

What Should be Planned to
Improve Quality in HA ICU?

Quality in ICU – 10 Ideas

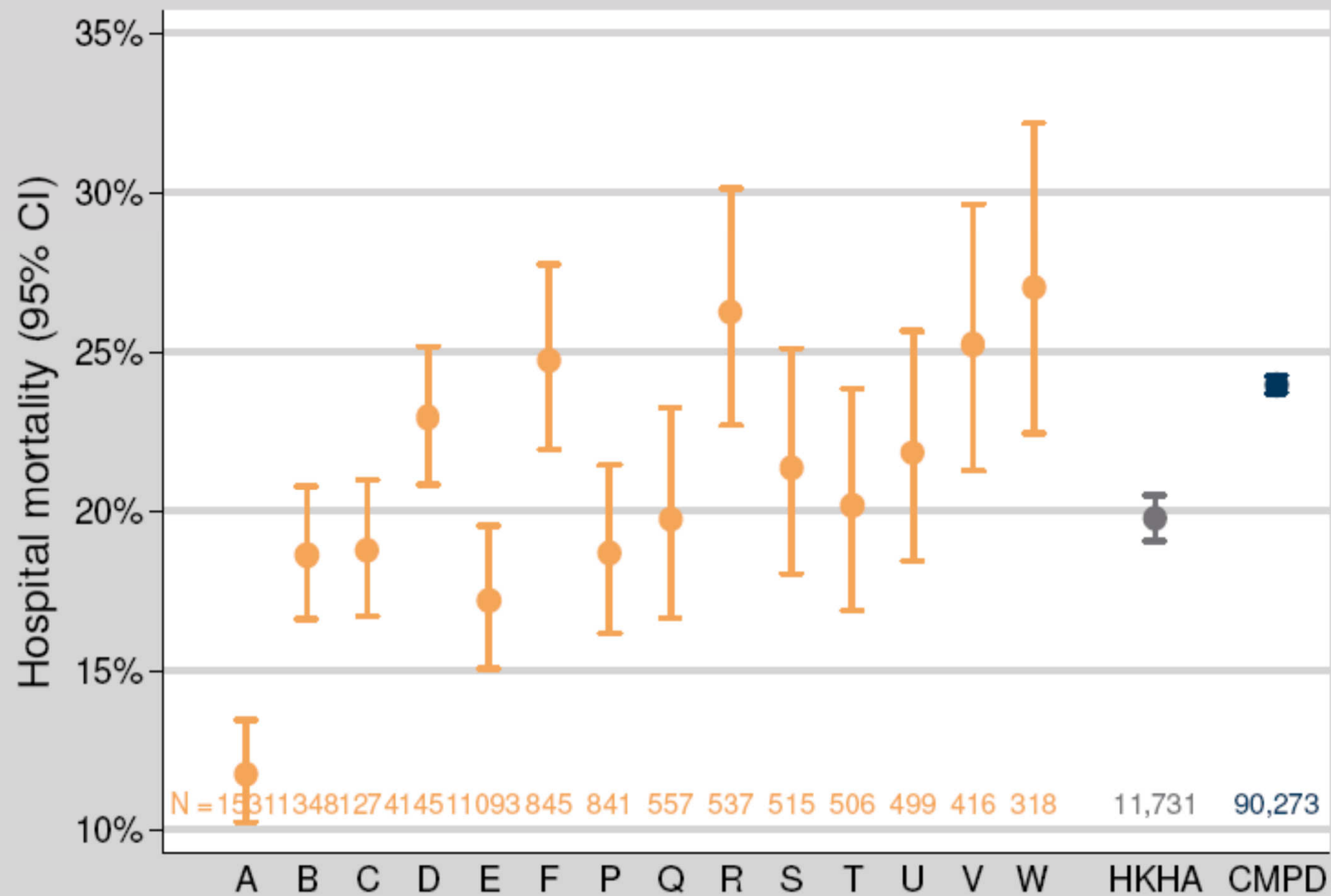
HY So

MBBS, MSc, FANZCA, FCICM, FHKCA, FHKCA(IC), FHKAM(Anaesthesiology),
FCCM, FCCP, EDIC, FCQI, CQP, CMQ(ABMQ), CQM(ASQ)

Service Director in Quality & Safety, NTEC

Consultant in ICU, PWH

Hon Treasurer, APACCM



HKHA: Hong Kong Health Authority; CMPD: Case Mix Programme Database

- Safe
- Effective
- Patient-centered
- Timely
- Efficient
- Equitable

"The success of intensive care is not to be measured only by the statistics of survival, as though each death were a medical failure. It is to be measured by the quality of lives preserved or restored, the quality of the dying of those in whose interest it is to die and by the quality of relationships involved in each death".

The development of our knowledge of the circulation has been **bedeviled** by the fact that the measurement of blood flow is complicated whereas the **measurement of blood pressure is easy**. This has resulted in the blood pressure manometer exerting an almost hypnotic influence, though most organs don't need pressure but flow.

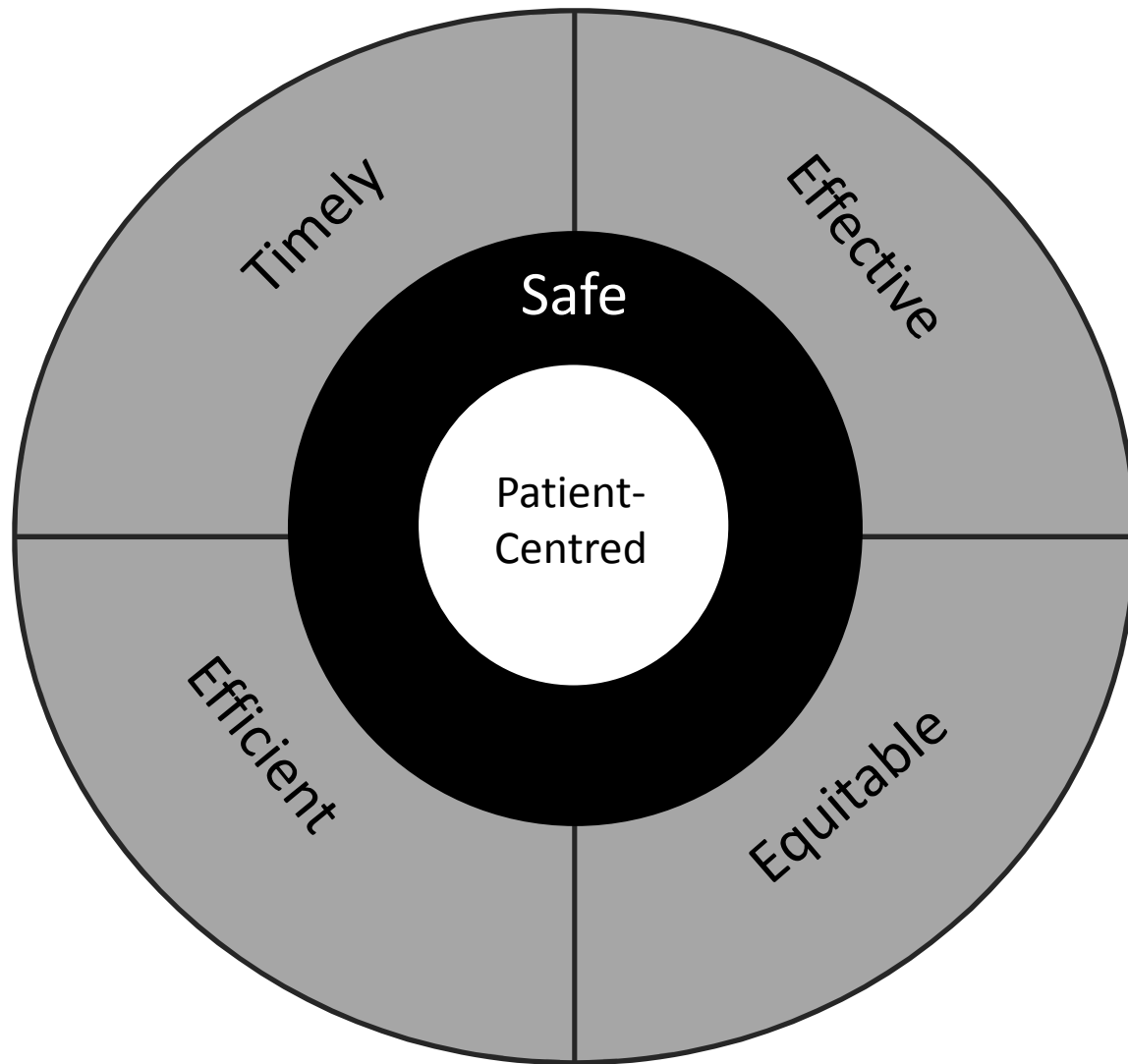
Lamp Post Effect



We look for the lost keys under the lamp post because that is where there is light.

>Mortality

1



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1. [How cultural competency can help reduce health disparities.](#)
Brusin JH.
Radiol Technol. 2012 Nov;84(2):129-52.
PMID: 23125378 [PubMed - in process]
[Related citations](#)

2. [Participants' Perspectives on the Feasibility of a Novel, Intensive, Task-Specific Intervention for Individuals With Chronic Stroke: A Qualitative Analysis.](#)
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Phys Ther. 2012 Nov 2. [Epub ahead of print]
PMID: 23125280 [PubMed - as supplied by publisher]
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3. [Comparison of Patient and Surgeon Perceptions of Adverse Events Following Adult Spinal Deformity Surgery.](#)
Hart R, Cabalo A, Bess S, Akbarnia B, Boachie-Adjei O, Burton D, Cunningham ME, Gupta M, Hostin R, Kebaish K, Klineberg E, Mundis G, Shaffrey C, Smith JS, Wood K, The International Spine Study Group.
Spine (Phila Pa 1976). 2012 Nov 1. [Epub ahead of print]
PMID: 23124267 [PubMed - as supplied by publisher]
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4. [The role of health care communication in the development of complementary approaches.](#)
Ben-Arye E, Visser A.
Patient Educ Couns. 2012 Oct 31. doi:pii: S0738-3991(12)00390-4. 10.1016/j.pec.2012.10.003. [Epub ahead of print]
PMID: 23122835 [PubMed - as supplied by publisher]
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5. [Communication by Nurses in the Intensive Care Unit: Qualitative Analysis of Domains of Patient-Centered Care.](#)
Slatore CG, Hansen L, Ganzini L, Press N, Osborne ML, Chesnutt MS, Mularski RA.
Am J Crit Care. 2012 Nov;21(6):410-418.
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Am J Crit Care. 2012 Nov;21(6):410-418.
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2. [Accreditation of birth centres: advantages for newborns.](#)
Dotta A, Portanova A, Bianchi N, Atti MC, Zanini R, Raponi M.
J Matern Fetal Neonatal Med. 2012 Nov 2. [Epub ahead of print]
PMID: 23116087 [PubMed - as supplied by publisher]
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3. [Continuous infusion of beta-lactam antibiotics in severe sepsis: a multicenter double-blind, randomized controlled trial.](#)
Dulhunty JM, Roberts JA, Davis JS, Webb SA, Bellomo R, Gomersall C, Shirwadkar C, Eastwood GM, Myburgh J, Paterson DL, Lipman J.
Clin Infect Dis. 2012 Oct 16. [Epub ahead of print]
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4. [Impact of Hypoglycemia in Hospitalized Patients.](#)
Carey M, Boucai L, Zonszein J.
Curr Diab Rep. 2012 Oct 12. [Epub ahead of print]
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5. [Acute Lung Injury and Acute Respiratory Distress Syndrome Requiring Tracheal Intubation and Mechanical Ventilation in the Intensive Care Unit: Impact on Managing Uncertainty for Patient-Centered Communication.](#)
Johnson RF Jr, Gustin J.
Am J Hosp Palliat Care. 2012 Sep 25. [Epub ahead of print]
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Clinical practice guidelines for support of the family in the patient-cente [Crit Care Med. 2007]

Preventing intensive care unit delirium: a patient-centered [Dimens Crit Care Nurs. 2011]

Effects of a patient/family-centered practice change on the quality and cos [J Adv Nurs. 2011]

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Every profession is a conspiracy
against the laity.

Informed Consent

Quality & Safety

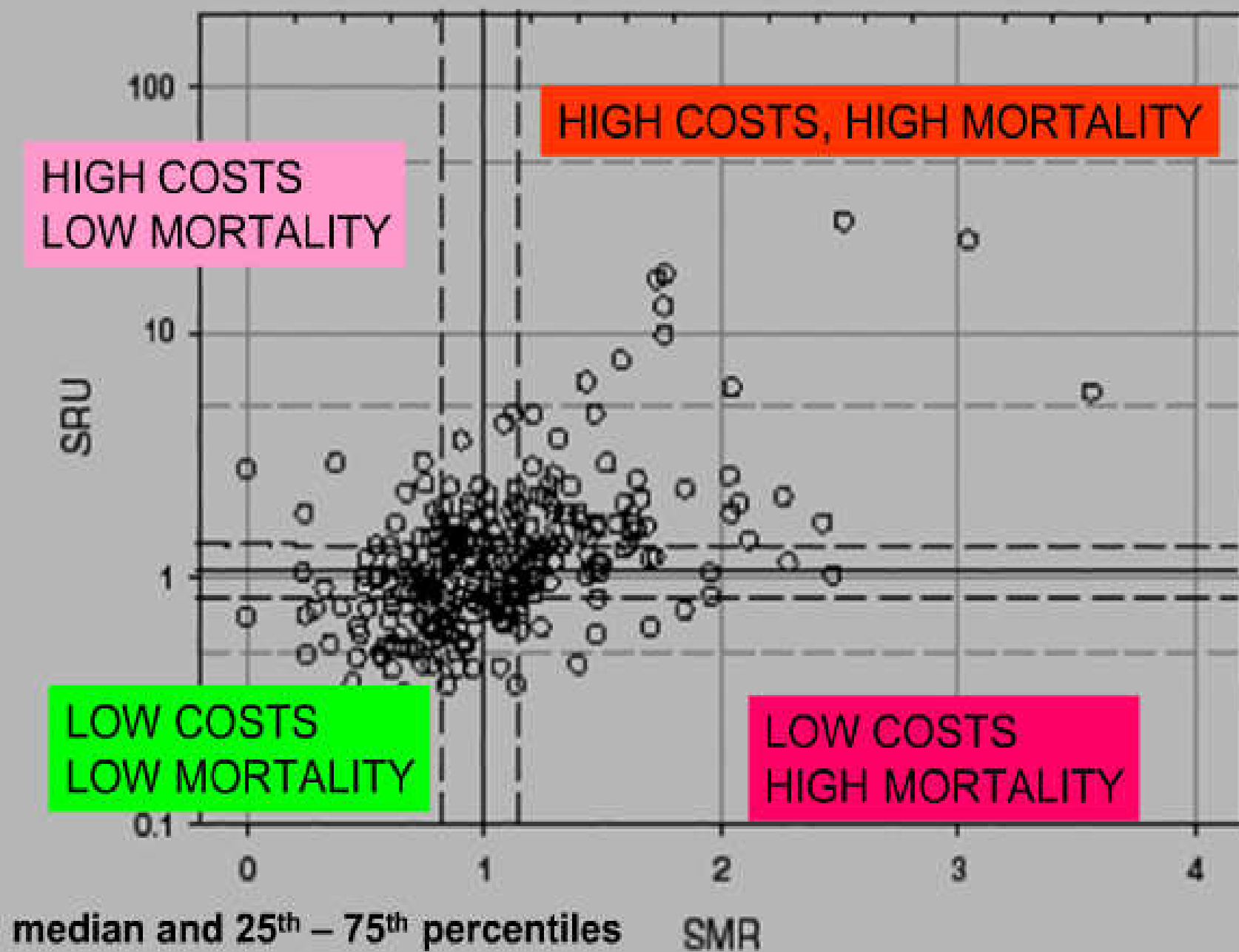
- **Patient's Voice must be heard**
- Relationship is key
- Denial is our largest threat
- Context is Everything

Patient

2



Peter Senge. *The Fifth Discipline*. Currency, 1990.



Production

**Production
Capacity**



Evidence of return in investment for ‘value improvements’: changes which improve quality and save money

22sept12 version



John Øvretveit,

Director of Research, Professor of Health Innovation and
Evaluation, Karolinska Institutet, Stockholm, Sweden



Sustainability

3

In 2009, low hand-hygiene rates are generally not a systems problem anymore; they are largely an **accountability** problem.

"Culture eats strategy for
breakfast."

The mistake of the “simple checklist” story is in the assumption that a technical solution (checklists) can solve an adaptive (sociocultural) problem.

To improve safety, health care needs to get the technical and **adaptive** work right.

有制度，冇態度，
点搞都喺一條死路

有填Form，冇心肝，
病人一樣亂比人割

A patient safety program designed to improve teamwork and culture was associated with significant improvements in overall mean safety climate scores in a large cohort of 71 intensive care units.

Verification of the Acute Physiology and Chronic Health Evaluation scoring system in a Hong Kong intensive care unit.

Oh TE, Hutchinson R, Short S, Buckley T, Lin E, Leung D.

Department of Anaesthesia and Intensive Care, Chinese University of Hong Kong, Prince of Wales Hospital, Shatin.

Abstract

OBJECTIVES: To validate the Acute Physiology and Chronic Health Evaluation (APACHE II) severity of illness scoring system in Chinese patients in a multidisciplinary intensive care unit (ICU) in Hong Kong. To audit the service and utilization of an ICU with a low ICU to hospital bed ratio.

DESIGN: Prospective data collection and review.

SETTING: A 12-bed multidisciplinary ICU within a 1,430-bed tertiary care university hospital.

PATIENTS: Data from 1,573 of 1,814 consecutive patients admitted to the ICU from May 1988 to November 1990 were studied. The patients were all Chinese.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS: The patients' clinical details and APACHE II scores were recorded on day 2 of admission and reviewed at hospital discharge or after death. The APACHE II scores, risk of death values, age, and length of ICU stay between survivors and nonsurvivors were compared by two-sample t-tests. Relationships between mortality and APACHE II score, risk of death, and results from previous studies were investigated using the Pearson product-moment coefficient and regression analysis. Predictive capacity of risk of death was assessed by receiver operating characteristic curve analysis. The hospital mortality rate for study patients was 36%. Survivors were younger, had shorter ICU stays, lower APACHE scores, and lower risk of death values than nonsurvivors ($p < .001$). There was close correlation ($r^2 = .81, .77$, and $.76$ for all patients, operative group, nonoperative group, respectively) between APACHE II scores and predicted risk of death values. Risk of death was an accurate group predictor of death in all patients and in separate operative and nonoperative groups. Areas under the receiver operating characteristic curves were 0.89 (all patients), 0.85 (operative), and 0.88 (nonoperative). Neither the Apache II scores nor risk of death scores were sufficiently accurate to predict outcome of individual patients. There was close concordance between observed and predicted mortality of patient groups. Mortality ratio was 0.97 (all patients), 0.89 (operative group), and 1.02 (nonoperative group). Chronological age, per se, was not a good predictor of mortality. The audit of the ICU service showed a short length (4.2 days) of ICU stay and high bed occupancy (80%). Subgroups of low-risk, postoperative patients with good outcomes and poor-risk patients admitted after cardiopulmonary arrest with a high mortality rate were identified.

CONCLUSIONS: The APACHE II scoring system was an accurate predictor of group outcome in a Chinese population, making it suitable for comparisons between countries. Application of the APACHE II scoring system in a clinical audit facilitates critical appraisal of an ICU service. Problems identified by the study were a shortage of ICU beds and delayed referrals of patients.

Comment in

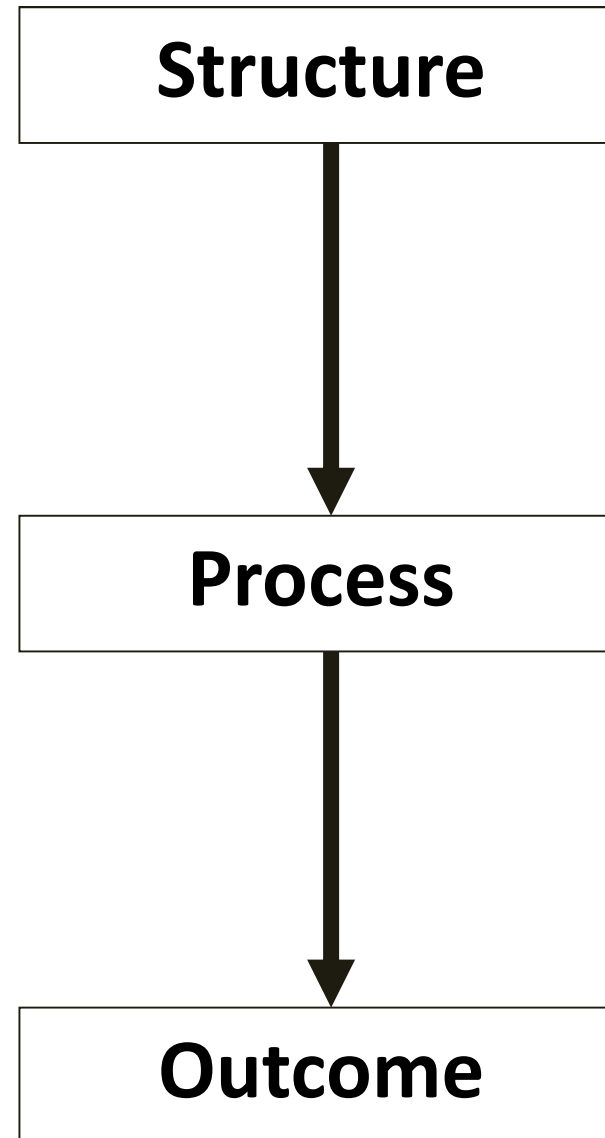
Severity of illness scoring: East meets West. [Crit Care Med. 1993]

1. Introduction
 - 1.1 All vocational trainees in intensive care of the Hong Kong College of Anaesthesiologists who are preparing for the Fellowship in Intensive Care are required to submit evidence of satisfactory completion of a Formal Project. The submitted Formal Project can be carried out at any time during vocational training and must be done so before vocational training is considered complete.
 - 1.2 The Formal Project is not a pre-requisite for presenting for the Fellowship in Intensive Care Final examination.
2. The following are acceptable activities for the Project:-
 - 2.1 A scientific paper accepted for publication in a journal, which peer-reviews all manuscripts. Evidence that the paper has been accepted should be submitted to the Project Officer before it could be accepted as the formal project. Subsequently a copy of the publication should be sent to the Project Officer as a record.
 - 2.2 A paper presented at a scientific meeting which subjects all manuscripts to review and selection or at a scientific meeting approved by the Intensive Care Committee. The Project Officer should have previously approved the protocol and a written manuscript of the presentation should be forwarded to the Project Officer.
 - 2.3 A case report, clinical or research topic with comprehensive review of the subject matter presented at a meeting or published in a journal or presented to the Project Officer.
 - 2.4 A research project with prior approval of the Project Officer.
 - 2.5 The subject matter of the Formal Project should be related to the practice of intensive care medicine.
 - 2.6 Formal projects carried out as part of the training requirements for anaesthesia, which are submitted as part of the intensive care training requirements will be approved at the discretion of the Intensive Care Committee.

Engagement

4

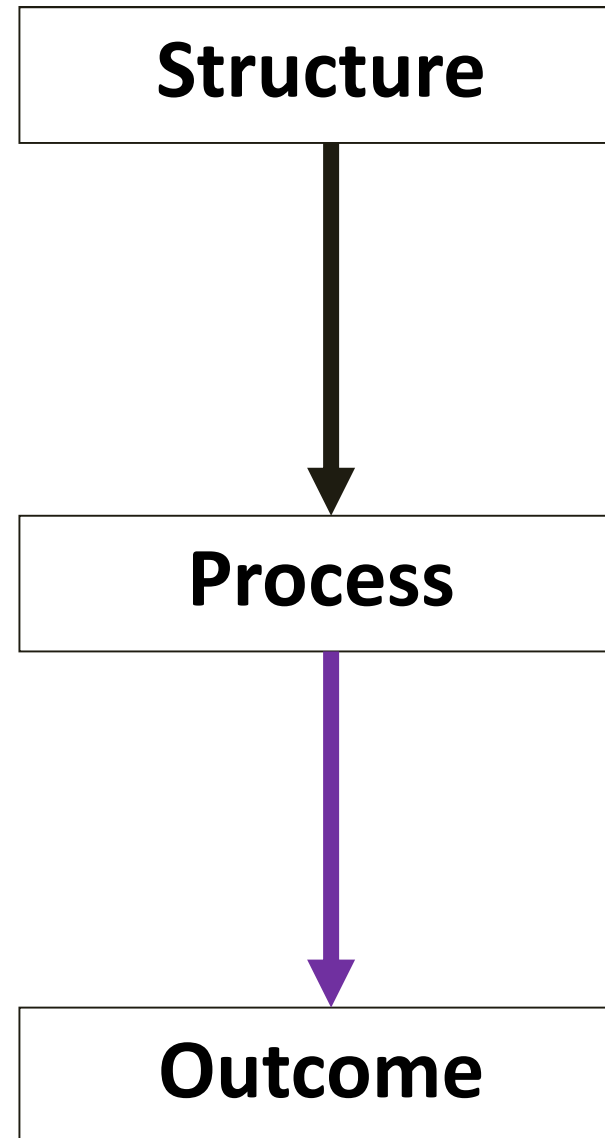
Donabedian Model



	Outcome Measure
Do patients care about this?	Yes, very important to patients
Do providers care about this?	Yes, however, providers are wary of confounding and may request risk-adjustment models
Obtain from routinely collected data?	Sometimes; additional data that are not routinely collected may be needed
Interpretable for feedback and quality improvement?	Difficult for providers to definitively know where to target efforts because outcomes are usually affected by several different processes
Directly measures prevention?	No
Need for risk adjustment?	Yes, need different models for each outcome
Time needed for measurement?	More (for risk-adjustment)
Sample size requirement?	Larger

	Process Measure
Do patients care about this?	Less understandable to patients
Do providers care about this?	Yes, it relates directly to what providers are doing
Obtain from routinely collected data?	Usually
Interpretable for feedback and quality improvement?	Provides clear feedback about what providers are actually doing
Directly measures prevention?	Yes
Need for risk adjustment?	No, however, need to clearly define eligible patient
Time needed for measurement?	Less
Sample size requirement?	Smaller

Donabedian Model



Not again!

There is no remedy to be found in selecting heroes, nor in seeking Superman.

The remedy is in changing **systems of work**. The remedy is in design.

Table 3. Rates of Catheter-Related Bloodstream Infection from Baseline (before Implementation of the Study Intervention) to 18 Months of Follow-up.*

Study Period	No. of ICUs	No. of Bloodstream Infections per 1000 Catheter-Days				
		Overall	Teaching Hospital	Nonteaching Hospital	<200 Beds	≥200 Beds
			<i>median (interquartile range)</i>			
Baseline	55	2.7 (0.6–4.8)	2.7 (1.3–4.7)	2.6 (0–4.9)	2.1 (0–3.0)	2.7 (1.3–4.8)
During implementation	96	1.6 (0–4.4)†	1.7 (0–4.5)	0 (0–3.5)	0 (0–5.8)	1.7 (0–4.3)†
After implementation						
0–3 mo	96	0 (0–3.0)‡	1.3 (0–3.1)†	0 (0–1.6)†	0 (0–2.7)	1.1 (0–3.1)‡
4–6 mo	96	0 (0–2.7)‡	1.1 (0–3.6)†	0 (0–0)‡	0 (0–0)†	0 (0–3.2)‡
7–9 mo	95	0 (0–2.1)‡	0.8 (0–2.4)‡	0 (0–0)‡	0 (0–0)†	0 (0–2.2)‡
10–12 mo	90	0 (0–1.9)‡	0 (0–2.3)‡	0 (0–1.5)‡	0 (0–0)†	0.2 (0–2.3)‡
13–15 mo	85	0 (0–1.6)‡	0 (0–2.2)‡	0 (0–0)‡	0 (0–0)†	0 (0–2.0)‡
16–18 mo	70	0 (0–2.4)‡	0 (0–2.7)‡	0 (0–1.2)†	0 (0–0)†	0 (0–2.6)‡

P
rocess

5

Evidence-based medicine (EBM) / Evidence-based health care (EBHC) is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.

Evidence

6

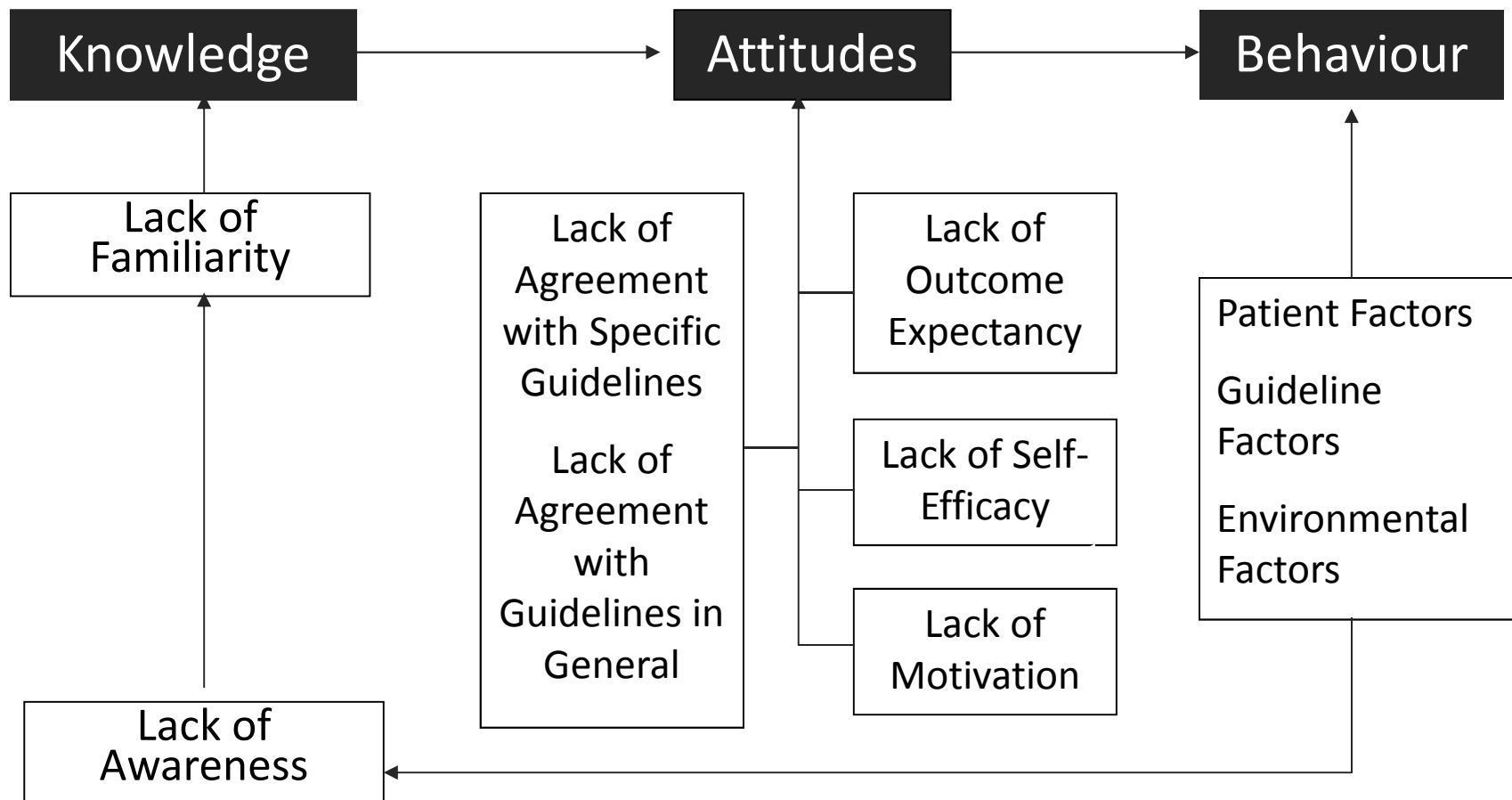
Analyze-Think-Change



Fundamental Attribution Error

What looks like a person problem is often a **situation** problem

Barriers to Guideline Adherence



Quality improvement strategies,
just like medical interventions,
need to rest on a strong
evidence base.

Direct the Rider	Motivate the Elephant	Shape the Path
Follow the bright spots	Find the feeling	Tweak the environment
Script the critical moves	Shrink the change	Build habits
Point to the destination	Grow your people	Rally the herd





Influencer Model™



Implementation

7

Your local results depends on

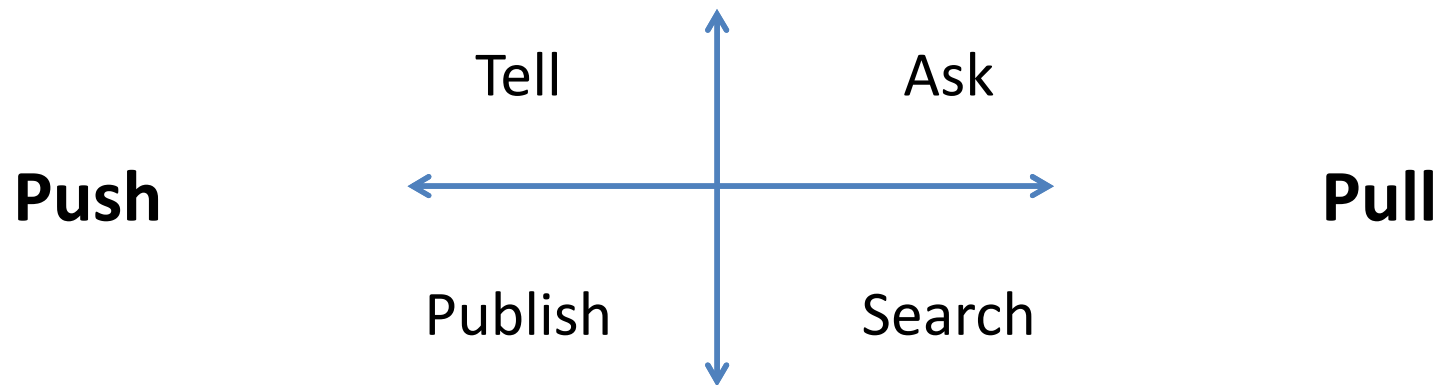
- Evidence – yes 20%
- Your implementation capability 30%
 - Skilled project team, project management system, data collection and feedback, progress reporting and fast tracking changes by senior management.
- Context – 50%
 - Your organisation: leadership, culture, current changes
 - External environment: financing system and regulations

- Its not just **what** you do – the change
Evidence
- It' s the **way** you do it **Implementation**
– whether you get the change
- And **where** you do it **Context**
 - your organisation and financing/regulations
 - helps and hinders you getting the change

Quality & Safety

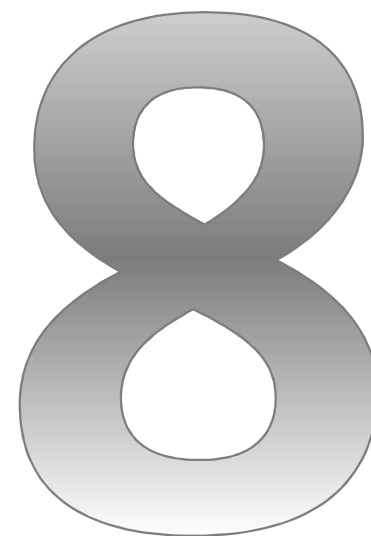
- Patient's Voice must be heard
- Relationship is key
- Denial is our largest threat
- **Context is Everything**

Tacit Knowledge
Conversational - spontaneous



Explicit Knowledge
Pre-prepared, edited

Context



Who wants to improve quality?

Ownership

9

Quality & Safety

- Patient's Voice must be heard
- **Relationship is key**
- Denial is our largest threat
- Context is Everything

Benchmarking is the process of comparing one's business processes and performance metrics to industry bests or best practices from other industries.

Supportive

We should focus on things that
keep us together.

T
ogether

10

>Mortality

Patient

Sustainability

Engagement

Process

Evidence

Implementation

Context

Ownership

Together

Thank You!

