



EVALUATING USING Key Performance Indicators

CAMPBELL THOMPSON



Government
of South Australia

SA Health



FLINDERS
MEDICAL
CENTRE



EVALUATING USING Key Performance Indicators

From analogue to digital...



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HOW DO YOU KNOW YOU'RE DOING A GOOD JOB?

> Depends upon whose opinion is relevant

- THEM
- US
- PATIENTS

- IMSANZ guidelines <http://www.imsanz.org.au/resources>



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KPIs have a variable degree of direct reflection of patient care



Them (Administration / others in the hospital)

- > **Flow indices** (so much more important than first realised)
 - Length of stay
 - ED waiting times
 - Surgical cancellations
 - Time of day of discharges
 - Time to medical review
 - LOS in AMAU
 - Bed empty times
- > **Other units' outliers**
- > **Targets. Efficiency. Do not trust unfavourable data**



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Clinician engagement

> One loses many things including motivation if asked to achieve a “target” for a variable that is:

- apparently unrelated to one’s own performance and
- beyond one’s control



Us (General Medicine runs AMAU @ FMC)

- > Readmission rate
- > Direct discharge rate
- > Gen Med outliers
- > Workload
- > Staff turnover and sick leave
- > Discharge summary completions



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Patients

> Safety

- Adverse events
- Satisfaction
- Mortality
- Guideline adherence



The system

> Public hospitals are so complex and change their processes so often that:

- comparison between institutions
- interpretation of a series of KPIs over time

is fraught





The flaws

- > Baseline comparison often invalid
- > Controlled comparative samples rare
- > Health economics rarely exercised
- > Statistical advice & knowledge scanty
- > Reputation for data manipulation



AMAU shape-shifting

- *Early 2004 AMAU= SSU (10)*
 - *Late 2004 AMAU= Sorting (16) + SSU (18)*
 - *2007 AMAU= Sorting and SSU (28)*
 - *2010 AMAU= Sorting all non-cardiol. medical (30)*
- > *Palliative care withdrew inpatient services in mid 2007 – effect on mortality?*



Using KPIs to effect change

- > Ensure reliable, well-defined data
- > Independent analysis
- > Pay less attention to a lot of KPIs if implementation is unwelcome
- > Honesty and transparency
- > Pay most attention to those KPIs
 - within your control
 - show a good result
 - are responsive to intervention



Flinders experience

KPI	2003	2006
Workload	2770	3955
LOS (mean)	6.8 days	5.8 days
EDWT >24hrs (%)	9.6	3.1
Outliers (%)	25.4	4.8
Mortality (%)	5.6	3.8
Readmit < 7d (%)	3.6	3.7

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Monitored weekly - monthly

Sustaining the change

KPI	2003	2006	2008
Workload	2770	3955	4488
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KPI	2003	2006	2008
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Readmit < 7d (%)	3.6	3.7	3.6

We thought AMAU function was to reduce LOS and optimise Workload.

If our function was to clear ED, we failed!



Continuity: “today’s work today”

- > April 2006: 10% summaries completed in 48hrs
- > Early 2007: a roll-out of a new statewide discharge summary completion software
- > Timely feedback of number of discharge summaries outstanding
 - immediate fortnightly cf delayed monthly

Safety – Discharge summary completions

1/7/06 to 31/12/06

Clinical Unit	Within 24 Hrs		Within 48 Hrs		Within 7 Days		Within 28 Days		Total Summ. Generated
	No.	%	No	%	No.	%	No.	%	
Acute Assessment Unit	75	29 %	96	37 %	158	60 %	260	99 %	262
General Medicine A	192	46 %	243	58 %	366	87 %	404	96 %	419
General Medicine B	72	36 %	91	46 %	164	82 %	199	100 %	200
General Medicine C	159	43 %	192	52 %	292	80 %	357	98 %	366
General Medicine G	167	50 %	198	59 %	266	79 %	332	99 %	335

1/7/07 to 31/12/07

Clinical Unit	Within 24 Hrs		Within 48 Hrs		Within 7 Days		Within 28 Days		Total Summ. Generated
	No.	%	No	%	No.	%	No.	%	
Acute Assessment Unit	219	56 %	263	68 %	335	86 %	383	99 %	388
General Medicine A	258	70 %	276	75 %	320	87 %	361	99 %	366
General Medicine B	110	60 %	120	65 %	154	84 %	180	98 %	184
General Medicine C	252	73 %	294	85 %	327	95 %	343	99 %	345
General Medicine G	327	49 %	406	61 %	602	90 %	659	99 %	667

Safety – Discharge summary completions

35-60%

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60-85%

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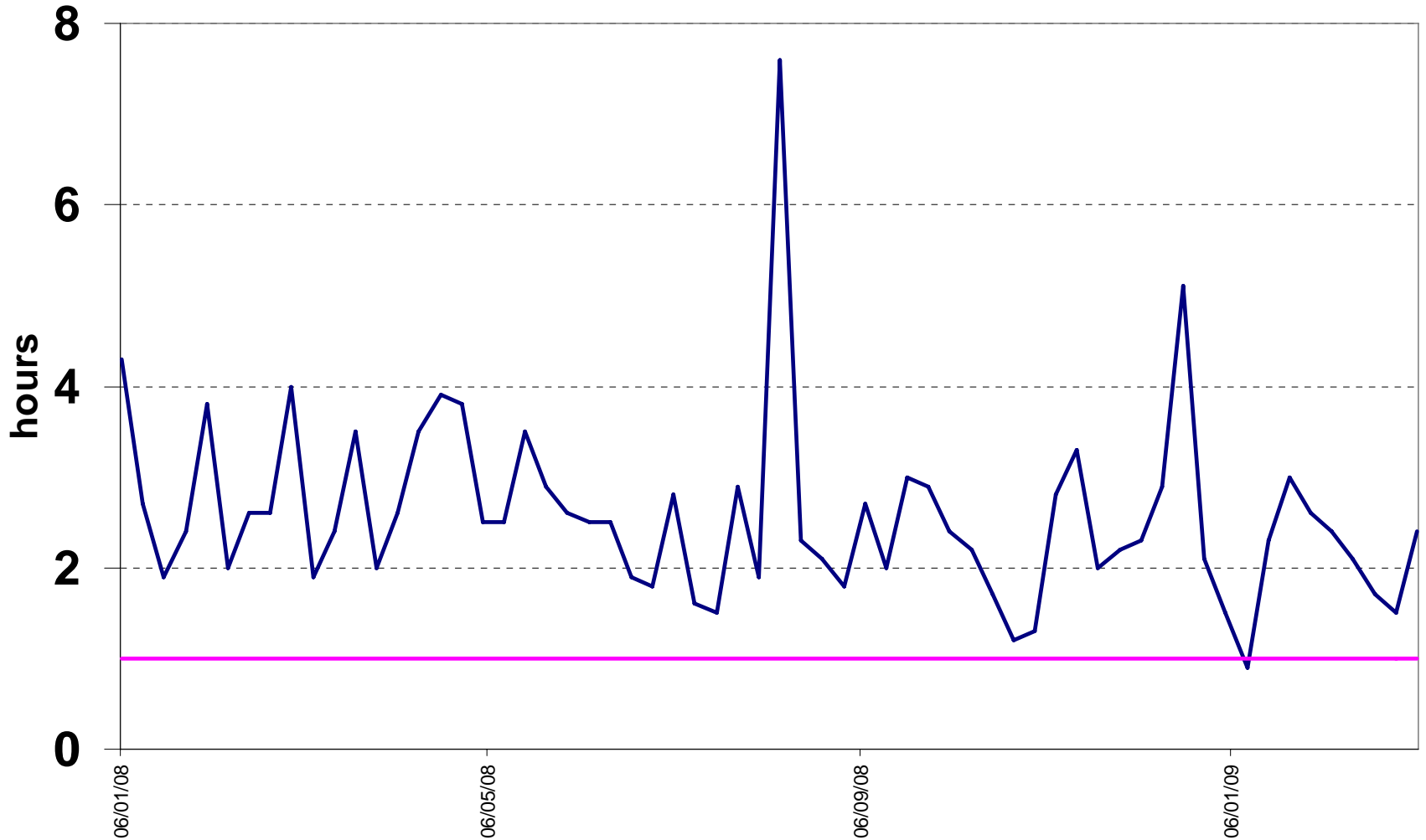
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Safety- deleting summaries on patients you never met

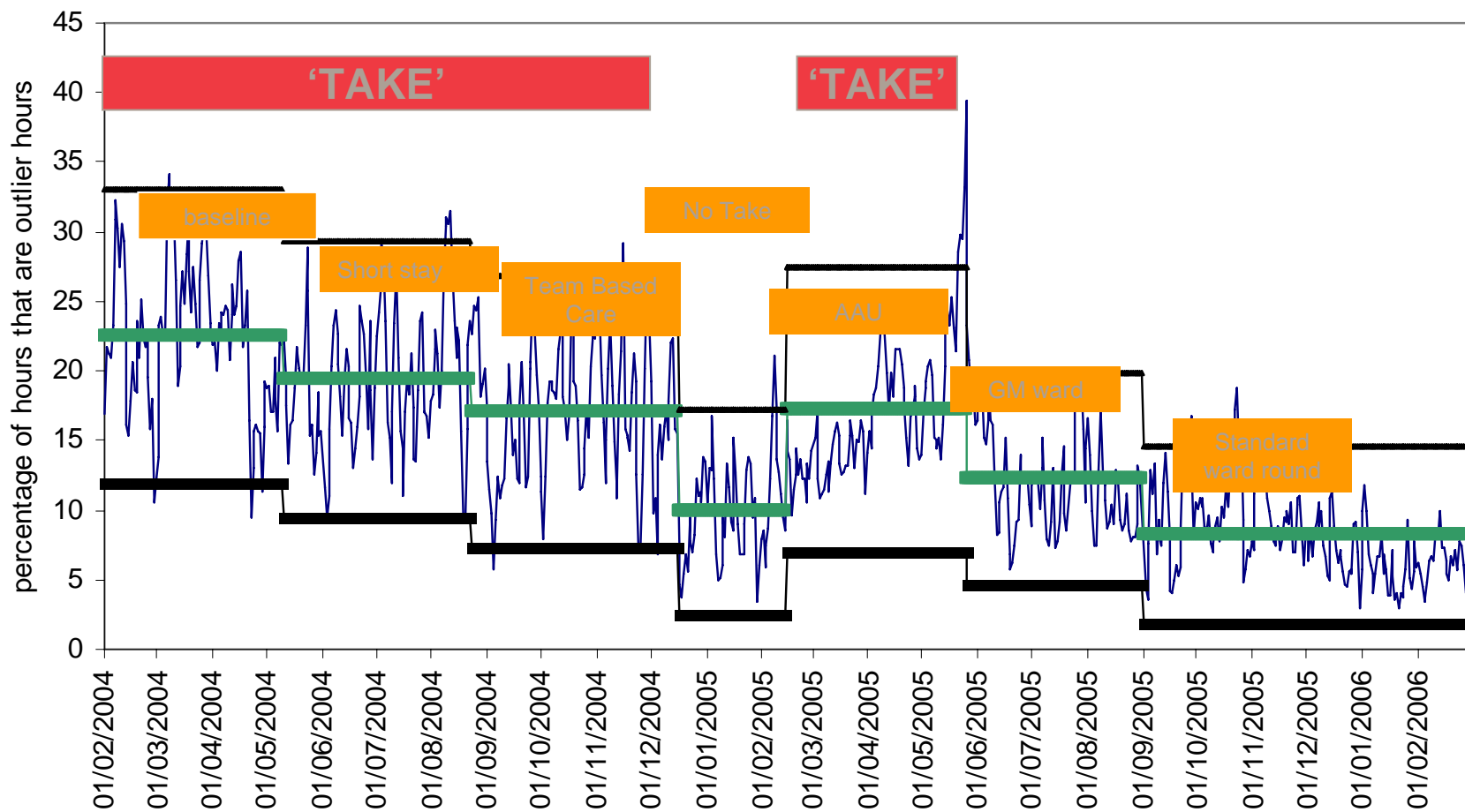
	Summaries completed	Total discharges	% completed
July-Dec 2006	1582	2064	76.6
July-Dec 2007	1950	2075	94.0

FMC ward 6C - "bed empty time"

— median — target

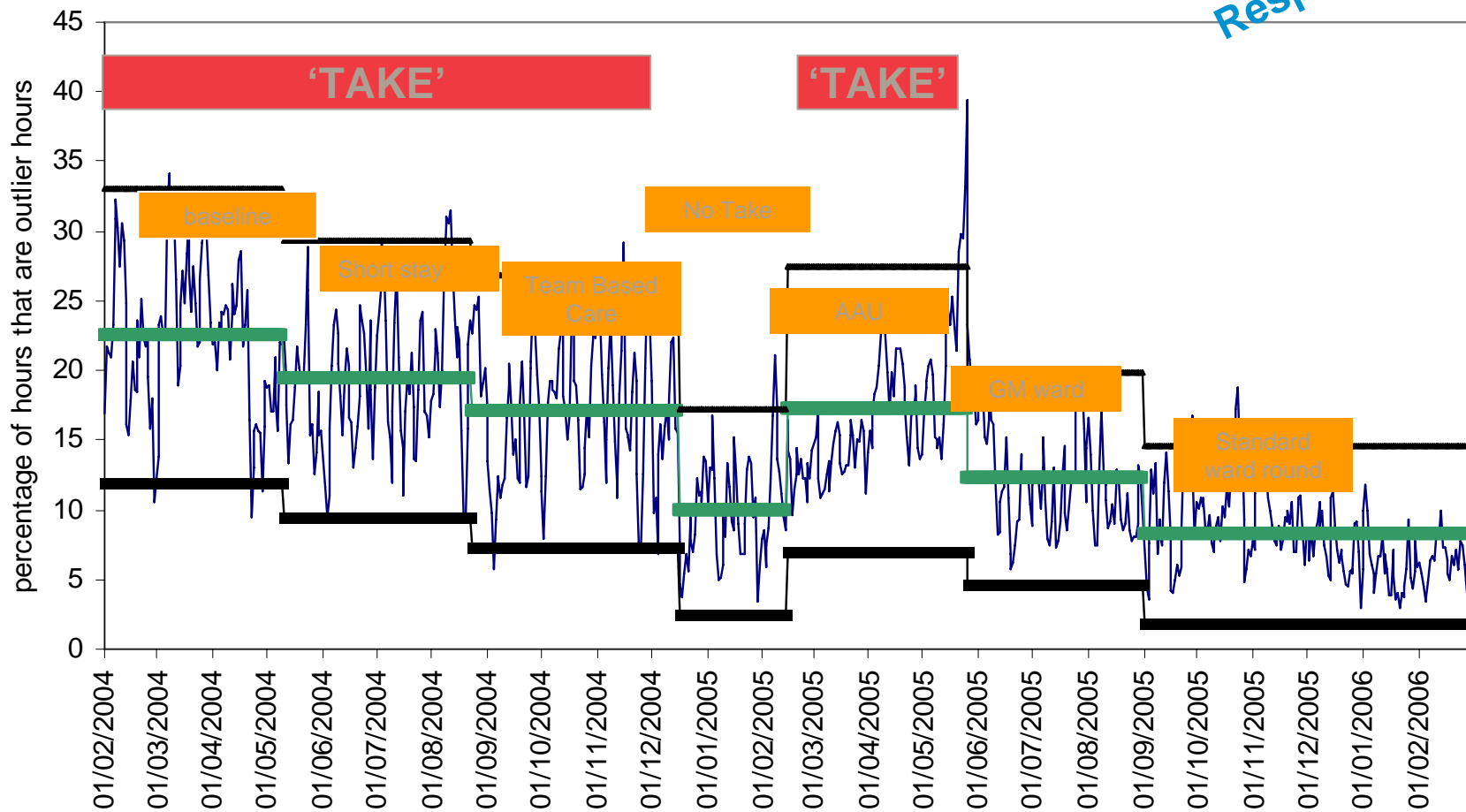


% Outlier Hours for General Medicine



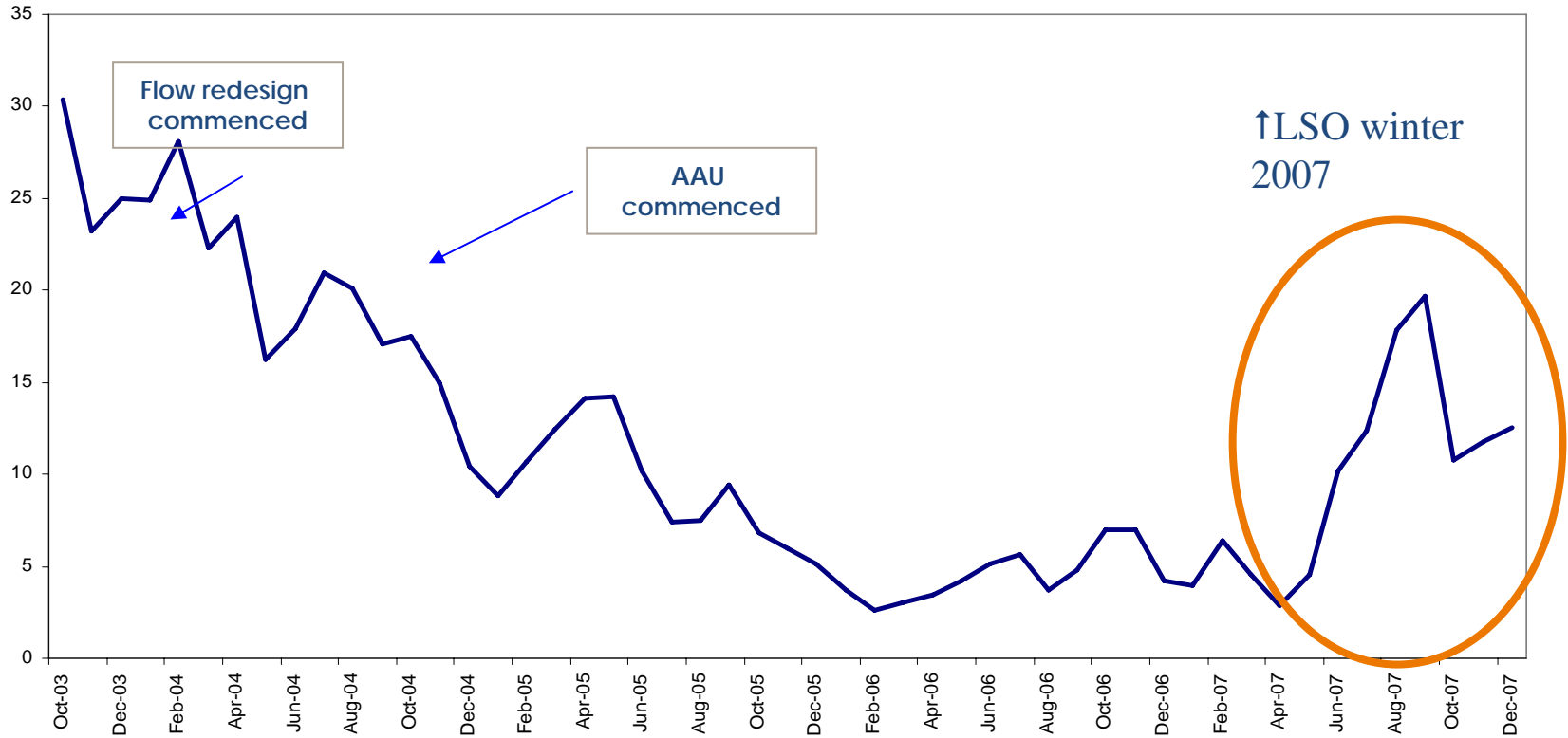
% Outlier Hours for General Medicine

Responsive!



Outcomes: Outliers

FMC General Medicine units - ward outlier %





KPIs

- > Timely and regular review (D/C summaries)



KPIs

- > Timely and regular review
- > Pre-agreed KPIs to determine success (+ facilitate decisions)



KPIs

- > Timely and regular review
- > Pre-agreed KPIs
- > Multiple influences (“Take” bad for outliers)



KPIs

- > Timely and regular review
- > Pre-agreed KPIs
- > Multiple influences
- > Selective publicity of many outcomes that did not concern us particularly (EDWT)



KPIs

- > Timely and regular review
- > Pre-agreed KPIs
- > Multiple influences
- > Selective publicity
- > Costs and cost-effectiveness of interventions not seemingly prioritised
 - better safety = cost saving



KPIs

- > Timely and regular review
 - > Pre-agreed KPIs to determine future course
 - > Inexplicable ?external influences affect your KPIs
 - > Selective publicity
 - > Costs and cost –effectiveness
-
- > *At my level, KPIs were a tool to ensure **no harm** was done to the patient rather than a tool for efficiency or a target to achieve*



SUMMARY - KPIs

- > Are imperfect
- > Often only indirectly monitor patient care and safety



SUMMARY - KPIs

- > Use the IMSANZ guidelines
- > Locally flavour these KPIs
- > Review regularly and often with multi-disciplinary workgroup
- > Publicise shrewdly



RESEARCH

- > AMAU: a great opportunity to perform simple research on multiple sites on complex patients
- > Internal Medicine Research Network
 - Drug chart inaccuracies (+/- intervention)
 - Audit
 - Pulmonary emboli (with UK)
 - eGFR validation

The Simple Clinical Score predicts mortality for 30 days after admission to an acute medical unit

J. KELLETT and B. DEANE

From the Nenagh Hospital, Nenagh, Ireland

Received 17 April 2006 and in revised form 3 July 2006

Summary

Background: Predictive scores such as APACHE II and SAPS II have been used to assess patients in intensive care units, but only the modified early warning (MEW) score has been used to assess acutely ill general medical patients.

Design: Observational study of predictors of mortality.

Setting: Small Irish rural hospital.

Methods: From 17 February 2000 to 29 January 2004, 9964 consecutive patients admitted as acute medical emergencies were divided into a derivation cohort of 6736 patients and a validation cohort of 3228 patients.

Results: In the derivation cohort, 316 patients (4.7%) died within 30 days of hospital admission. Under univariate analysis, age, vital signs and 18

categorical variables were associated with increased risk of death, and nine with reduced risk. Logistic regression identified 16 independent predictors of 30-day mortality, from which the Simple Clinical Score was derived, stratifying patients into five risk classes. In each class, mortality was not significantly different between the derivation and validation cohorts: 0–0.1% for very low risk, 1.5–1.6% for low risk, 3.8–3.9% for average risk, 9.0–10.3% for high risk, and 29.2–34.4% for very high risk.

Discussion: The Simple Clinical Score quickly and accurately identifies patients at both a low and high risk of death from the first to the 30th day after admission, enabling prompt triage and placement within a health-care facility.

Introduction

Although the measurement of vital signs has been standard practice for over a century, there have been few attempts to quantify their clinical performance. The predictive scores APACHE II¹ and SAPS II² were derived from patients requiring intensive care unit (ICU) treatment, while early warning scores and criteria for calling medical emergency teams were developed empirically by expert committees based on audit of only 100 or so seriously ill patients.³ Since these instruments were designed to only deal with ICU patients, they lack sensitivity and cannot be used to rule out severe illness. Only the modified early warning (MEW) score, validated on 709 patients, has been used to assess acutely ill general medical patients.⁴

A MEW score >4 is associated with an increased risk of death (OR 5.4, 95%CI 2.8–10.7) and indicates an urgent need for intensive care. The huge advantage of the MEW score is that it simply collates the results of the classic vital signs and can, therefore, be used by anyone at the bedside. However, while a high MEW score is a specific test for serious illness, the score lacks sensitivity. Since the vast majority of patients have scores of 2 or less, the score cannot be used to rule out the possibility of life-threatening illness.

The purpose of the study was to determine the important, immediately available clinical findings that can identify how sick medical patients are when they present to hospital. The study was not confined

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(n=193)

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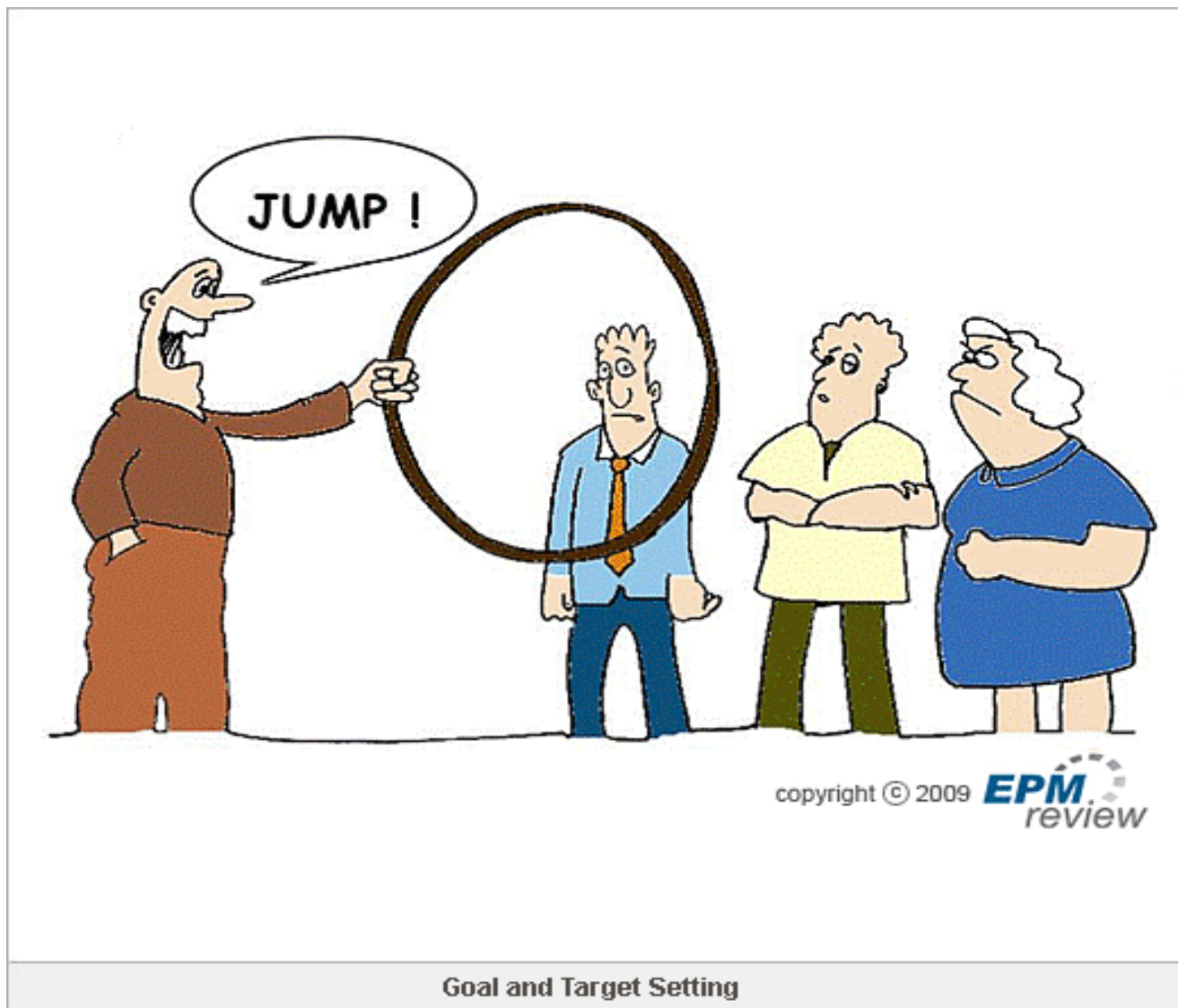
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ENGAGE CLINICIANS BY HELPING THEM
RESEARCH THEIR OWN PERFORMANCE



ENGAGE CLINICIANS BY **HELPING**
THEM RESEARCH THEIR OWN
PERFORMANCE

- SKILLS
- TIME



Goal and Target Setting