In this article...

- Limitations of using incident reports to explore staff harm
- Why we need to understand the effects of staff harm
- How data analytics can increase understanding of the effects of staff harm

Safety culture, staff harm and nurse staffing in the mental health setting

Key points

- Although there is a large amount of research into patient safety, there has been far less exploring the issue of staff safety

Nurses experience higher levels of sickness absence than the average for the wider public sector

Harm experienced by healthcare staff may exacerbate the nursing shortage

Big-data analytics provides opportunities to understand the condition of the healthcare system at the point when errors and adverse events occur

Inquiries and investigations into patient safety have been numerous in recent years. However, there is relatively little research into the safety of those who provide care and deliver complex services that are demanding physically and mentally, despite healthcare employees experiencing higher levels of sickness absence than other industries (Office for National Statistics, 2018). Nurses experience almost double the rate of sickness absence than the average for the wider public sector (Moberly, 2018) and the number of NHS mental health staff taking sick leave due to mental health problems has been rising (Greenwood, 2017). However, while this data provides useful indicators of harm in healthcare staff, the incident reporting data collected by healthcare organisations gives a more direct measure.

Incident reports have been used to investigate the relationship between falls and nurse staffing in a hospital setting (Leary et al, 2016), but their use is limited in research exploring staff harm. A better understanding of the nursing staff experiences is necessary to improve retention and stimulate recruitment to, in turn, address the nursing shortage in the UK; staff harm is one aspect of this.

We recently published research on staff harm in the mental health setting – Cook et al (2019). Using new ways of analysing data obtained from incident reporting at a large mental health trust, we were able to investigate the relationship between nurse staffing and overall staff safety, as well as safety culture. Incident-reporting data was used in combination with several years’ trust staffing data, and contained three variables:

- Planned staffing level – determined in accordance with budgets and generally calculated well in advance;
- Clinically required staffing level – an adjustment determined by clinical judgement closer to the time of the shift;
- Actual staffing level.

We expected the clinically required staffing level to better reflect demand so investigated that variable. We explored how the difference between the clinically required and actual nurse staffing levels affected staff harm and how the reporting of incidents represented safety culture.

Safety culture

In healthcare, we are yet to categorically determine whether the number of incidents reported is a reflection of the level of safety – whether more incidents reflect less
safe care or say anything about the culture of safety. In the context of the culture of safety, the number of incidents in absolute terms might not reflect safety in a linear fashion: a greater number of reported incidents would not be associated with a decrease in safety but, rather, the culture of safety. Our research helps show that incident rates reflect culture rather than safety.

Wards tended to fall into one of two types: low reporting and moderate reporting. The latter had a higher volume of incidents but a smaller proportion of harmful events, thereby representing the preferred environment for a good safety culture. Wards reporting a lower volume of incidents had a high proportion of harmful events, underpinned by more links to low staffing. This suggests the reporting of low-harm events was deprioritised in staffing shortages (Cook et al, 2019).

The term ‘safety’ is used in healthcare to describe an absence of something – in this case, the absence of harm (Reason, 2000). A review of aviation industry research by Lofquist (2010) found that using incident reporting as a single metric for safety is inherently flawed: the paradox of measuring nothing when the system is seemingly safe means risks are only recognised after a catastrophe has occurred. Research into the application of big-data analytics allows for an understanding of the condition of the system when error and adverse events occur. This gives opportunities to use data to predict the outcome of interest – such as falls, pressure ulcers or preventable deaths – and enables organisations to respond to risk before harm occurs.

Nurse staffing and staff safety
When exploring the relationships between nurse staffing and staff harm, we found multiple associations. In particular, the rate of adverse event reporting was highest when the perceived need for unregistered nurses on the night shift was lowest. When it was felt that fewer unregistered nurse staff were needed, more events were reported; this risk could be countered by the addition of a registered nurse (RN).

On day and evening shifts, variation from clinically required unregistered nurse levels showed the least effect on adverse events. This suggests the system is resilient to understaffing but unaffected by overstaffing, and that the effect of nurse staffing on staff safety during these shifts is less about absolute staff numbers and more about the skills gained from RNs.

The different associations between shifts could show that clinically required staffing levels do not accurately reflect demand, or that different skills are needed for different shifts and this is not sufficiently considered in subjective assessments when setting clinically required levels. Either way, more investigation is needed to understand these shift differences and a more nuanced approach at ward level might be necessary for safe staffing.

How to make progress
High-quality research takes a long time to generate. In some fields, such as pharmaceutical development, changes to therapeutic interventions are heavily regulated and predicated on demonstrable safety, tolerance and efficacy – change occurs in response to research. However, other aspects of healthcare, such as service design and delivery, are not regulated and move more quickly, so it is difficult for research to keep up. Data proving service delivery efficacy and safety is not ‘required’ to the same extent as in pharmaceutical development; consequently, it is often insufficient or lacking in the decision-making process.

Where data is available, it becomes old very quickly as services change and adjust to the political and operational environments. Our research is a prime example of this: data from September 2014 until March 2017 were studied, but the research was not published until October 2019. As such, it could be argued that the study does not reflect current conditions; it certainly would not take into account any efforts to improve staff safety made since 2017. Inevitably, this raises questions of its value; we argue that research on the application of new analytical techniques in healthcare safety can only contribute to an otherwise sparse literature on a recognisably flawed measurement system. Rather than simply quantifying safety, its nature and the extent to which it affects those involved, we have demonstrated that aligning incident reporting data to other readily available data can improve insight and potentially enable more-informed decision making.

Advances in IT and data analytics offer new ways to generate evidence. As the healthcare system is increasingly digitised and data grows exponentially, there are new opportunities to further our understanding of safety beyond simple outcome measurement. Efforts should aim to develop system parameters in which safety should occur; when breached, action can be taken to bring the system back within tolerance.

As governments embark on increasing digitisation, efforts should be made to ensure the safety rhetoric of recent decades is translated into practice and incorporated as a central tenet. This will ensure safety remains a priority and embodies a systems approach to healthcare management to avoid unforeseen consequences. However, it is important to recognise that we cannot take optimal advantage of this growth while wedded to the traditional medical research way of thinking, predicated on controlled, interventional studies and the lengthy peer-review process. Further, strictly controlled access to data makes it difficult and prohibitive for academia and the commercial sector to use data in this way.

All this is important to the nursing profession because nurses generate new data in everyday tasks, such as taking observations and recording medication administration; their contribution is key to unlocking the value held within healthcare data. Their involvement in the co-design of healthcare analytics would support the production of meaningful and valuable tools, while potentially increasing their own data analytics literacy.

What next?
Having been awarded funding by the Health Foundation to further explore data analytics, we will investigate nurse retention and its effect on safety in both secondary and mental health. This work will aim to bring together many datasets to understand how the insight they hold can be optimised for decision making at local and policy level, NT.

References
Office for National Statistics (2018) Sickness Absence Falls to the Lowest Rate on Record. ons.gov.uk; 30 July.