CLINICAL CORNER

Promoting rest using a quiet time innovation in an adult neuroscience step down unit

By Tara Bergner, RN, BN, MHS, CNN(c)

Abstract
Sleep and rest are fundamental for the restoration of energy needed to recuperate from illness, trauma and surgery. At present hospitals are too noisy to promote rest for patients. A literature search produced research that described how quiet time interventions addressing noise levels have met with positive patient and staff satisfaction, as well as creating a more peaceful and healing environment. In this paper, a description of the importance of quiet time and how a small but feasible innovation was carried out in an adult neuroscience step down unit in a large tertiary health care facility in Canada is provided. Anecdotal evidence from patients, families, and staff suggests that quiet time may have positive effects for patients, their families, and the adult neuroscience step down unit staff. Future research examining the effect of quiet time on patient, family and staff satisfaction and patient healing is necessary.

Keywords: noise, hospital, quiet time, rest, patient satisfaction

Une innovation au sein d’une unité de soins courants en neurosciences pour adultes : favoriser le repos à l’aide des moments de calme

Résumé
Il est essentiel de dormir et de se reposer afin de récupérer l’énergie nécessaire à se remettre d’une maladie, d’un traumatisme ou d’une intervention chirurgicale. À l’heure actuelle, les hôpitaux sont trop bruyants pour permettre aux patients de se reposer. Une étude de la documentation a mis en évidence des recherches décrivant à quel point les interventions qui favorisent les moments de calme en réduisant les niveaux de bruit ont reçu un accueil positif auprès des patients et du personnel et ont donné lieu à un environnement plus paisible et propice à la guérison. Dans ce document, nous décrirons l’importance des moments de calme, ainsi que la façon dont cette innovation modeste mais réalisable a été mise en place dans l’unité de soins courants en neurosciences pour adultes d’un important établissement de soins de santé tertiaires canadien. Les témoignages des patients, des familles et du personnel indiquent que les moments de calme ont eu des effets positifs sur les patients, leur famille et le personnel de l’unité. Il est nécessaire de mener de plus amples recherches concernant les effets des moments de calme sur les patients, la famille, ainsi que sur la satisfaction du personnel et la guérison des patients.

Mots-clés : bruit, hôpital, moment de calme, repos, satisfaction des patients

I know that I will feel better when I go home, where it is quiet, because there I can finally get some rest.

C.F., personal communication, Patient in Adult Neuroscience Step Down Unit, Health Sciences Centre (HSC), Winnipeg, Manitoba

Sleep and rest are fundamental for the restoration of energy that is needed to recuperate from illness, trauma and surgery (Fontana & Pittiglio, 2010). However, in the present state, hospitals are too noisy to facilitate this for patients (Mazer, 2006). On average, an adult requires six to eight hours of uninterrupted sleep each night to be able to function. In a hospital, a patient might only receive eight minutes of continuous sleep (Lower, Bonsack, & Guion, 2003). Adequate sleep has a positive influence on blood pressure, the pain experience and emotional well-being (Gardner, Collins, Osborne, Henderson, & Eastwood, 2009). Conversely, sleep deprivation has been shown to cause many adverse physiological changes including immune system depression, respiratory changes, vasoconstriction of peripheral blood vessels, gastrointestinal motility changes, increased muscular tension and increased heart rate and blood pressure (Dennis, Lee, Knowles Woodard, Szalaj, & Walker, 2010). As well, psychological changes including depression, delirium, anxiety and confusion may affect recovery (Lower et al., 2003).

Since the time of Florence Nightingale, nurses have known a quiet, restful environment is required for healing to occur (Murphy, Bernardo, & Dalton, 2013). However, since the 1960s this has been increasingly difficult to provide because of the amount of noise within hospital units, especially with the constant evolution of technology and its incorporation into the care of patients (Xie, Kang, & Mills, 2009). In this article, we describe development, implementation and anecdotal feedback related to a quiet time innovation implemented on an adult neuroscience step down unit (ANSDU), undertaken to address noise levels and the difficulty caused in relation to patient rest.

Background
In 1999, The World Health Organization (WHO) recommended that the average noise level in a patient’s room should not exceed 35 dB (Berglund & Lindvall, 1999). Researchers have found levels of noise in hospitals range from 50 to more than 100 dB (Darbyshire & Young, 2013; Konkani & Oakley, 2012; Murphy et al., 2013; Ryherd, Waye, & Ljungkvist, 2008; Xie et al., 2009). Comparatively, the noise level associated with normal living, talking or having a radio play in the background is 50 dB, while standing beside a running motorcycle, two-stroke chainsaw, or pneumatic drill measures 100 dB (Darbyshire & Young, 2013).
In the neuroscience patient population, the constant and excessive noise that decreases sleep and rest has potentially devastating physiological effects. Noise increases a patient’s intracranial pressure which, if unaddressed, can lead to the patient’s death (Hickey, 2009; Tymianski, Sarro, & Green, 2012). A fundamental nursing measure implemented when a patient exhibits signs and symptoms of increased intracranial pressure is to decrease stimulation and noise by caring for the patient in a quiet, darkened room, thus lowering the patient's intracranial pressure (Woodrow, 2000).

**Synopsis of the literature related to noise in hospitals**

Noise in hospitals has been reported as three times the recommended level (Berglund & Lindvall, 1999; Darbyshire & Young, 2013; Konkani & Oakley, 2012; Murphy et al., 2013; Ryherd, Waye, & Ljungkvist, 2008; Xie et al., 2009). We conducted a review of the literature to determine what research disclosed about the impact of noise in hospitals, as well as approaches to mitigate these noise levels.

A study related to noise levels and perceived work environment in a neurological intensive care unit was completed in 2008 in Sweden (Ryherd et al., 2008). This research provided a thorough description of noise levels in intensive care units and how that noise could be disruptive to the occupants, but did not provide any interventions to mitigate it (Ryherd et al., 2008). Research from Australia described how noise was a barrier to sleep for patients in an acute care hospital, and how a scheduled quiet time intervention met with positive patient, visitor and health professional satisfaction (Gardner et al., 2009). This research demonstrated quiet time was a positive intervention with a direct correlation to the noise level and the patient sleep/wake pattern (Gardner et al., 2009).

Over the past nine years, researchers have indicated that hospital personnel in the United States have been aware of the negative impact on patient satisfaction caused by constantly high noise levels and how some health care facilities have adopted the philosophy of a quiet environment to promote healing (Boehm & Morast, 2009; Fisher, 2008; Kirkie, 2008; Murphy et al., 2013; Shattell, Hogan, & Thomas, 2005). Implementation of quiet time programs has been described in the literature. While the specifics of time of day differ depending on the hospital and the patient population, the purpose is the same (Fisher, 2008; Kirkie, 2008, McManis, 2008). Hospitals are too noisy to allow patients the opportunity to rest and heal, and the provision of a quiet environment promotes achievement of these goals (Fisher, 2008; Kirkie, 2008; McManis, 2008).

While literature from Sweden, Australia and the United States describes the benefits of providing a quiet environment for patients to heal, particularly patients with neurological issues, no published research on the adoption of a quiet time environment in Canadian hospitals is available (Boehm & Morast, 2009; Fisher, 2008; Gardner et al., 2009; Kirkie, 2008; Ryherd et al., 2008; McManis, 2008; Murphy et al., 2013; Shattell, Hogan, & Thomas, 2005). The purpose of this paper is to describe a quiet time innovation in one Canadian health care institution.

**Quiet Time Innovation**

**Motivation for innovation**

After attending the Canadian Association of Neuroscience Nurses (CANN) Annual Board and Scientific Session in Ottawa, Ontario in 2011 it became apparent from discussions with neuroscience colleagues across Canada that the patients cared for in our ANSDU would benefit from a quiet time intervention. Two nurses who formed a quiet time working group developed and implemented this innovation in an ANSDU, which is located in a large tertiary care facility in Winnipeg, Manitoba.

**Steps taken to gain innovation support**

The two nurses who formed the quiet time working group gained support for this innovation from the management and administrative team by developing a project plan that was based on the literature review and concerns expressed by patients and families. This project plan was presented to the ANSDU clinical manager, who found merit in the innovation and shared it with the surgery director. The surgery director also believed this was a worthwhile innovation and was successful in gaining executive support from the chief nursing officer for a trial in the ANSDU.

**Patient population**

**Patient characteristics.** The patient populations cared for in this ANSDU have a multitude of neurological issues including: brain tumours, cerebral aneurysm, traumatic brain injuries, spinal cord injuries and spinal cord tumours. They are critically ill and require invasive intracranial pressure monitoring, as well as frequent neurological and hemodynamic assessments.

Admission to the ANSDU is usually unexpected, often as a result of an accident or medical emergency. Due to the severity of the neurological issues and the unpredictability of patient outcomes, the number of staff required to interact with the patient is extensive. For example, a patient admitted to the unit post surgically for a brain tumour removal will require assessments by nursing, physiotherapy, occupational therapy, nutritional services, and the cancer care social worker, as well as the neurosurgical team who performed the surgery. This list of individuals does not include other members of the health care team who may be consulted or the patient’s support network. One can see that the number of interactions for a patient is numerous.

**Setting**

**Physical environment.** The unit targeted for the quiet time innovation was an ANSDU. The unit is one large room with the nursing station located in the centre. Eight patient beds are placed around the central nursing station in a horseshoe shape. Due to limited space, curtains separate patient beds. Two rows of windows are situated next to six of the eight beds, which have window coverings to decrease the sunlight coming through them. Bedside and central nursing station lighting exist and can be controlled independently of one another. A double door separates the step down unit from the 20-bed general ward.
**Noise level.** Despite the small physical size of the unit, two fire alarm bells are present. Each patient bed space has a hemodynamic monitor, used to monitor the patient’s cardiac rhythm, blood pressure, oxygen saturations, intracranial pressure, central venous pressure and respiratory rate. All of these parameters require alarms associated with them and a hospital executive directive states the alarm volume cannot be less than 60% of maximum at any time (C. Farmer, personal communication, September 6, 2011). Further alarms from intravenous pumps, enteral feeding pumps and bed exiting alarms contributed to the noise level, as well as nursing interventions such as the suctioning of patients. The step down unit has an occupancy rate greater than 90%, meaning at least seven patients nursed in the step down unit have invasive monitoring and require frequent assessments and interventions.

The ANSDU is to provide the best possible environment and opportunity for a patient to heal. However, the constant interactions between individuals (e.g., patients, staff, visitors) and the alarms from the equipment make the noise level in the step down unit deafening. With all this information in mind, the quiet time working group developed a quiet time innovation to address the noise and its impact on patients’ ability to rest.

**Engagement of individuals involved in the innovation**

It was a priority of the quiet time working group that all individuals impacted by this innovation were aware of its implementation and its rationale (Langton, Robbins, & Judge, 2013). To begin, nursing staff, ancillary staff, medical team, and allied health professionals received education sessions focusing on the impact of constant noise and stimulation on the neuroscience patient population and the detrimental effects of sleep deprivation. These education sessions occurred in an informal setting, often only taking 10 minutes in a location that was convenient for the staff. All members of the team were supportive of the quiet time innovation and felt it would be beneficial to the patient population in the ANSDU.

To educate other important members of the team including the patient, families and visitors, the quiet time working group developed posters and a brochure describing the purpose of quiet time and what it was to look like. These posters were placed at each patient’s bedside and the bedside nurse or unit assistant distributed a brochure to each patient/family member/visitor upon admission to the unit.

**Components of the quiet time innovation**

Following recommendations described in the literature, the time between 1400 and 1600 was designated as quiet time. This time period corresponds with a natural low point in a human’s circadian rhythm, which facilitates the body’s ability to naturally rest (Dennis et al., 2010; Gardner et al., 2009; Olson et al., 2001; Ruggiero & Dziedzic, 2004). Rest was promoted by ensuring the patient was positioned comfortably and analgesia offered so pain would not disrupt rest (Gardner et al., 2009). The level of light in the step down unit during quiet time was reduced by closing a minimum of 80% of the window coverings, as well as dimming or turning off the lights at the patients’ bedside and dimming the lights at the central nursing station (Gardner et al., 2009). The curtains between the beds were closed half way so that the patient could not see the person in the next bed or be impacted by neighbouring activity or light, but nurses were still able to see the patients and determine if additional assistance or interventions were needed (Gardner et al., 2009). The double doors between the step down unit and the general ward were closed. Families and visitors were encouraged to allow the patient to rest and sleep, but were not required to leave the bedside (Gardner et al., 2009). If the family member or visitor wanted to stay, they were encouraged to be as quiet as possible. Staff was encouraged to use the quietest voice possible when communicating with patients and other team members (Gardner et al., 2009). When appropriate, the amount of routine nursing care, therapies, tests, consults and admissions were reduced during this time (Gardner et al., 2009). This was not always possible due to the high acuity and occupancy of the step down unit. Scheduling of the operating room slate often required the admission of patients during this time, but every effort was made to do so as quietly as possible so as to not disrupt the other patients’ time of rest.

**Feedback about the quiet time innovation**

While a formal evaluation of the quiet time innovation has not been conducted, anecdotal feedback received six months after innovation implementation suggests the quiet time has had a positive impact. As the primary focus of the quiet time innovation was to improve the patient’s ability to rest by decreasing the noise level in an ANSDU, the quiet time working group spoke to patients about their feelings and experiences regarding quiet time. The statements received from patients have included, “This is wonderful, what a great idea”, “I found the noise overwhelming in here, but when the lights go dim I finally have some relief from my headache” and “It gives my mom permission to leave for a little bit”. These statements imply that the patients in the ANSDU appreciate the decrease in noise level and stimulation that occurs during quiet time.

Visitors have responded stating, “It [quiet time] lets the patient get the rest that they need”; and “Now I don’t feel guilty leaving for a little bit, because I know that he is sleeping while I am gone”. This, again, demonstrates that the individuals impacted by the quiet time innovation believe it is a positive intervention and one that is necessary for the patient to heal.

Surprisingly, the quiet time innovation also seems to have positively impacted nursing satisfaction. When the quiet time working group spoke to staff they said, “This is the best part of the day”, “I finally have time to review my patient’s chart and ensure that things are not getting missed”, and “We should have a quiet time out of the ward as well”. This feedback received from the staff replicates the positive staff satisfaction described in the literature (Gardner et al., 2009). Staff, patients and visitors all appear to appreciate a quiet environment.
Conclusion

Despite the known benefits, no published research about quiet time innovations in the Canadian hospital setting exists. In this paper, we describe the importance of quiet time and how a small but feasible innovation was carried out in an ANSDU. Anecdotal evidence from patients, families, and staff suggests that quiet time may have positive effects not only for the patients, but also for their families and visitors and the adult neuroscience step down unit staff. Future research examining the quantitative and qualitative effects of quiet time will determine the impact of such innovations on patient, family and staff satisfaction, as well as patient healing beyond the anecdotal evidence presented here.

REFERENCES


Acknowledgements

The author would like to thank “Quiet Time” team members Jennifer Schneider, Wendy McDiarmid, Raj Mongru, and all the staff (allied health, neurosurgery medical team and nursing) on GA5 at the Health Sciences Centre, Winnipeg, Manitoba, for their support, enthusiasm, and commitment to the Quiet Time Innovation. Without all of you this innovation would not be where it is today. A special thanks to the patients and families in the GA5 step down unit.