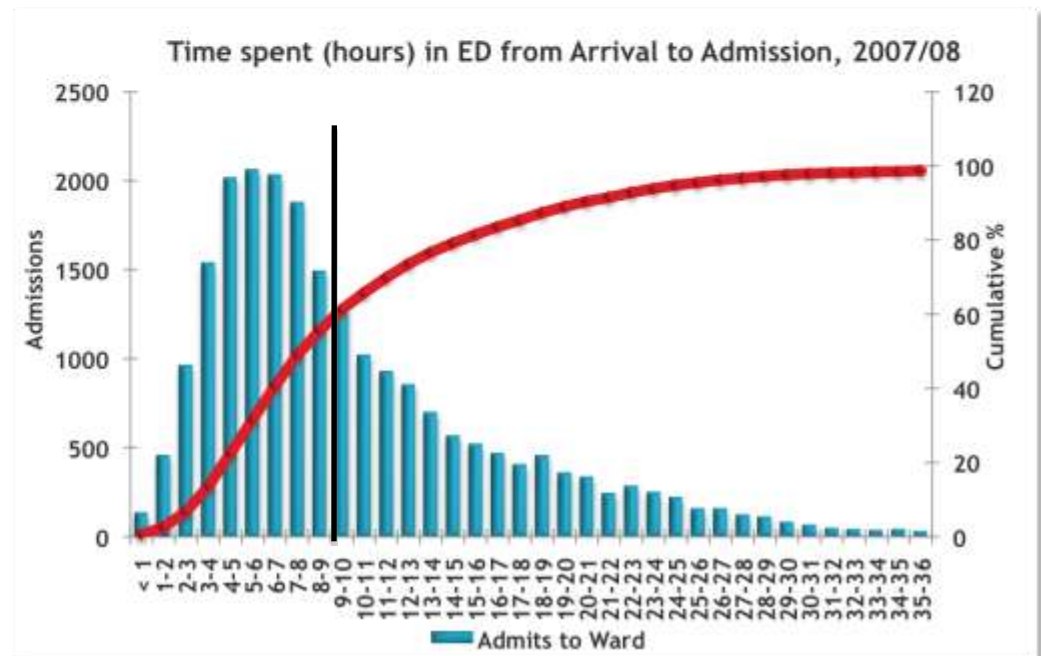


808 issues pertaining to patient flow were identified and classified



Measure

- Baseline 'level 1 data' demonstrating normal business across all domains of hospital operations
- 24/7 five day time-and-motion study performed



132 measures analysed across the hospital pertaining to flow

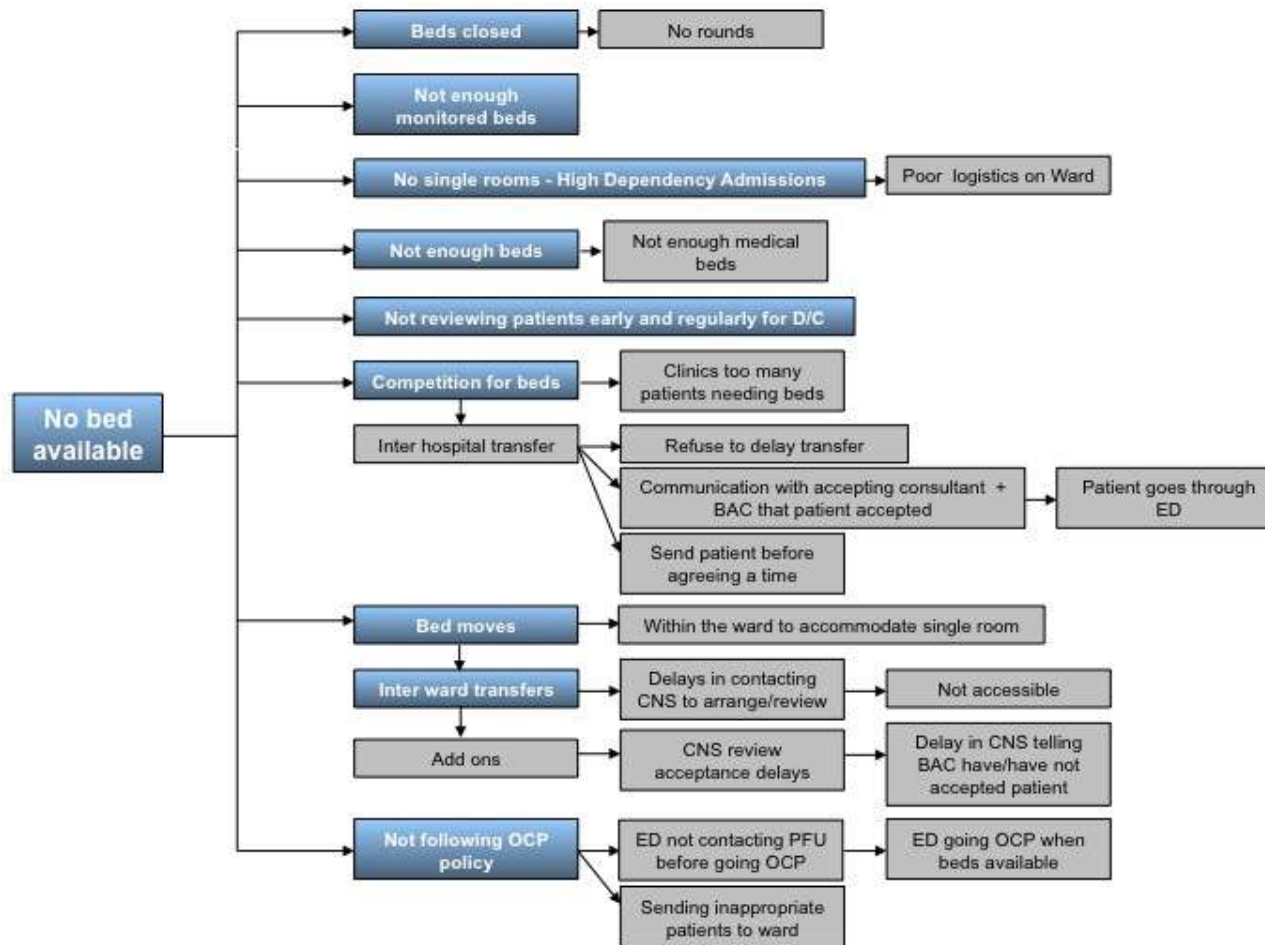
Analyze



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- Root cause analysis to determine underlying causes of measured problems
- 5 whys
- Inter-relationship diagrams
- $y = f(x^1 + x^2 + x^3 + x^n)$
- Null hypothesis testing using data





Root Causes-Emergency Medicine

- Mismatch between patient workload and staff rostering
- Poor or absent processes for allocation of new patients to medical staff
 - Median time triage-doctor September 2008 46 minutes
 - Delays to senior doctor review
- Poor communication
 - Between different grades of medical staff
 - Medical-nursing
- Multiple personnel responsible for patient flow in the ED but nobody accountable

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Hypothesis

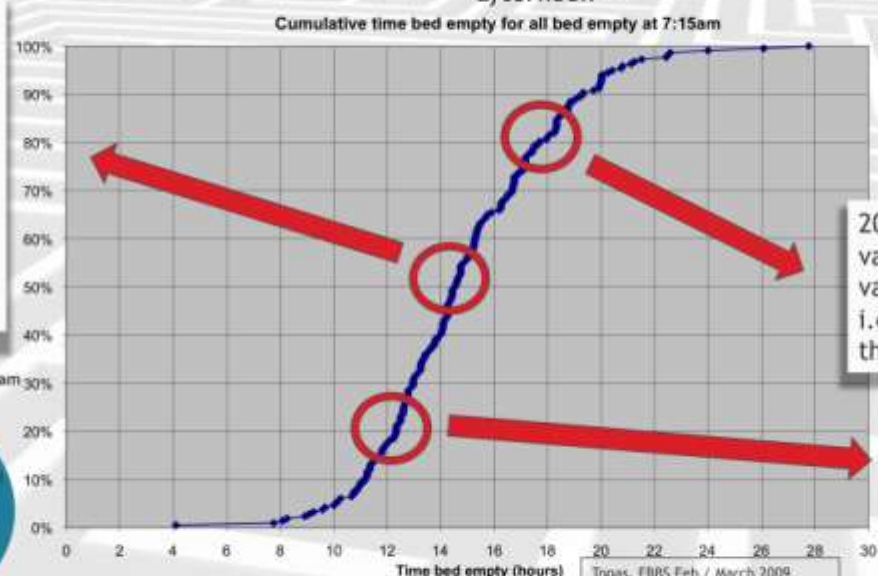


H1: The majority of beds that are vacant at 7:15 am have been vacant since the previous afternoon

H0: The majority of beds that are vacant at 7:15 am have not been vacant since the previous afternoon

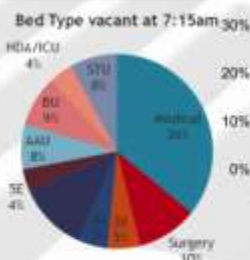
50% of beds that are vacant at 7:15 have been vacant for over 14.5 hrs i.e. since before 16:45 the previous day

There are on average 10 empty beds at 7:15am across the hospital



20% of beds that are vacant at 7:15 have been vacant for over 17.5 hrs i.e. since before 13:45 the previous day

80% of beds that are vacant at 7:15 have been vacant for over 12.3 hrs i.e. since before 18:45 the previous day



Topas, EBBS Feb / March 2009
N = 217
Data Analyst: Mark Walmsley

Conclusion:
The majority (80%) of beds that are vacant at 7:15 have been vacant since the previous evening

Root Causes-Inpatient Referrals

- Multiple referrals to inpatient teams; inpatient teams often refer ED patients to each other
 - 30% had multiple referrals
 - ED LOS 11.2 hours v. 6.52 hours ($p < 0.05$)
- Inpatient teams have competing workloads and ED usually lower priority
- Inpatient teams take longer to see patients in ED if referral made by junior doctor (extra 28 minutes; $p < 0.003$)

Root Causes-Bed Allocation

- Retrospective centralized bed management without access to accurate admission or discharge predictions
- Intra-hospital bed moves (>50% of bed movements are across different wards)
- Lack of business rules around bed allocation
 - Beds kept empty at night while patients wait in ED
- Poor communication between ‘managers’

Finding capacity

- Ward audits 2008 and 2009
 - Performed on week days
 - Every patient in every ward
 - *Why is the patient here?*
- 23% of all inpatients (135 beds) medically ready for discharge but waiting for something:
 - 6% (35) waiting for rehabilitation bed
 - 3% (18) awaiting a medical team decision to discharge
 - 2.5% (15) awaiting medical consultations
 - 2% (12) awaiting the results of test(s)
 - 2% (12) awaiting a nursing home place
 - 1% (7) awaiting transfer back to a rural or remote site



Root Causes-Ward Process and Discharge

- Poor leadership and accountability for all staff working in the ward environment. Roles and responsibilities ill-defined
- Poor discharge planning and documentation
 - 40% of patients had an estimated date of discharge
 - 15% of patients had clear plan documented
- Poor discharge communication
 - Between staff
 - With patients- 58% of patients being discharged were not told until the day of discharge
- Afternoon discharges (only 17.5% of discharges were before 1100 hours)
- Ward bed turn-around times (time from departure of one patient to arrival of the next patient in the same bed; mean 4 hours 12 minutes)

■ Emergency Department

- Team-based care with allocation to a team on arrival
- Consultant-led ambulatory care stream
- ATS 3-5 seen in order of arrival
- 30 minute and 2 hour time KPIs
- Inpatient registrars not authorized to decline admissions
- ED admission to ward

■ Home wards

- Re-allocation of bed resources
- Summer and winter bed plans

■ Ward leadership program

- Roles and responsibilities defined
- Leadership training

■ Predictive bed management and ward pull

- Patient bed allocation and pull to ward devolved to clinical ward staff
- Operations management streamlined

■ Quality display dashboards

- Every clinical area
- Public

■ Discharge

- Visual management systems
- 'Ticket Home'
- Standardized procedures
- Criteria-led discharge
- Discharge slots to meet expected arrivals

■ Surgery

- Theatre allocation and utilization
- Anaesthetic-surgical teams
- Emergency-elective smoothing

■ Imaging

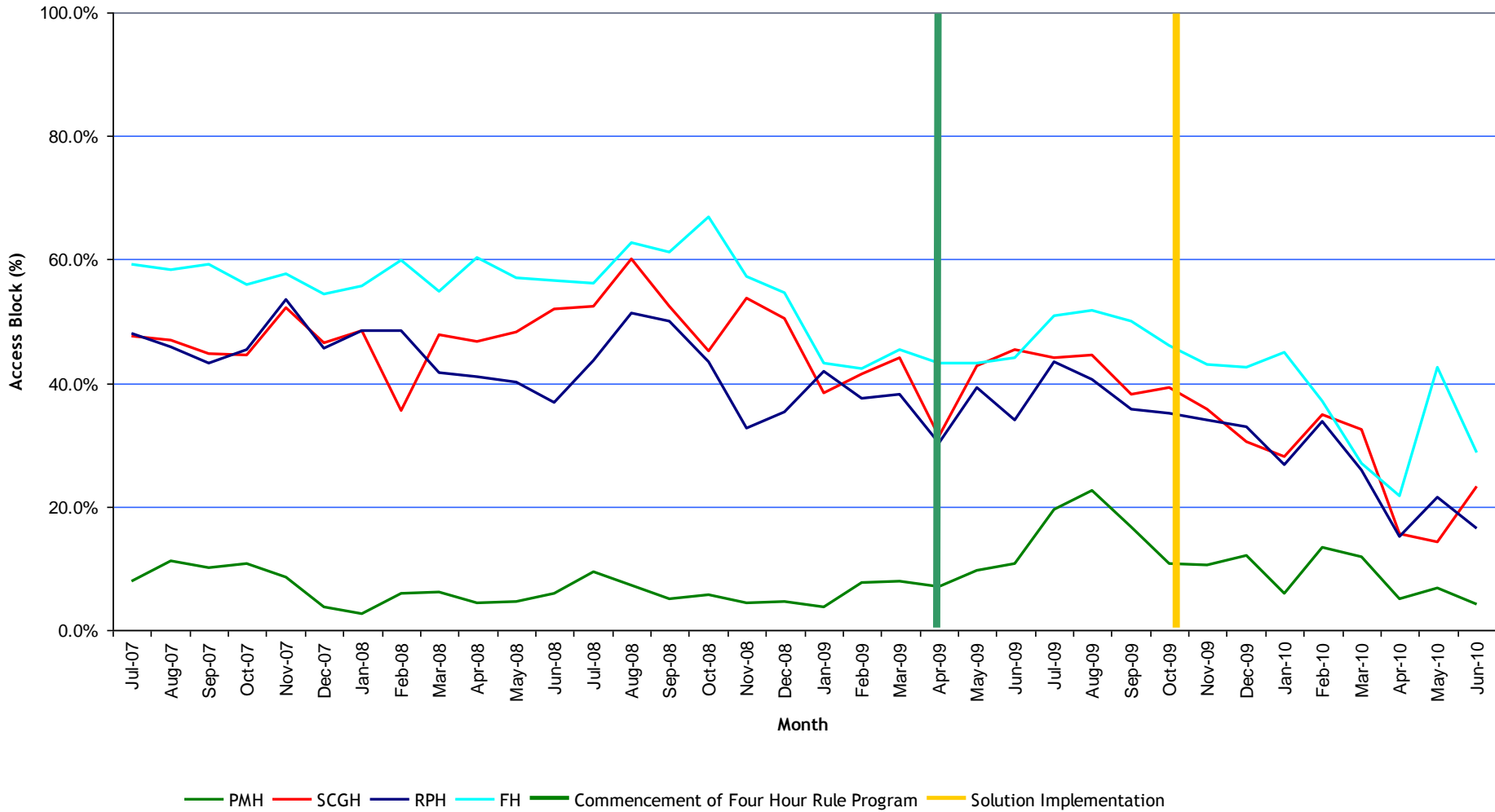
- Clinical liaison roles
- Prioritization

RPH patients admitted discharged or transferred within four hours



Access Block

Monthly - Access Block (July 2007 - June 2010)

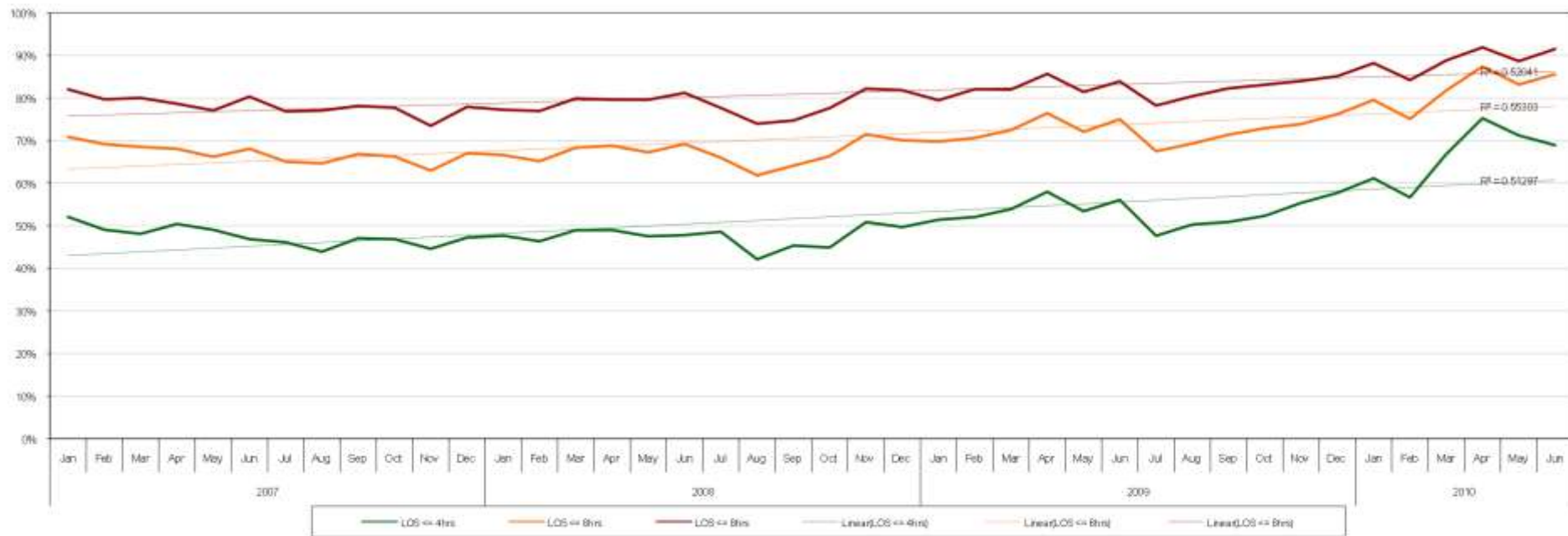


Four, Six and Eight-Hour ED LOS Time-Frames

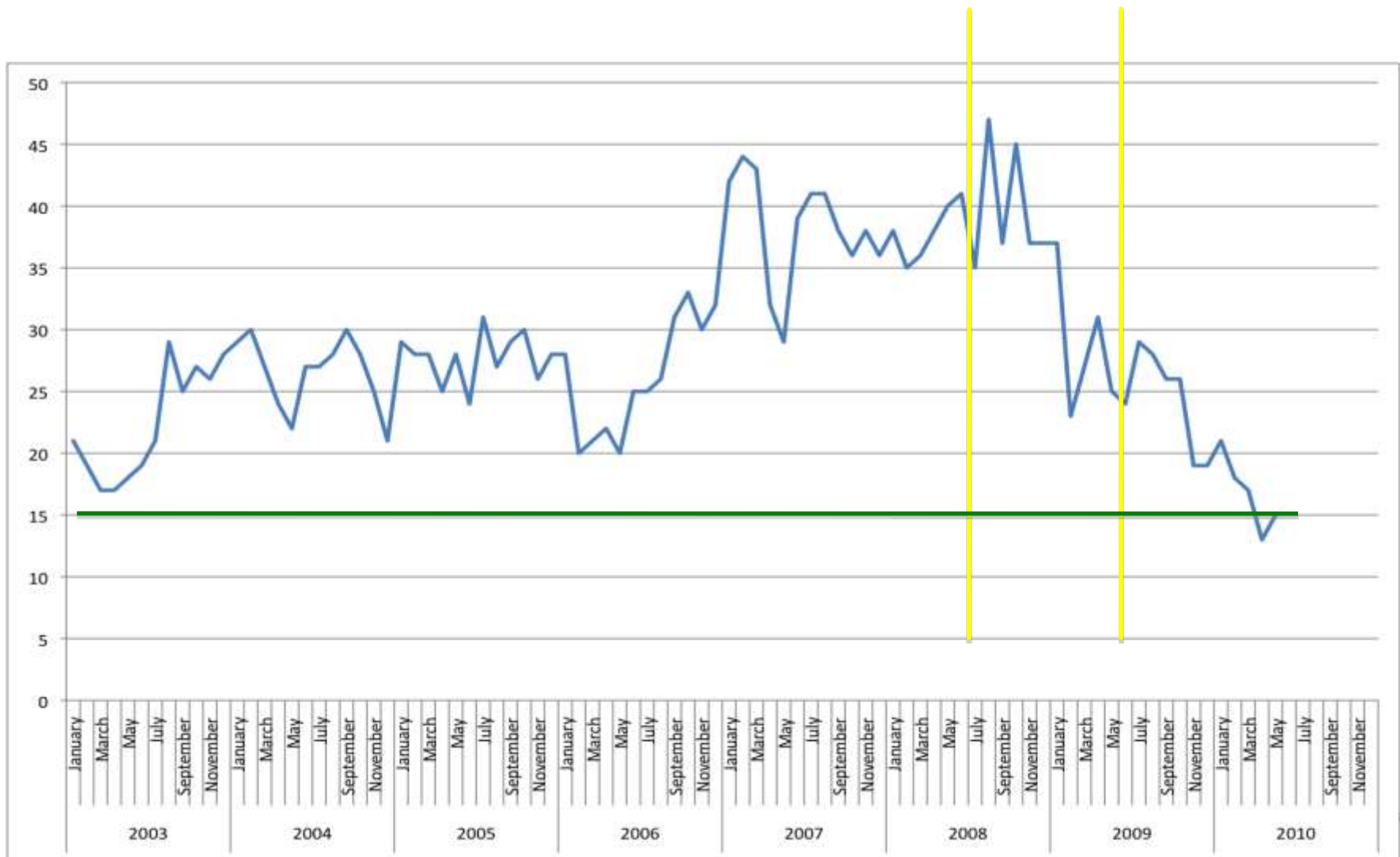


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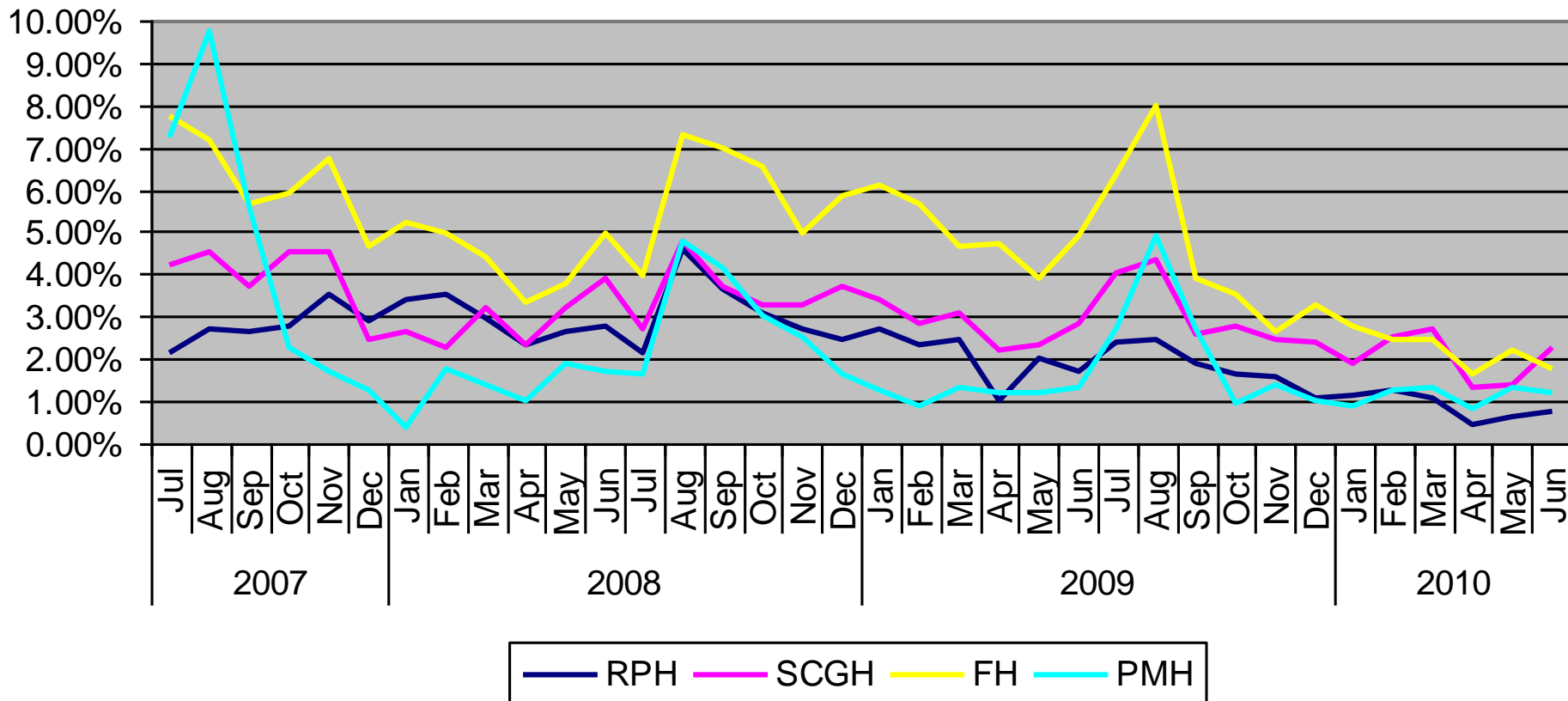
Percentage of Patients with LOS in ED within 4, 6 and 8hrs
Royal Perth Hospital



Median triage-first doctor time (minutes) RPH 2003-2010



Percentage of presentations not waiting to be seen— Stage 1



“A wall of sponge rubber six months thick”

Doug Aberle
CEO Western Power

Our challenges

- Change management
 - Communicating the need for change
 - Talking about ‘why’, not ‘what’ and ‘how’
 - There is no ‘they’
 - Resource-performance bargaining
 - Clinical involvement in all domains
 - Executive visibility

- Information Communication Technology
 - Current ICT infrastructure often inadequate
 - Timelines for ICT solutions

- Program rollout
 - Three stages in quick succession – limited time for transition and leave

Our challenges

- Managing expectations
 - “Four Hour Rule” nomenclature
 - “Solutions jumping”
 - Lightning rod for any and all issues
 - Movement towards target cannot start from the first day

- Managing solutions implementation
 - Six month diagnostic “DMAI” methodology branches into more complex management of multiple solutions in Control

- The regional areas
 - Resourcing
 - Logistics
 - Delivery of training on site

What cannot do without

- Strong and visible executive leadership
- Ambitious targets and timeframes to drive innovation
- Rigorous use of the redesign methodology and project management (don't jump to solutions)
- A dual reporting and support structure via advisers and the central team – an 'impartial' reference point for sites and executives
- Safety and quality countermeasures surveillance around the program from inception
- Strong clinical leadership – formal and informal; all sites

- Sort out your governance
- Work out where the unused capacity lies
- Study major value streams
- Spend time looking for the underlying problems
- Look for variability
- Don't jump to solutions, especially when you may not understand the underlying problem

Hospitals are supertankers

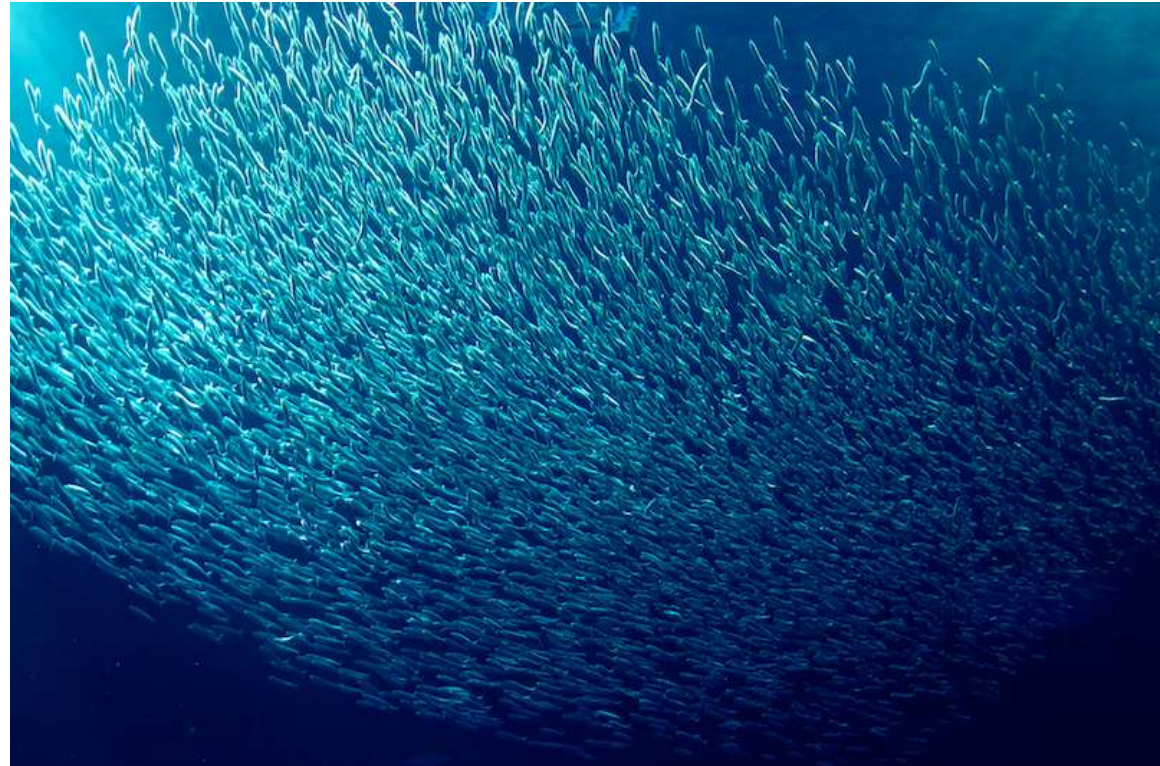


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- Organised
- Mechanistic
- People act as separate parts
- Designed to be stable and not to change



- Complex
- Interconnected
- Designed to react quickly and change
- Each person accountable for the welfare and function of the whole



Conclusions

- Access block has many contributing root causes across the hospital (and beyond)
- Attempts to improve access block by incremental change using generic solutions are seldom successful or sustainable
- A detailed diagnostic process is required to achieve a nuanced quantitative understanding of the root causes of access block for your patients in your hospital
- To improve access block you require
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