Registered Nurse Patient Ratios (RNPRs): so important, so contentious

Introduction

After the reports and press headlines highlighting that inadequate registered nurse (RN) staffing is linked to poorer outcomes it is good to see that both Professor Don Berwick and Sir Robert Francis have come out strongly in support of research showing that patient care is unsafe on general medical and surgical wards where there is only a 1 registered nurse (RN) to every 8 patients.

.... we call managers’ and senior leaders’ attention to existing research on proper staffing, which includes, but is not limited, to conclusions about ratios. For example, recent work suggests that operating a general medical-surgical hospital ward with fewer than one registered nurse per eight patients, plus the nurse in charge, may increase safety risks substantially. This ratio is by no means to be interpreted as an ideal or sufficient standard; indeed, higher acuity doubtless requires more generous staffing. We cite this as only one example of scientifically grounded evidence on staffing that leaders have a duty to understand and consider when they take actions adapted to their local context. (Berwick Report 2013 )

This call for manager’s and senior leaders to look at the research is welcome. It has long baffled me why, when evidence based medicine is supposed to be the norm, this research has not been implemented. Let us hope they do more than just ‘look’.

What does the evidence show?

Cumulatively the evidence shows that a whole range of outcomes, including mortality, are sensitive to RNPRs. One has only to read latest systematic reviews to see this is the case. And although most research has been done in the US other countries, including the UK, come up with similar results.

| Patient: | higher rates of mortality, pneumonia, UTIs, medication errors, pressure ulcers, falls, failure to rescue, lower levels of satisfaction |
| Hospital: | increased costs of increased LOS, bank and agency staff, turnover, sickness/absence, complaints |
| Nurses:  | higher rates of stress, burnout, sickness and absence. |

Outcomes sensitive to RN to Patient Ratios
Mortality is the outcome most in the news. There is no doubt that this is related to RN staffing.

‘The evidence across 14 studies consistently suggests that the risk of hospital related mortality was 9 percent lower in ICUs, 6 percent lower for medical patients, and 16 percent lower for surgical patients for each additional RN FTE per patient day.’ (Kane et al 2007)

Patients and nurses in the quartile of hospitals with the most favourable staffing levels ....had consistently better outcomes than those in hospitals with less favourable staffing. Patients in the hospitals with the highest patient to nurse ratio had 26% higher mortality... (Rafferty et al 2007)

Nobody yet totally understands the precise how and why of this relationship but it may be linked to the fact that that with poorer ratios RNs report more ‘missed care, of which the most significant was ‘surveillance’, and surveillance is essential to the prevention of adverse events.

This risk of adverse events is not linear but stepped, increasing quickly as the RN has to look after more than 4 or 5 patients per day shift. A RNPR of 1 to 8 per day shift is the crunch point at which staffing is unsafe. That is why the Safe Staffing Alliance has called for Trusts to have to record and report whenever this occurs and why this is the ratio included in the Berwick Report.

The degree and nature of care not completed on a shift is significantly related to the patient to RN ratio on that shift. For example, nurses reporting talking and comforting patients was neglected on their last shift due to lack of time, were on wards with poorer staffing levels, with one more patient per RN than was the case on wards where this activity had been completed. Similar differences in staffing are noticeable for most of the activities in relation to whether or not they were left undone. However, the widest difference between staffing levels and activities left undone was in ‘patient surveillance’. A third of nurses (34%) said this activity had been left undone and where this was the last there was, on average, just over one patient per nurse more (8.7) than was the case on wards where the task had been completed (7.6). (Ball et al 2012)

What are current ratios?

RN data are abstracted from a number of sources. Each will produce a different RNPR. The larger and more amorphous the unit the less useful and accurate is the information. As Professor Keogh pointed out the overall hospital RNPR masks the reality of ward staffing because it includes staffing in intensive, high dependency, A & E and similar units plus RNs not involved in direct care on the wards.

Statistical analysis performed showed a positive correlation between in-patient to staff ratio and a high HSMR score. But the data analysis alone did not show nursing levels on
wards as being a particular problem in eight of the 14 hospitals.....Contrary to the pre-visit data, when the review teams visited the hospitals; they found frequent examples of inadequate numbers of nursing staff in some ward areas. The reported data did not provide a true picture of the numbers of staff actually working on the wards. In some instances, there were insufficient nursing establishments, whilst in others there were differences between the funded nursing establishments and the actual numbers of registered nurses and support staff available to provide care on a shift by shift basis. (Keogh 2013)

The number of patients each RN is allocated or said she had to care for on her shift is the most meaningful ratio. This is where it matters, at the bedside, in the clinic, caring for patients. Yet in the latest RN4CAST survey of 46 English hospitals (the only published source I know of such ratios) the overall average day shift RNPR was 1:8 and in some wards is almost 1:11 way above the unsafe staffing level. Furthermore in some wards only a third of the ward team were RNs. In other words the average level of RN provision is at the very edge.

The RCN, among others, has called for mandatory RN ratios in general wards as exist in some states in the US and Australia. We accept them for ICUs and other intensive units and for paediatric wards, yet imposing them for acute wards meets solid resistance. Until the publication of the Berwick Report none of the recent reports has been prepared to put even a ‘no lower than’ figure on RNPRs. The official line is that it is for the individual Trusts or hospitals to decide RN numbers. Well they have decided and in some hospitals as the RN4CAST results show they have done so while ignoring the evidence. Indeed in some Trusts RN posts have been and continue to be cut.

*How do we get the numbers right?*

Obviously there is no one standard set of nurse numbers or RNPR which will suit every ward in every hospital all of the time. Patient demand fluctuates both during a single 24 hour period and at different times of the week and year so systems need to be in place to ensure nurse staffing can meet them. Interestingly most methods are about coping with such fluctuation with less thought given on how to level out demand. To do either it is important to have quantifiable data in order to demonstrate the facts underlying workforce and day to day staffing decisions. Patient acuity/dependency systems can help towards achieving this.

Before investing in any methodology it is important to ask what do we mean by ‘right’. Right for what? Right for whom? Right for patient? Right for achieving cost savings? Right for achieving
the best possible outcomes? What will the method be used for? Keep in mind that some systems were developed to record the care given to patients and who gave that care with the subtext of making that work more efficient and in addition less costly by substituting less or non-qualified staff for RNs. All, as far as I am aware, are about process rather than outcomes. No system in itself changed patient outcomes rather it is the level and type of nurse staffing identified as necessary or desirable by the particular methodology and implemented by the employing authority which does that.

Since the 1970s numerous systems have been developed to try and produce valid and reliable measures on which to base nursing establishments. They have met with varying success. None have provided a fully satisfactory solution. This is not surprising since research comparing different approaches with the same group of patients comes up with different answers.

The main approaches for identifying appropriate numbers and skill mix include:

1. Dependency methods which involve observing and documenting the care provided then using this data to identify care categories, usually from 1 (self-care) to 4 or 5 (high care), each with its average direct care time requirements.

2. Timed activity systems based on timing all relevant activities then summing those for each and every patient to get the total care requirements.

3. Statistical based on significant patient events such as admission and discharge which are known to absorb large amounts of nursing time.

4. Professional judgement

In all the systems allowances are then added for other factors such as supervision, meetings, mentoring etc. Finally the status of the RN in charge has to be agreed namely whether or not she will be ‘full time that is with no patient case load of her own.

Pros and Cons

Each method has its advantages, disadvantages and limitations
The pros:

- Patient care requirements and the demands made on nursing staff are described in detail and non-nursing activities identified,
- They provide useful and persuasive measures of nursing workload and assist in quantifying staff requirements especially when used over a long time period and updated regularly.
- They can be computerised so data can be produced in various formats to identify clearly peaks and troughs in workload, acuity and staffing.
- They highlight mismatches so remedial action can be taken.

The cons:

- They record current work practices and activity which are assumed to be appropriate and that everything that should be done is being done, done correctly and in accordance with evidence based best practice.
- Make no allowance for the skill and expertness of the care giver which affects the time taken.
- Make no allowance for the additional expertness an RN brings to apparently routine tasks such as taking a temperature i.e. using knowledge and clinical skills to observe, assess, predict monitor and take preventive action.
- Do not take into account the use by skilled RNs of:
  - Multitasking
  - Substitution
  - Masking
- Do not necessarily identify the totality of nursing work for example by factoring in time requirements of supervision of staff, students and unqualified staff.
- Take time both to collect and analyse the initial data and to monitor and update.
- Do not capture organisational and physical differences such as the presence or absence of support services, ward layout, teaching commitments etc.
- Rarely record outcomes such as patients’ perceptions or make any concurrent observations of their physical or emotional state.
- Have often resulted in RN reductions than additional staff.
- Are costly to put in and maintain.
Putting any system into place is costly so it is really important for everyone involved to understand what different methodologies do and don’t do is vital that is what they measure or do not measure, what are their underlying principles, how reliable are the data used and the underpinning ideology. Nurses in particular need to become very knowledgeable otherwise there could be a risk that systems will be put in place which will impact on RN staffing in a way that they do not consider appropriate. The literature is extensive and those wishing to use such systems should study their development and understand their respective advantages and limitations.

From measurement to shift staffing

Setting the required day to day staffing levels involves careful workforce planning beginning with daily planning /rostering, building that up into unit then hospital level establishments and from there to longer term workforce planning at regional and even national level. As all those involved know such planning is complex and affected by a range of factors which need to be identified and taken into account if the right number of RNs are to be available in the right place at the right time.

‘…Predicting the number of staff required to provide safe care to an agreed standard cannot simply be based on the number of patients/clients requiring care, or even on a measure of workload related to patient need or ‘dependency’. The volume of care required may be the primary factor in determining staffing but it is not the only one. A host of factors affect the nurse staffing and skill mix needed.’ (Ball 2010)

Some of the failures in actual ward numbers can be due to inadequate uplift for essential ‘time-out’ such as annual leave, unpaid meal breaks, CPD and unplanned loss such as sickness/absence, vacancies and staff redeployment to units other than their own. The type of shift worked also has an impact. All methodologies include allowances for these but if hospitals do not set an adequate level then shortages are inevitable. Whether the solution is employing temporary agency or bank nurses, moving staff at short notice or expecting the permanent staff to work overtime such shortages increase RN stress levels, increase costs, and reduce continuity of patient care.

Why not simply employ more RNs?

To be honest that is something that given the weight of the evidence I find difficult to understand. Two main reasons are given; First that employing more RNs would cost too much and second that a whole range of care activities do not need to be done by RNs but can be carried out equally as
well by unqualified health care staff.

Costs

Taken in isolation RN salary costs appear higher. There is some research however showing that this is not necessarily the case. It includes two types of studies: those showing that when the costs to the hospital of preventable adverse events were taken into account these outweighed the cost of additional RN hours and those, some done as far back as the 1980s, which found that a richer mix does not cost more because overall fewer staff are needed. When one thinks about it that is not surprising. First organising, supervising, communicating instructions and receiving feedback to and from unqualified staff takes time, time the RN cannot spend with the patient, time which has a financial and a quality cost attached to it. Second RNs can do everything from basic to technical so care is seamless and time not wasted: professional practice at its best.

‘basic’ care can be done as well by others

We know that often RNs spend less time in direct care and less time with any one patient than other staff despite ‘being with’ patients, being seen as the heart and soul of nursing. One reason is because of the demands of other types of activities. Care planning for example, a key responsibility for RNs, is more complex and there is more of it. Medication rounds take longer. More medications are given via the I.V. route.

Something has to be delegated to other staff especially when RN numbers are low. What gets delegated are direct personal care activities because they are seen as needing less professional input than those designated as more technical such as wound dressings, administration of medications and care planning. This view of basic care activities I would suggest reflects a pervasive and deeply embedded attitude about their value rather than cost alone. It existed too under the old ‘apprenticeship’ training system - these were the tasks carried out by the most junior student nurses; nor is it specific to nursing. But staffing was not the same then. I trained, unlike most RNs today during the pre-Project 2000 era. On the wards I worked on RNs numbers were often no better than now. What was different was the skill and grade mix. No student worked full time on a ward without three months initial training full time in a Preliminary Training School which for us meant. We had lectures in the key biological sciences and other topics, intensive clinical skills training from cleaning to personal care of patients, to routine observations and to some more technical tasks such as wound dressings. Throughout our 3 years there were annual
periods of additional study. No we were not registered but we were certainly not untrained. So whatever their title, support staff need to be trained appropriately both before they begin working with patients and on a continuing basis.

In the past I was a keen supporter of dependency/acuity systems as a way to describe accurately patients’ needs and ensure that the RN staffing hours required to meet them were provided. During my nursing career I have seen numerous systems come and go. Some received official approval while others sank without trace especially if they showed large deficits in RN nursing hours. Each in turn was seen as ‘the answer’. None actually achieved that aim. Used appropriately and knowledgeably they can be valuable tools. Used inappropriately they can be disastrous. As a result over the years I have become less sure of their value as they have not lived up to their promises.

In today’s health care world patients care needs become ever more complex and their expectations higher. Advances in medical knowledge and clinical practice mean that a range of tests, investigations, interventions and medications which did not exist, indeed were not even dreamed of not that many years ago are now routine. Shorter lengths of stay, this greater complexity of interventions and a higher proportion of the elderly with co-morbidities mean that even those tasks designated as ‘basic’ require those who do them to have not only care and compassion but sound knowledge of relevant biological sciences, the socio- psychological needs of the patient, excellent assessment, communication, observation, evaluation and decision making skills and expert clinical skills. Acuity/dependency systems can help but only if we rethink some of the underlying assumptions such as that RN care and support worker care can be compartmentalised, that much of what is called ‘basic’ care can be done, even done better, by unqualified staff and that better RNPRs cannot be afforded.

The substantial research evidence we now have about the value of RNs’ to patient outcomes and the detrimental effects of low staffing and diluted skill mix now sits side by side with the somewhat mechanistic approach of the key acuity/dependency systems. This research means that before settling on any methodology we need to think carefully about the fundamental principles underpinning that choice. More specifically we need to balance the needs of the patients with other organisational needs such as achieving activity targets and keeping with the budget. Of course these need to be taken into consideration but it seems to me that we have become too focused them and not paid enough attention to focusing on the patient. We need to change the balance and give more weight to patient needs and patient outcomes. The research also shows the importance of
organisational climate meaning that how nurses and nursing are valued within the organisation will also make a difference. Do RNs have real power including control over setting establishment numbers and grade mix, holding the nursing budget and hiring and firing nursing staff?

I believe every patient need to receive a high proportion of their care from a RN just as they do in Intensive Care Units and as they do from doctors and other health care professionals. That will mean we need a higher proportion of RNs so that our general wards match the best in our own and other developed countries. A consequence of that richer grade mix is that there will be a lower proportion of untrained staff. This change will require a radical look at both the RN role and the role of other staff involved in direct patient care and also of all relevant support services. The evidence is, that difficult though this might be, if we get RNPRs up to the best then we will achieve a real improvement in nurse sensitive outcomes and a much lower chance of the sort of horrendous failures to care that we have seen recently. That is what we all want so we have to find ways to make it happen.

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References