Counterheroism, Common Knowledge, and Ergonomics: Concepts from Aviation That Could Improve Patient Safety

March 22, 2011


Contact: Geraint H. Lewis, M.A., M.Sc., F.R.C.P., F.F.P.H., Senior Fellow, Nuffield Trust, Geraint.Lewis@nuffieldtrust.org.uk, or Mary Mahon, Senior Public Information Officer, The Commonwealth Fund, mmm@cmwf.org


Synopsis

Certain aviation safety measures have been shown to improve safety in health care and save lives. This study identified and classified aviation safety measures not currently used in health care, including the “sterile cockpit rule,” which reduces unnecessary distractions during critical activities, and the “first-name-only rule,” which promotes a culture where colleagues feel more comfortable questioning one another.

The Issue

Modern commercial aviation is extremely safe, with only one life lost per 10 million flights. Patients in hospitals do not fare as well: for every 100 to 300 hospital admissions, there is one death caused inadvertently by a health care professional or medical procedure. Aviation’s safety record is not the result of good luck or chance, but is rather the outcome of numerous safety measures in place to protect passengers and crew alike. Many safety concepts adapted from aviation have been successfully implemented in health care at low cost. For example, the World Health Organization Surgical Safety Checklist reduced deaths and surgical complications by more than one-third in some settings. This Commonwealth Fund–supported study, published in Milbank Quarterly, identifies 15 safety practices that are routinely used in aviation but mostly not in health care, and examines their applicability to health care, potential resistance from physicians, and cost benefits.

Key Findings

- During safety-critical phases of a flight—whether taxiing on the ground or flying at low altitude—pilots and crew must refrain from all nonessential activities, like reading newspapers or engaging in casual conversation. This requirement is known as the “sterile cockpit rule,” and its violation has been
implicated in many aviation disasters. In health care, such a rule would identify critical junctures—
during operations or transitions, for instance—and prohibit distracting activities. Some hospitals, for
example, require nurses who are administering medications to wear brightly colored vests, as a signal
that they should not be interrupted.

• Up until the 1970s, junior pilots addressed their seniors as “captain,” “sir,” or “ma’am.” But in
modern cockpits, a first-name-only rule is employed. Using first names can help flatten the social
hierarchy and foster a culture where colleagues feel more comfortable questioning each other,
regardless of rank. The same could also be true in health care, if the practice empowered any
member of the care team to question a senior member about perceived hazards.

• In the United States, NASA operates a safety reporting system that offers the incentives of anonymity
and immunity to pilots who report an unsafe situation within 10 days. Known as “incentivized no-fault
reporting,” the practice is already used by some health care systems, like the Veterans Administration.
Wider use of the rule within health care reporting, the authors say, could help change the current
prevailing culture, in which filing an adverse incident report can be regarded as an act of disloyalty or
used as a pretext to punish staff members.

• The authors identified three main types of aviation safety measures: 1) those intended to downplay
the role of heroic individuals and instead emphasize the importance of teams and organizations; 2)
those that seek to increase and apply group knowledge of safety information and values; and 3) those
that promote safety by design.

Addressing the Problem

Many aviation-based safety measures could usefully be adopted and disseminated more widely
throughout health care. However, some may meet resistance from physicians. For instance, enforcing a
standardized process may be perceived by doctors as a restriction on their ability to innovate. And
measures that expand the circle of people who share professional knowledge may be viewed as
undermining to a physician’s status. But over time, this expected resistance is likely to give way to a
larger cultural shift, the authors say. In the article, the authors also present an economic framework for
examining cost-effectiveness, taking into account compliance and administration costs as well as
behavioral changes.

The Bottom Line

Many aviation safety initiatives not regularly used in health care could have a positive impact on patient
safety and outcomes.

Citation

G. H. Lewis, R. Vaithianathan, P. M. Hockey et al., “Counterheroism, Common Knowledge, and
Ergonomics: Concepts from Aviation That Could Improve Patient Safety,” Milbank Quarterly, March

This summary was prepared by Elaine Zablocki and Deborah Lorber.