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INTERHEROISM, COMMON KNOWLEDGE /
ECONOMICS.



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% REDUCTION IN
SURGICAL
MORTALITY
cost of \$11 per patient

Surgical Safety Checklist

Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?

Yes

Is the site marked?

Yes

Not applicable

Is the anaesthesia machine and medication check complete?

Yes

Is the pulse oximeter on the patient and functioning?

Yes

Does the patient have a:

Known allergy?

No

Yes

Difficult airway or aspiration risk?

No

Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?

No

Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist)

Confirm all team members introduced to patient

Confirm the patient's name and where they are

Has antibiotic prophylaxis been given in the last 60 minutes?

Yes

Not applicable

Anticipated Critical Incidents

To Surgeon:

What are the critical incidents?

How long will the procedure take?

What is the anaesthetic plan?

To Anaesthetist:

Are there any potential complications?

To Nursing Team:

Has sterility (in the operating room) been confirmed?

Are there equipment issues?

Is essential imaging available?

Yes

Not applicable

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

safety concepts used in commercial aviation that could be used more widely in healthcare

underlying themes: counterheroism, common knowledge, ergonomics

reasons why these concepts may face **resistance** from **doctors**

framework for assessing the **cost-effectiveness** of potential patient safety concepts

SAFETY CONCEPTS

Read-and-Do

(anaesthetic equipment checklist)

Challenge-and-Respond

(WHO Surgical safety checklist)

Le memoire

(VA Medical Team Training)



MANAGEMENT

Most airline disasters
caused by failures of
communication, leadership
& teamwork

Crews must demonstrate
competency in CRM

Best iteration of CRM
(**Great and Error
Management**) may be



craft crew gathers for a joint safety briefing because **alternatives** such as case boards or individual messages are **inferior** (since staff would be unaware of who knew what)



health care, joint briefings could be required before ward rounds, clinics

Should focus on relevant NPSA *Rapid*

REQUIREMENTS

ots are entitled to minimum safety
allations (fire cover, navigational
s etc.) **24 hours a day**

ients admitted at the weekend
ve a higher adjusted mortality

ient safety authorities should
politicize what provision is to be
ected and **who to call or email**



ow must **refrain from all essential activity**, such as sitting or reading a newspaper, during the **critical phases** of a flight.

travention of the rule indicated in many aviation studies

training required on how not to transgress the rule



captain and first officers
alternate between flying and
non-flying pilot

aircraft are **safer** when being
flown by the **less experienced**
pilot

rotation already happens in
some surgical teams, but more
common on **ward rounds** etc.



Switching from an Airbus to a Boeing plane takes **months of training** for a pilot

Some standardisation in healthcare already: cardiac arrest number, single drug chart in hospitals etc.

Opportunities for further standardisation: trolleys, sterile



ick access recorder; voice
order; and crash recording

en first introduced, pilots
vehemently resisted them but now
tinely record over 300
ameters, often with live
aming to an analysis centre on
ground

alogies with hospital monitors
d voice **recording hospital**
nphone conversations which



FOR TRAINING

nes arrange, pay for, and
ity-assure, all training
ses.

nes **arrange shifts** so that
s can attend, and pilots face
rictions if they miss or fail a
se

ing the team accountable
forces the message that



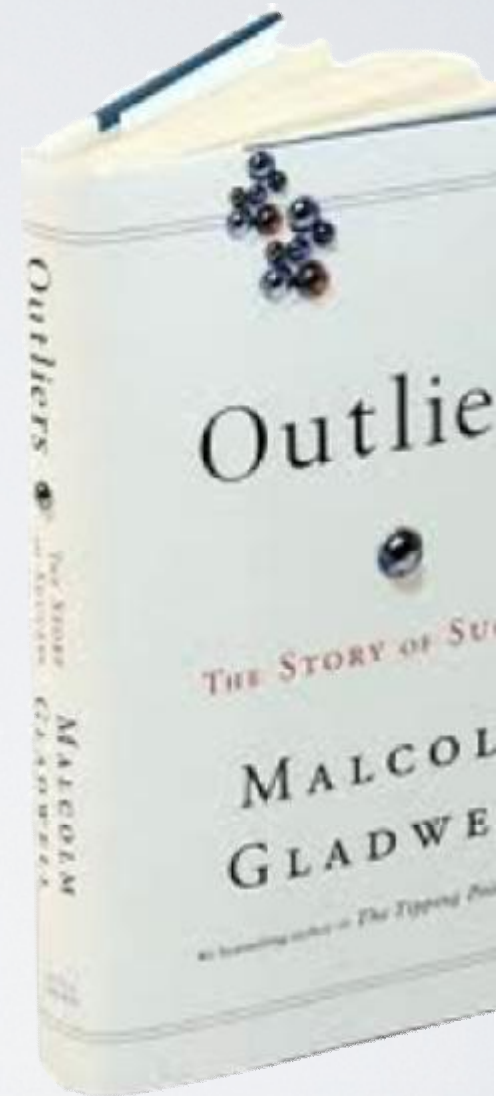
In the 1970s junior pilots addressed
seniors as “Captain”, “Sir” or “Ma’am”
now only first names used

Evidence for making the change:

Plane is safer when junior pilot flying

*inverse correlation between social
hierarchy and airline safety*

Use of first names promotes a culture
where all staff are **comfortable**



world for a period at the end of the 1990s. When we think of crashes, we think, oh, they must have had old planes. They have had badly trained pilots.

What they were struggling with was a cultural legacy, that in a culture is hierarchical. You are obliged to be deferential to your elders and superiors in a way that would be unimaginable in the U.S.

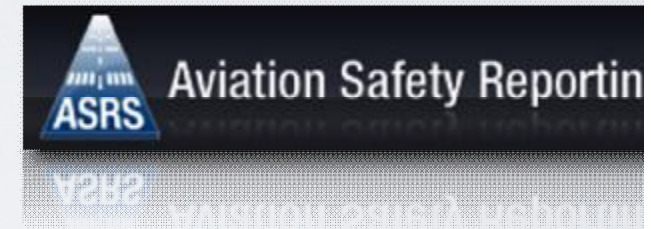
the case study of a very famous plane crash in Guam of Korean Air. They're flying along, and they run into a little bit of trouble, the weather's bad. The pilot makes an error, and the cockpit doesn't correct him. But once Korean Air figured out that their problem was cultural, they fixed it."

REPORTING

A Aviation Safety Reporting System

pilot reports an unsafe situation
in 10 days, s/he is issued an ASRS
number, then all identifying information
is removed, the report is analysed and
lessons are publicised **anonymously**

the authorities later take enforcement
action then ASRS number provides



RULE

hangovers adversely affect
visuospatial skills, dexterity,
managerial skills and task
completion

highly publicised rule in aviation:

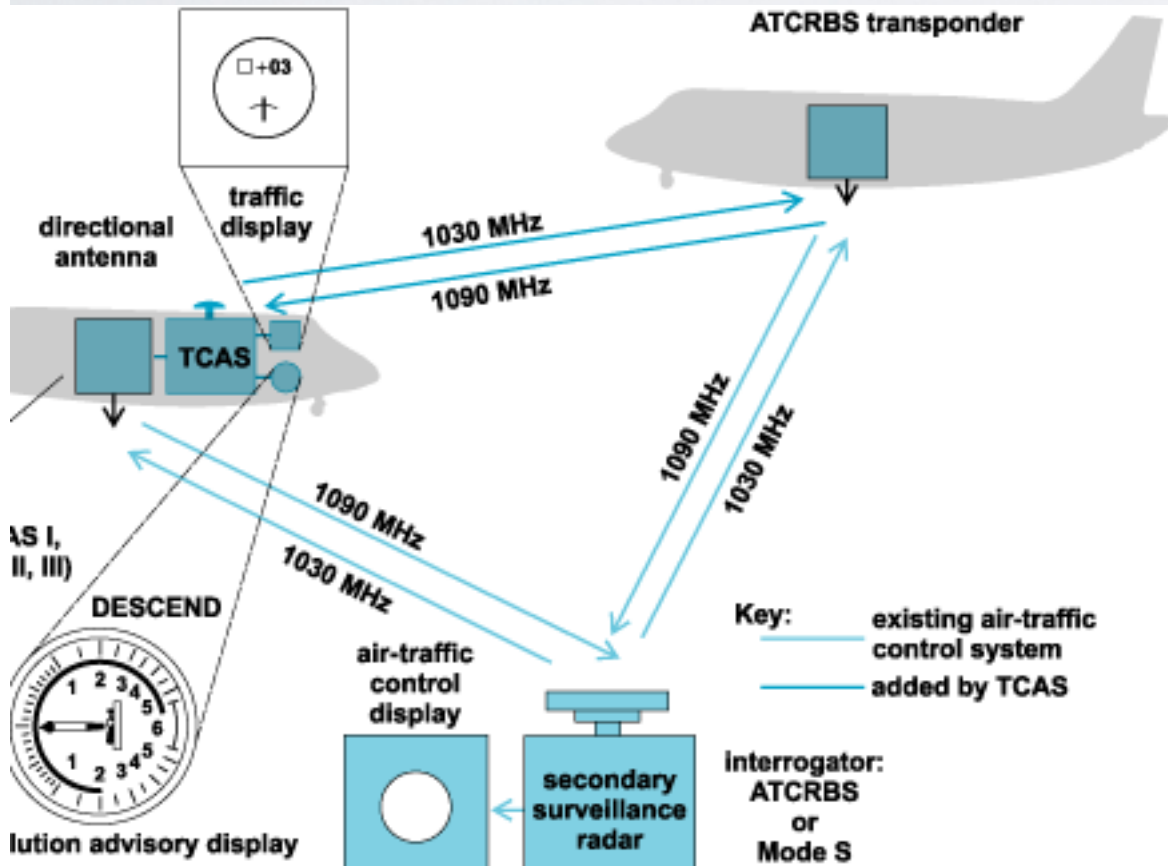
*Maximum 5 units alcohol in the
4 hours before duty **and***



design the system so that the user finds it **difficult or possible** to make a mistake



s to correct human errors as they occur



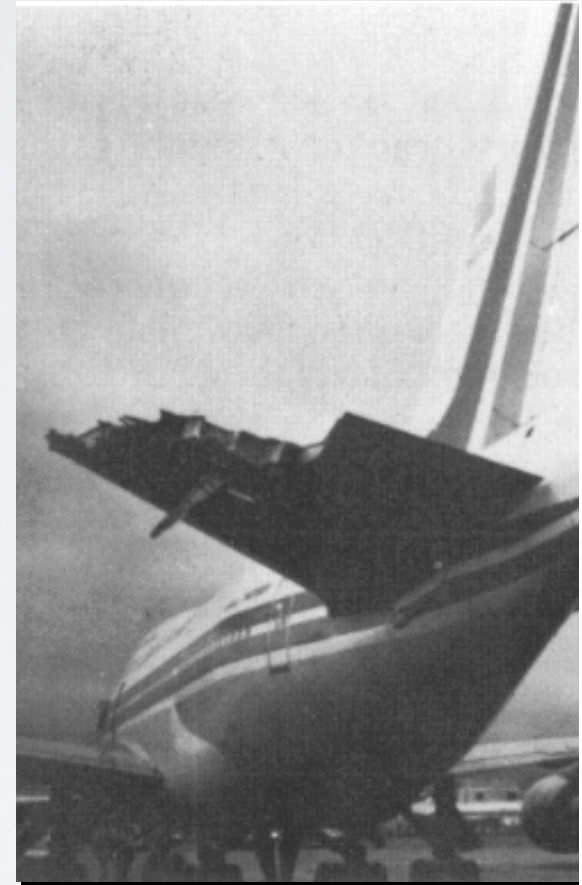
Drug Interaction Warning	
One or more interactions have been found by	
Drug Name/Diagnosis	Seve
Benadryl Oral Tablet 25 MG	Modet

PROTECTION

of limits on the controls of an aircraft prevent the pilots from commanding vigorously that the plane exceeds its structural or aerodynamic operating limits

rates the pilots to act decisively e.g. pulling the nose up without fear of stalling

technologies: oxygen in **COPD**, fluid shear stress in **heart failure** and



UNDERLYING
EMES

constraints on individuals to **discourage** them
in devising **makeshift adjustments** in
response to hazards and adverse events

promote a less deferential, less hierarchical
workplace:



senior staff feel less pressured to make *ad hoc*
adjustments in response to system failures

junior staff feel less awkward about raising

ues or information that not only are known to members of a group but also are **known to be known**, and are known to be known to be known, *ad infinitum*

er a rule has become common knowledge, if one member of the team is seen violating that rule, then other team members feel “**authorised**” to bring this to the attention of the violator, whereas previously they might have felt less confident in doing so

ence of designing products, processes, systems
d environments that take explicit account of the
capabilities and behaviours of the people who will
eract with them

signs that aim to prevent human errors caused b
getfulness, lack of experience, sloppiness,
sunderstanding, or inattention due to fatigue, stre
work overload

	Counterheroism <i>(Overcomes Excessive Individualism)</i>	Common Knowledge <i>(Imposes or Enhances Group Knowledge)</i>	Ergonomics <i>(Careful Overcome Human Factors)</i>
Standard operating procedures	●●●	●●	●
Resource management	●●●	●	●
Safety briefings	●	●●●	●
Minimum safety requirements	●	●●●	●
Cockpit rule	●	●●	●
Definition of roles	●●●	●	●
Crew layout	●		●
Checklist	●	●●	●
Complete responsibility for training	●●	●●	●
Two-man-only rule	●●●		●
Standardized no-fault reporting	●	●	●
Go-throttle rule		●●	●
Redundancy proofing			●
Warning functions	●●		●
Envelope protection			●

●● = moderate, and ●●● = high relative importance of the theme for each initiative, as perceived by the authors.

SISTANCE
OM
CTORS

Antiheroism: Downplays the role of decisive, autonomous decision-making in the face of uncertainty

Common Knowledge: Expands the number of people who share the professional knowledge base

Atomism: Feel powerless to implement any design changes

Have we gone too far in translating ideas from aviation to patient safety?

James Rogers thinks that attempts to learn from aviation are ignoring fundamental factors in healthcare, but **David Gaba** argues that much more could be done

WORLD CONGRESS
ON PATIENT SAFETY

OST-
EFFECTIVENESS

Finite demands placed on health
care budgets

Healthcare initiatives must provide
greater value than competing
medical interventions

Marginal safety benefit must be
greater than the marginal cost



benefits of a safety initiative depend on:

Frequency of the error being prevented

Severity of the error being prevented

Effectiveness of the intervention in mitigating the safety threat

Value society places on safety in that context

s of safety initiatives are
analogous to the implementation
costs of taxes:

Compliance costs

Administration costs

Behavioural distortion costs

- *Evasion*



its	Low (simple procedure that takes only a few minutes per operation to complete)	Low (training has been shown to be straightforward; educational materials are available centrally; and copies of the checklist cost only a few cents per patient. Overall cost has been estimated as \$11 per patient) (Semel et al. 2010).	Staff might try to complete checklists for every operation in a single batch at the start of the operating list. Surgical and anesthesia staff might dispense with other safety safeguards that they previously used (Vats et al. 2010).
source ment	Moderate (behavior change)	High (organizing, paying for, auditing, and scheduling CRM training)	Peer pressure not to follow the checklist approach; complacency; “team” is in charge, so individuals are less alert to threats.
ity s	High (time in preparing and conducting briefings)	Moderate (preparation of briefings and notifications; audit trail of signed briefings)	Briefing skipped or performed in a perfunctory way; overcautious decision making might also be bad for patient safety.
m safety nents	High (more antisocial working patterns)	High (employ additional staff and out-of-hours supplements)	Reclassification of patient status as being less acutely unwell.
ockpit	Moderate (behavior change)	Moderate (cost of vests, foot-operated signals, wasted time of cleaning staff not using noisy floor polishers etc. while waiting for ward round to finish, etc.)	No one instigates the sterile cockpit rule, and those who do are treated as “overcautious”.
ion of	High (involves significant	Moderate (junior doctors may be	Increased exception reporting.

