Risk management in mental health: applying lessons from commercial aviation

Simon Hatcher

Objective: *Risk management in mental health focuses on risks in patients and fails to predict rare but catastrophic events such as suicide. Commercial aviation has a similar task in preventing rare but catastrophic accidents. This article describes the systems in place in commercial aviation that allows that industry to prevent disasters and contrasts this with the situation in mental health.*

Conclusions: *In mental health we should learn from commercial aviation by having: national policies to promote patient safety; a national body responsible for implementing this policy which maintains a database of safety occurrences, sets targets and investigates adverse outcomes; legislation in place which encourages clinicians to report safety occurrences; and a common method and language for investigating safety occurrences.*

Key words: *aviation, mental health, risk, suicide, systems.*

THE CURRENT PRACTICE OF RISK ASSESSMENT AND MANAGEMENT IN MENTAL HEALTH

The current model of risk assessment and management in mental health attempts to identify patients where extra resources should be directed. In practice, clinicians will make some assessment of 'risk factors' in individual patients that may predict a future outcome. For example, the typical risk assessment for suicide puts someone into a category of high, medium or low risk based on items such as a history of previous suicide attempts, the presence of depressive disorder, and so on. There are several difficulties with this approach. First, risk assessment in suicidal people fails to predict subsequent suicide. Most people who commit suicide are low risk and most people who are high risk do not kill themselves.[1] Research confirms that clinicians cannot accurately predict who commits suicide. This is not surprising given that suicide is rare with a general population rate of about 10–20/100 000 people. Second, risk assessment tools, because they focus on prediction rather than risk, fail to tell the patient or the clinician anything about what is actually useful to do. Third, risk assessment is nearly always about risks in the patient, rather than risks in the clinician or risks in the wider system. This limits the utility of any risk assessment. As a result, risk assessment in mental health is often seen as a politically driven process which, despite its limited clinical usefulness, is often mandated by organizations and seen as a tool for managing blame in the event of bad outcomes rather than something that is designed to improve patient care. However, there is an alternative model used in commercial aviation and that is to manage the whole system so that the right thing is done every time.

Commercial aviation shares the problem with mental health of preventing rare but unpredictable catastrophes. However, the system used in commercial aviation has made being in a commercial aircraft one of the

Simon Hatcher
Senior Lecturer in Psychiatry, Department of Psychological Medicine, University of Auckland, Auckland, New Zealand.

Correspondence: Dr Simon Hatcher, Department of Psychological Medicine, University of Auckland, PB92019, Auckland 1, New Zealand.
Email: s.hatcher@auckland.ac.nz

safest places in the world – in fact, the main danger in flying is driving to the airport. The model for addressing risk in aviation is different to that used in mental health – if the system we used in mental health was applied to commercial aviation, every plane would have a risk assessment before it took off, with those identified at high risk given extra resources (maybe support with flight planning or extra air traffic control input), while those identified as low risk would not get anything extra. However, the majority of accidents would happen in low-risk aircraft with nothing happening to high-risk aircraft most of the time. It is doubtful whether passengers would be willing to fly in these circumstances. This article describes the system (using examples from New Zealand) that commercial aviation uses to address the problem of preventing rare but unpredictable accidents and how some of these lessons may be applied in mental health.

POLICY, LEGISLATION AND STRUCTURE

The foundation of aviation risk management is the International Civil Aviation Organization, which sets internationally agreed standards for managing aviation. From this is derived national legislation that sets out the ground rules for what must be in place to manage risk. This includes a national publically funded regulatory body such as the New Zealand Civil Aviation Authority (CAA), which establishes civil aviation safety and security standards, and monitors adherence to those standards. The CAA carries out accident and incident investigations and collates this material to establish an industry-wide safety picture. This becomes the basis of safety initiatives ranging from education campaigns to increased monitoring and regulatory action. Separate from the regulator, which receives all occurrence reports and investigates most of them, there is an independent crown entity, the Transport Accident and Investigation Commission (TAIC) that takes precedence and tends to investigate the more serious incidents and accidents. The TAIC can, and usually does, investigate the regulatory factors involved in occurrences. The advantage of having a national body is that there is a consistency of approach to managing risk and probably more importantly the national body collects large numbers of occurrences allowing the early identification of problems. As well as the national body, all commercial aviation organizations will have a 'risk and safety unit' that investigates their own incidents, looks for patterns within their operation, and develops solutions. These organizations have up to 90 days to carry out this investigation and provide the results to the CAA. The CAA reviews these results and includes these data in its overall safety monitoring process. Accidents to aircraft that carry significant numbers of passengers are inevitably investigated by the Transport Accident Investigation Commission.

This situation contrasts with health, where there are no national bodies responsible for collecting, managing or investigating comprehensive data on adverse outcomes.

What national data does exist on adverse outcomes is either derived from insurance company data which is rarely comprehensive and hard to interpret; from coroners reports which focus only on unexpected deaths and are often delayed; from selective reports to the Ministry of Health by public health providers; or from bodies set up to investigate patient complaints such as the Health and Disability Commission. If commercial aviation used the same process as in medicine, Air New Zealand would investigate their own accidents, in their own way, with the results of the investigation kept within the company.

PROMOTING A SAFETY CULTURE AND A CULTURE OF REPORTING SAFETY ISSUES

An important part of having effective risk management is to promote a safety culture, which in turn encourages reporting of safety issues. In aviation, the incentives for this are greater than in medicine as pilots could be killed in aircraft accidents, which is rarely the case with clinicians following accidents in medicine. There are, however, other incentives for promoting a safety culture in aviation, one of which is the clear use of language. Problems which may affect a flight are referred to as safety occurrences, with three clearly defined types: accidents where there is death, serious injury or significant damage; incidents which may involve less serious injury or damage, such as near misses or a bird strikes where no damage actually occurred but may indicate a serious problem; and aviation-related concerns, such as an aircraft flying too low, which are usually reported by other people. It is also legislated that aviation crew must report incidents, while in medicine this is usually optional. A further incentive to a safety culture is the acceptance of a 'Just Culture' which encourages the reporting of safety occurrences by accepting that error is a result of systems allowing this to happen, but that blame will be attached (and criminal action can be expected) for acts of wilful damage or gross negligence. This is supported by legislation that prevents cockpit voice recorders or the records of investigations being used in court against the pilots. This is in contrast to mental health where, after a disaster such as a suicide, blame is attached without asking why the system allowed human error to occur. Nor is the law helpful here with no or limited protection given to the records of any investigation into the adverse event. This hardly encourages clinicians to report or enquire into adverse events.

MAINTAINING AN EFFECTIVE DATABASE

An important part of a civil aviation authority is to maintain a database of safety occurrences reported to it. In New Zealand, the CAA records about 5000 safety occurrences a year on a centralized database. These are comprehensively described in the database, allowing the early detection of problems or trends in occurrences.

The results of investigations are also included in this database, which allows the targeting of resources to problem areas. The database also allows the civil aviation authority to set targets for decreasing risks (e.g. by dividing the social cost in dollar terms of accidents by the person-hours of exposure). These targets can be described in dollar costs so that, for example, the authority may set a target of reducing the costs of commercial aviation accidents to less than 5 cents per hour of flight. Progress to these targets can be tracked over time. Nothing like this exists in medicine at a national level, while at a local level a few enthusiastic providers may set limited goals.

COMMON METHOD AND LANGUAGE OF INVESTIGATION

Lastly, in aviation there is a standardized method and language for investigating safety occurrences by experienced staff. The standardized method by experienced staff ensures comprehensive investigation while the common language allows generalizability of the results of investigations. The language is closely derived from the work of James Reason and uses his categories of errors to classify the results of investigations. In mental health, there is no commonly agreed method of investigation, with different providers using root cause analysis, tap cause analysis, serious incident reviews or some other method. The results of the investigations are often hidden away in detailed text with no attempt at finding a common language to describe the findings.

The tools available to manage risk and implement the results of investigations in aviation are varied and effective. They include using checklists (a similar process to clinicians using rating scales or other pro formas when seeing patients); team training to reduce errors through crew resource management programmes; ensuring pilot competency through regular training;

national education programmes through regular publications and face to face meetings with providers; and regulatory action which may mandate procedures up to preventing operators flying. In mental health, there is rarely any effective implementation of the results of investigations, with recommendations for further training being the most common response. (Often health providers group quality and training in one unit so that training is the only tool investigators of adverse events have available to them.)

Commercial aviation is very good at preventing rare but unpredictable catastrophes. The impressive reduction in the rate of major aviation accidents and serious incidents has been due to many factors over a long period. These include technological developments, procedural improvements, and better training and education. Those changes often resulted from safety recommendations made after thorough investigations, and sometimes the safety recommendations arose from studies of databases. There is a huge amount of resources devoted to it, from government departments, manufacturers' 'product safety' departments, industrial unions, and the like. It is very much industry-wide. In mental health, we should learn from this experience by having: national policies to promote patient safety; a national body responsible for implementing this policy which maintains a database of safety occurrences and investigates adverse outcomes; legislation in place which encourages clinicians to report safety occurrences; and a common method and language for investigating safety occurrences. With these systems in place, risk management in mental health should achieve for patients what commercial aviation achieves for its passengers – a safe, high-quality service.

REFERENCE

1. Appleby L, Shaw J, Amos T et al. Suicide within 12 months of contact with mental health services: national clinical survey. British Medical Journal 1999; 318: 1235–1239.