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Hospice nurses' views on single nurse administration of controlled drugs

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Abstract

Background: The involvement of two nurses to dispense and administer controlled drugs is routine practice in most clinical areas despite there being no legal or evidence-based rationale. Indeed, evidence suggests these practices may not enhance safety or care. Registered Nurses at two hospices undertook to change practice to single-nurse dispensing and administration of controlled drugs (SNAD). Participants' views on SNAD were evaluated before and after implementation. The aim of this study was to explore the views and experiences of nurses who had implemented SNAD and to identify the views and concerns of those who had not yet experienced SNAD. Method: Data were obtained through semi-structured interviews. Results: Qualitative thematic analysis of interview transcripts identified three key themes: (1) Practice to enhance patient benefit and care; (2) Practice to enhance nursing care and satisfaction; (3) Practice to enhance organisational safety. Conclusion: The findings have implications for understanding influences on medicines safety in clinical practice and for hospice policy-makers.

Key words: single nurse administration, controlled drugs, hospice, qualitative research, patient safety

Introduction

In the majority of in-patient settings within the United Kingdom (UK) two nurses are required for the dispensing and administration of controlled drugs (CDs). Similar practices are reported internationally including New Zealand, Australia and Canada. Whilst the involvement of two nurses is thought to be important to ensure the safe use of CDs, especially in settings where these drugs are not regularly administered, the requirement for two nurses to dispense and administer is likely to have significant impact on the time taken for patients to receive their analgesia and have an impact on the use of nurses' time. Indeed, an audit at a large general hospital identified that patients frequently wait over 15 minutes for requested opioid analgesia (British Pain Society, 2013)

Sue Ryder, a UK-based charity, provides care to people with neurological conditions and life-limiting illnesses within the home, in specialist day care and in-patient facilities. This study relates to two specialist palliative care hospices in the UK. In these hospices, single nurse dispensing and administration of drugs (SNAD) was being piloted. One hospice (Hospice 1) had implemented SNAD and another hospice (Hospice 2) planned to introduce SNAD but had not yet commenced. The aim of this study was to explore the views and experiences of nurses who had implemented SNAD and to identify the views and concerns of those who had not yet experienced SNAD.

Background

CDs are commonly used for pain control in end-of-life care. The Misuse of Drugs Act (MDA) (1971) and its associated regulations provide the statutory framework for the control and regulation of controlled drugs (Cahal, 1974). The format and requirements for Controlled Drugs Registers are specified in regulations 19, 20 and Schedule 6 of the Misuse of Drugs Regulations 2001 (Department of Health 2007). Morphine and diamorphine are Schedule 2 drugs according

to the MDA classification and are, therefore, subject to rules surrounding their prescription and administration. Within the UK, there is no legal restriction on SNAD. The Department of Health (DH) states that healthcare organisations should assess the risk to determine the requirement for double checking (DH, 2007). The advice from the Nursing and Midwifery Council (NMC) is also clear identifying that, in ideal circumstances, administration of a CD requires a second signatory but, in the interests of patient care, if the registrant is administering a CD that has already been prescribed and dispensed to that patient, obtaining a secondary signatory should be based on local risk assessment (NMC, 2008). Indeed, in the community setting, it is common practice for District Nurses, who visit patients alone, to administer subcutaneous CDs to patients at home. In these cases, local medication policies provide clear guidance on accounting for CDs and ensuring that risks of abuse and theft by staff are minimised.

Medication administration errors may relate to drug doses, route of administration, timing or frequency (Fortescue et al., 2003, Gonzales, 2009, Brady et al., 2009, Aronson, 2009). Drug doses being the most frequent error type. Associated risk factors include interruptions during drug rounds (Brady et al., 2009) nurse fatigue (Unver et al., 2012), lack of nursing knowledge (Eisenhauer et al., 2007) and an unsupportive practice environment (Flynn et al., 2012). Evidence confirming that the involvement of two nurses in the checking process reduces adverse incidents is inconclusive (Alsulami et al., 2012). A review of 991 drug error reports, supplemented by 40 in-depth interviews with health professionals in an acute hospital, identified that errors occurred despite double nurse checking. Whilst health professionals valued the process of double-checking they simultaneously doubted its usefulness as a safety net (Armitage, 2008). Of fourteen studies, one randomised controlled trial demonstrated that double nurse checking led to a statistically significant reduction in errors, although this related to all medications not just CDs (Kruse et al., 1992). Studies exploring nurses' perspectives found conflicting opinions. Nurses considered that, if done properly, double nurse checking offered a

buffer against the likelihood of errors (Winson, 1991, Armitage, 2008, Dickinson et al., 2010). However, organisational processes were rarely followed correctly with frequent deference to the more senior nurse in the checking process (Armitage, 2008). Double nurse checking requires that "one fallible person monitors the work of another imperfect person" (Tamuz and Harrison, 2006 p1659). This potentially creates a diffusion of responsibility and is what Tamuz refers to as the "social redundancy" of double checking. Double nurse administration of drugs can increase the time and require nurses to take individual responsibility for medicines (Ross et al., 2000). Jarman et al (2002) identified that nurses perceived single nurse checking to save around 20 minutes per medication round. Removing the need for two nurses to check may, therefore, lead to patients receiving pain relief in a more timely manner without an increase in medication errors. This would also benefit nurses in terms of time saved to engage in other nursing activities. A qualitative study examining nurses interventions in medication errors found that experiential knowledge, theoretical knowledge of pathophysiology and pharmacology, and critical thinking skills were important in recovering medication errors (Henneman et al., 2006). In Specialist Palliative Care Units (SPCUs) nursing staff tend to be familiar with CDs, appropriate doses and potential problems. Within Sue Ryder, nurses also undergo additional training as part of their role.

An Australian study similarly confirmed that there were no legal reasons that nurses could not administer drugs without a second person to check. Introducing this policy did not lead to any increase in drug errors and, instead, increased job satisfaction and efficient use of nursing time were reported (Jarman et al., 2002). However, the practice change did not relate solely to CDs, and was conducted in an acute medical hospital limiting transferability to the hospice setting. They conclude that SNAD is accepted in a wide range of clinical settings, but the practice usually excludes CDs. More recently, one UK study, exploring SNAD of low-dose oral morphine in a trauma ward, found no adverse incidents associated with a transition to SNAD (Gregory and

Bramwell, 2007).   This literature review, therefore, concludes that there is no evidence to suggest that single nurse administration contributes to drug errors. However, little is known abut the views of nurses who are required to administer CDs in the specialist palliative care setting.

Methodology

With limited research relating to SNAD in specialist palliative care, a qualitative exploratory study was undertaken based on a critical incident technique. This enabled in-depth exploration about participants' experiences and views through the examination of specific incidents (Polit et al., 2001). Critical incident technique differs from other self-report techniques because the respondent 'testifies' as an expert witness about a specific incident. The aim is to enlighten understanding about why, and under what circumstances, people act the way they do. Data were collected through semi-structured interviews.

Ethical considerations

Institutional ethics approval was obtained from Sue Ryder Research Governance Group. Following granting of approval, permission was also sought from the Head of Care Services within each hospice.

Setting and Participants

The study was undertaken at two Sue Ryder hospices in southern England in 2014. Hospice 1 had implemented SNAD during 2012/3. Hospice 2 was considering future implementation. Purposive sampling was undertaken of Registered Nurses from clinical bands ranging from 5-7 and practicing in the in-patient units at the two hospices. This group was targeted because they could be considered key informants about the implementation of SNAD. They were sent an information sheet and, prior to individual interview, a consent form was signed. In order to

maintain anonymity and confidentiality each nurse was assigned a number, their names did not appear on the recording nor in subsequent transcripts and analysis.

Data collection method

The critical incident technique typically collects data through semi-structured interviews that enables some structure to ensure all information required by the researcher is obtained whilst, at the same time, allowing freedom to talk about what is significant to the participant. The use of semi-structured interviews enabled the freedom to probe unclear and ambiguous words and phrases, and validate the meaning of responses from the participants' perspective.

Following the preparation identified above, participants were interviewed individually on one occasion in a separate room within their hospice, no time limit was imposed. A convenient time was negotiated with each nurse in order to improve inclusion and minimise the possibility of interruption. Each interview was digitally recorded and transcribed verbatim reducing the element of selectivity by the researcher of what the respondent is saying during data collection (Polit-O'Hara and Hungler, 1995). This also ensured identical replication of the contents of each interview to facilitate analysis and reduced the potential for incorrect data recording.

An interview guide was developed following a review of the literature. Initially, nurses were asked to describe the hospice, the in-patient unit and how it was organised. In addition, nurses reported their post-qualifying clinical experience(s) including those involving administration of CDs. Subsequently, nurses were invited to focus on critical incidents relating to administration of CDs within the hospice setting. They were encouraged to reflect on their experiences and explore the factors that made the experience of CD administration both satisfying and difficult. Finally, the participants were asked to describe any specific training or education which had been undertaken, or might be undertaken, in order to prepare them for single nurse administration of

CDs. The interview guide acted as a topic guide as participants were encouraged to talk freely whilst ensuring that all issues were covered.

Data analysis

An inductive analysis approach was utilised enabling patterns, themes and categories to emerge from the data rather than decided prior to data collection and analysis. Interview data were transcribed verbatim and analysed using a stage-by-stage method described by Burnard (1991) comprising a systematic fourteen-stage approach to code and categorise semi-structured interview transcripts. Two researchers (VT and LMG) generated themes independently to ensure the accuracy of the categorisation process and reduce researcher bias. Themes generated were discussed and revised to clarify meaning of each category.

Findings

Ten Registered Nurses, five from each hospice, were interviewed reflecting a range of clinical grades, years qualified, years providing specialist palliative care within the hospice, and day/night staff (Table 1). As Table 1 demonstrates, all participants from Hospice 1 had been qualified for at least six years with only one participant having less than five years experience in specialist palliative care. These contrast with participants from Hospice 2, where two of the five participants have been qualified for less than five years and four participants have between 6 months and five years experience of specialist palliative care.

Thematic analysis of the interview transcripts identified three over-arching themes:

1 Practice for enhancing patient benefit/care

2 Practice to enhance nursing care and satisfaction

3 Practice to enhance organisational safety

1 Practice for enhancing patient benefit/care

This theme focuses on nurses' perceptions of the impact of SNADs for patients and their families. In particular, nurses identify that SNAD reduces patient and family anxiety when the patient experiences episodic pain. Participants from Hospice 1 identified that SNAD enabled prompt response to requests for 'as required' analgesia. These participants considered that their ability to respond promptly prevents pain from becoming more severe due to increased anxiety or delays in administration:

> *"..I think as well if … their anxiety levels aren't quite so great. They know they ask for it, they know they're going to get it quite quickly so that the next time it happens, if they get sudden onset of pain or whatever the symptom is, then they're not getting anxious, 'Oh, God, how long have I got to wait, are things going to get a lot worse and…....' (T3)*

In contrast, for participants in Hospice 2, the potential implementation of SNAD enabled prompt responses to requests for analgesia, which contributed to building patient and family confidence in the team at a potentially distressing time:

> *"..I try to explain to them that we have to … the rules, regs state that we have to check it with two people at the moment and, you know and the nurse is with another patient at the moment so as soon as she's free we'll check it and bring it to you. It just means that you will have to wait a little bit. Most of them understand it but some of them can be, you know, quite upset" (T9)*

2 Practice to enhance nursing care and satisfaction

This theme focuses on participants' perceptions of the impact of SNAD on their ability to deliver the standard and quality of nursing they aspire to provide within the hospice setting. Three sub-themes were identified:

(i)   getting on with the job

(ii)   reduced stress

(iii)   feeling confident/demonstrating competence

(i)   Getting on with the job

This sub-theme identifies that, following the implementation of SNAD in Hospice 1, nurses expressed that they are able to respond promptly to patients'requests for analgesia and that, because they were not having to seek a second person to check CDs, this meant they were not wasting nursing time. These prompt responses meant that participants in Hospice 1 were able to focus their time on planning and providing uninterrupted nursing care:

> *"..it's really, really helped. Um, it means, you know, that you can just sort*
> *of get on with that job and you can give that patient whatever they need*
> *and so it does – it"s freed up a lot of time…You're not feeling that you're*
> *spending quite so long not only finding the person and giving the drugs*
> *and everything but also you've taken two nurses off the floor " (T3)*

For those participants representing Hospice 1, there was a perception of having more time to provide care to their patients of 'time being freed up' for them to co-ordinate and organise their nursing care according to patient needs rather than nurse availability to deliver CDs. Some contrasted the implementation of SNAD with their current experiences when not all registered nurses working in the hospice were able to undertake SNAD. For example, agency and new staff are excluded from SNAD. The impact on the workload of registered staff who were able to

undertake SNAD then re-emerged with concerns raised about the nurse having to refocus their time on delivery of CD's and limiting their ability to focus on the needs of their patients.

Participants from Hospice 2, however, expressed the need to 'find' and 'wait' for a registered colleague to be available. This 'finding' and 'waiting' impacted on the time and quality of care they were able to provide to their patients, and interrupted the care of other patients:

> *"… I think it's always nice to have somebody else to check with you,*
> *……but if you need something pretty fast and that other person is not on*
> *the floor or you've got to hunt for that person, it'd be so easy just to go and*
> *get the keys yourself. You've got the 'Go and get it, go and give it, patient's*
> *lovely'. That would be the ideal world. That would be lovely, that would"*
> *(T8)*

For some nurses practicing in Hospice 2, they perceived that SNAD offered the potential to 'free up time' though, for some, they felt that their anxiety about undertaking SNAD would mean that, instead of freeing up time, they would take up the same amount of time 'triple checking' themselves and their calculations.

Participants in both hospices also expressed concerns that 'freeing up nursing time' offered by SNAD should not be viewed as an organisational opportunity to reduce levels of registered staff per shift particularly at night when tiredness was raised as an issue against reliance on, or expectation of, SNAD. Skill mix and adequate staffing are important factors in the quality of care (Kane et al., 2007).   However, rather than seeing SNAD as an effort to reduce costs and staffing levels, participants from Hospice 1 identified that it enabled them to deliver patient centred nursing care at the quality and standard they aspired to provide.

"I mean there are times obviously when we have bank nurses and new staff who aren't SNADding, that if I'm the second nurse on I do have to check all of their drugs and it does take a long, long time and it does… You know, you realise how much time that actually is taken up with drug administration, so I personally wouldn't want to go back but there are shifts, as I said, because we've got a lot of new staff, when you are having to actually check their drugs because otherwise if there are times when I can say, 'Look, I'll go and give that patient that drug and you can be free to maybe take over what I was doing," (T3)

(ii) Reduced stress

This second sub-theme relates to the expectation of participants practicing in specialist palliative care about the quality of care they seek to provide, and the consequent stress if these were not met. Participants in Hospice 1 compared the stress they experienced prior to the implementation of SNAD, searching out other registered nurses throughout the building to check controlled drugs with them. These experiences of stress are reinforced in the comments of nurses practicing in Hospice 2. The following quote indicates the emotional consequences of feeling as though pain management has been suboptimal:

"…on a negative for the, for the nurses it's, at the moment it can be, it can be quite distressing for us because we know we need to get that painkiller in pretty quickly but everybody's tied up, gone, busy or whatever they're doing." (T8)

(iii) Feeling confident and demonstrating competence

This sub-theme focuses on participants' feelings of confidence about undertaking SNAD and how they develop their confidence and demonstrate their competence to themselves and within the Charity. Participants, particularly in Hospice 1 where four of the five participants had six or more years experience in specialist palliative care, commented on their years of experience of using CD's in the hospice setting. Familiarity and experience were related to their level of confidence. Whilst all participants expressed feeling confident about the drugs used and how they were prescribed, for some, they experienced an initial lack of confidence and anxiety in administering drugs on their own. Most had always administered controlled drugs with two people:

> *"But for the first few times, I have to admit, with all my experience behind*
>
> *me, I did feel, ooh…." (T4) (17 years in hospice)*

Equally, participants who described themselves as inexperienced in specialist palliative care or who worked part-time expressed their lack of confidence to undertake SNAD.

Participants practicing in Hospice 1 commented on the helpfulness of an in-house training programme that had been introduced prior to implementation of SNAD. All Hospice 1 staff undertaking SNAD had undertaken the training day which focused on legal and professional issues, drug calculations, medicines management, Sue Ryder policies and procedures and an update on controlled drugs within the hospice. The training culminated in a one-hour exam that was required to be passed. The training day also provided nurses with an opportunity to express and discuss any concerns. The timing of the training day could, however, have been closer to the implementation of SNAD as several participants commented that there had been quite a gap between the training day and implementation of SNAD.

Participants seemed acutely aware of the potential risks involved in CDs as well as the frequent use of dose ranges in hospices that differed from those commonly used in other settings, as the following quote illustrates:

> *"the doses we are using of the drugs in hospital you would think "Oh my God I"m going to kill a patient on that" and this patient has been on this medication for so long that's why they are on that level so it's titrated up it's absolutely fine so we are sort of saying "No, that's fine" (T2)*

Some felt that controlled drugs needed to be treated differently to other medications in terms of management and safety with one nurse referring to the "*mystique*" (T2) of controlled drugs and another referring to the CD book as "*hallowed ground*" (T5). Participants identified CDs as being somehow different to other medications and felt that this was a contributory factor to their lack of confidence:

> *"There is that element of fear over them because they are risky drugs…I think I was concerned, um, because they are controlled drugs and I'd never done it on my own before and there's still that feeling of – Oooh, I'm getting these dangerous drugs out of a double locked cupboard all on my own" (T5)*

Participants were able to ascribe this perception to the way in which they were taught about medications referring to their experiences of mentorship and training in which CDs were seen as different and more dangerous than other medications:

> *"all your nursing life it's just cast in stone: two of you check it" (T4)*

It was acknowledged that, with experience, confidence in dealing with the drugs and doses that are commonplace becomes easier although it was important to never become complacent about the potential risks:

"It was a big responsibility and I'm probably more confident and competent at doing it now but I never want to lose the fact that it's a big responsibility because …… It's healthy to be a bit – ooh – scared by it but I just got to the stage where I was totally frozen by it " (T6)

However, alongside this perception that CDs are different, participants were able to recognise that non-controlled drugs could in fact be just as dangerous:

"we are told morphine is really dangerous and actually there's a lot of emphasis on controlled drugs not necessarily as on regular drugs but regular drugs could be more dangerous… you can give Digoxin out like it's Smarties and quite honestly it can be lethal" (T2)

One concern identified was that night, new and agency staff may have less confidence in SNAD. Participants related this to less experience (in the case of new staff), limited knowledge of the patient (in the case of agency staff), or fewer opportunities to practise SNAD (in the case of night staff). In particular, those staff on permanent nights were perceived to need more support due to their less frequent involvement in administering controlled drugs, in particular syringe drivers.

Confidence in numeracy skills was a prominent issue for participants and this was strongly associated with the discussion around medication errors. Several participants raised concerns

about differences in methods of calculations and acknowledged that this could be a source of confusion and error when administering drugs in pairs:

"we all have different ways of doing things. So if I'm checking a medication with another member of staff, their process of doing that is very different to mine…Well you do the maths like that, I do the maths like that", and it ended up sort of like, my head would spin with it all " (T1)

When asked to elaborate on this, this participant commented that:

"If you think about what you're asking two people to do, you're asking two people to do a sum together….Well who, in reality, does a sum together?" (T1)

The in-house training provided an opportunity to review numeracy skills. Hospice 1 participants described the examination as a source of anxiety but this element was nevertheless acknowledged as an important part of checking that they were competent to undertake SNAD.

One participant was, however, of the opinion that further training was not necessary considering that:

"*the skills required to be a Registered Nurse administering non-CDs are the same as those required to administer CDs, and the same whether or not there were one or two nurses checking the details*" (T9).

3 Practice to enhance organisational safety

The focus of this third theme relates to organisational safety – the infrastructure of policies, procedures and processes to protect Sue Ryder, patients and its staff. Within Sue Ryder, policies are available relating to prescribing, checking and administration of controlled drugs, the reporting of drug errors and mandatory annual training in medications management. These are in addition to training on specific competencies such as management of syringe drivers.

The checking, including counting drugs out, was raised as an important safety net in the event of an error which led to drug wastage or the rare circumstances of staff with drug misuse issues:

> *"I suppose it only becomes a problem when someone's misusing the drugs and I've never had that personal experience of knowing a colleague" (T6)*

Some comments identified the role of professional guidelines to support nurses. The use of namebands for patients was also regarded as improving patient safety. Transcripts focused on having, or needing to have, and follow Charity policies and procedures relating to SNAD, though these were seen as parallel to, and supportive of, individual professional accountability:

> *"So the rules and regulations are there but you have an individual responsibility" (T4)*

The supportive culture of Hospice 1 emerged both in terms of encouraging staff undertaking SNAD to check with colleagues in situations where they are unfamiliar or uncertain, as well as in the reporting of any drug errors. Some participants compared their previous experiences of the management of drug errors in other organisations/services and described the culture of the

hospice as nurturing and supportive. The option to be able to double-check or to ask for support valued highly in terms of both mitigating anxiety and ensuring safety:

"…because of the nature of the situation in the community at that point if you got it wrong, you were .. they would have you, but here it's very supportive and if you make a mistake you deal with it and then you go to training when you do to prevent it again" T6)

Although participants reflected that the organisation is supportive, this may have been biased by the fact that the interviewers were also employed within the organisation. The positive reflections about organisational culture should not, therefore, be seen as a reason for complacency in this important area.

All participants considered it important to be able to opt out of SNAD if staff were lacking in confidence for any reason, either because of fatigue, "having an off-day", being fairly new, or not knowing the patient. This optionality appears to be an important part of staff feeling safe carrying out SNAD.

For those participants who had already undergone the transition to SNAD, there was some discussion about their attitudes towards changes in practice. SNAD was generally perceived to be something of a culture shift with one participant comparing it to going to Europe and suddenly having to drive on the "wrong" side of the road:

"It's fine to do it but I need to get my head round it. It's a different way. It's not worse or better, it"s different" (T2)

The role of the second nurse was referred to by three participants from Hospice 2. They considered that they were more likely to engage in automatic (rather than reflective) practice when another nurse was present:

"you could be trusting the other person, erm, and particularly when they're writing and you might just go and say, as you're drawing up, "Oh yeah. Yeah, yeah, OK", er, and not actually really look at the CD book properly…" (T8)

In this respect, individual responsibility was seen as being enhanced by SNAD, whereas with two nurses administering medication this responsibility could be seen as being diffused:

".. you don't rely on each other checking but it's that reassurance, whereas if it's just one of you, you have to double…… you know, I would be more zealous double checking it because it's quite a lot of responsibility on your head, per se. Not that you don't have the responsibility already but because it's you giving it out, it's you checking it out, it's you adding it up and everything else." (T9)

Limitations

Interviews were undertaken by a member of the senior management team at the other Hospice. In view of the geographical proximity of the two units it is acknowledged that interviewers may have been known to the participants. This could have resulted in less openness and honesty from participants and a desire to please the management team. In addition, despite qualitative research having different criteria for judging validity (Morse et al., 2002), the sample size of

interview participants may limit transferability. It is also recognised that such a convenience sample carries with it a potential risk of bias and limits the possibility of generalising the findings to any wider population. This study was, however, exploratory and descriptive in nature and directed towards describing and explaining phenomena locally. Qualitative research such as this usually relates to a small, selective sample because of the in-depth nature of the study and the data analysis required (Gerrish and Lacey, 2010). Generaliseability of the findings and/or recommendations beyond Sue Ryder and its services was not anticipated. It is argued, however, that the sample is representative in that the participants' views provide insights which reinforce previous published reports and may, therefore, be of value to a range of professionals directly or indirectly involved in implementing single nurse administration of controlled drugs, including service managers and educators.

Discussion

Prompt access to the relief of pain and other symptoms has been identified as an important factor in evaluation of hospice and specialist palliative care services by patients and their families (Office of National Statistics 2000, Lorenz et al., 2008, ONS, 2012). Furthermore, there is evidence that patients may wait until pain is significant before reporting it (Oliver et al., 2008) making the need for prompt response essential. A perceived lack of time is a significant contributory factor both to nurses' stress and to medication errors (Brady et al., 2009, Haigh and Ormandy, 2011). Delays in effective pain relief is a key concern for patients with cancer (Bostrom et al., 2004) and other conditions.

Reports of the negative emotional consequences of stress are supported by the literature . Two key themes considered to contribute to workload stress, burnout and compassion fatigue are workload and the emotional consequences of caring for people experiencing suffering (McVicar, 2003).   Both of these themes are apparent in the participants' descriptions of the

stresses inherent in obtaining as-required CDs for their patients. A national survey of UK hospices in 2005 found high levels of attrition in hospice nurses relating to the high levels of emotional stress and lack of managerial support (Addington-Hall and Karlsen, 2005). Participants in this study reported reduced stress as a result of making the transition to SNAD which was viewed as resulting from having more time to care.

Congruent with other literature, the number of years' of nursing experience did not appear to have any bearing on a nurse's mathematical ability to calculate a dosage. Experienced nurses tend to have greater confidence in their ability despite not actually demonstrating a higher level of ability than less experienced staff (O'Shea, 1999). Within the literature, confidence has been described as a combination of feeling relaxed with one's role and understanding the significance of the activities which comprise clinical practice (Haavardsholm and Naden, 2009, Smith, 2012).

Rowe *et al* (1998) identified that poor mathematical skills in nurses can increase the risk of drug errors. Participants all mentioned the challenge in trying to perform a calculation with another person, even though being able to articulate a calculation is arguably an essential element of nursing practice. The training sessions were considered to reduce the risk of errors, although this was a perception and had not been evidenced. The effectiveness of mathematical testing in mitigating against drug errors has not be empirically proven as such tests do not reflect performance in the real world (Armitage and Knapman, 2003). The examination could not, therefore, be said to enhance safety although it is clear that it was an important part of preparation for some staff.

Participants were keen to maintain high levels of safety through keeping SNAD optional to allow staff to self-monitor their competence on any one day. The voluntary nature of SNAD was valued

by participants and reflects a perception of an integrated safety culture within the organisation (Tamuz and Harrison, 2006). The risk of substance abuse was only mentioned in passing. This is interesting since much of the evidence underpinning organisational policies which insist on double-nurse administration relates to risk of abuse rather than risk of error.

Talk of drug errors was accompanied by participants' opinions on interruptions. Their perception that these are key contributors to drug errors is supported by the literature. Interruptions were also seen as detrimental to the quality of patient care with the potential that second nurses might be pulled out of having important conversations with patients which are seen as being a valuable and important aspect of hospice care. This is also supported by previous literature (Bennett et al., 2010, Hopkinson and Jennings, 2013) alongside participants' ambivalence about the role of the second nurse. Armitage (2009), for example, observes that double checking may not involve active appraisal particularly when one of the nurses is more senior than the other.

Unsurprisingly, a positive workplace culture, such as that experienced by participants in Hospice 1 following the introduction of SNAD, has been shown to be inversely associated with medication errors (Sears et al., 2013, Kirwan et al., 2013). This reinforces the comments made relating to the sense of safety within the organisation by all participants.

Conclusion and Recommendations

In conclusion, this qualitative study aimed to examine Registered Nurses experiences of, and perceptions about, SNADs in in-patient units at two hospices. It appears that, overall, nurses could express the benefit to patient and family care as a result of the implementation of SNAD. They identified that this provided an opportunity to enhance the organisation and delivery of nursing care they aspired to provide through minimising interruptions and saving time. Some concerns were expressed around demonstrating competence in calculations, the potential

detrimental impact on registered nursing staffing levels and, for the night staff, the impact of limited experience or tiredness. These could be mitigated through organisational adoption of flexible approaches to SNAD, making it possible for staff to seek advice if unsure about a particular drug or dose, supporting a supportive and transparent culture. Consideration will need to be given to ensuring that initial and ongoing training are accessible to all staff. Successful implementation of practice change requires an understanding of potential barriers, including the attitudes of staff towards change.

For the Charity, the organisational impact of implementing SNADs might be demonstrated through the development and monitoring of key performance indicators including:

- Time from request for analgesia to administration

- Reporting of drug errors

- Improvements in patient/family satisfaction with pain management

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