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Improving communication with the use of a hands-free mobile device helps to increase the amount of time staff have to provide direct patient care

Hands-free communication to free up nursing time

In this article...

- › How hospital layout can affect staff communication
- › The impact of a hands-free communication device on the distance staff walk
- › Suggestions for improving practice

5 key points

- 1** Single-occupancy rooms on hospital wards can make communication between nurses difficult
- 2** Hands-free mobile devices may improve communication and save time by reducing the distance staff need to walk
- 3** Healthcare staff have said they prefer communication devices that allow them to stay mobile
- 4** Current hospital communication systems, such as pagers, are problematic
- 5** In this study, the distance staff walked during their shift reduced by an average of 19.8%

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Abstract Pemmasani V et al (2014) Hands-free communication to free up nursing time. *Nursing Times*; 110: 13, 12-14. The design of a hospital, including how the beds are spaced and where clinical areas and supplies are located, affects the amount of time staff spend walking around wards instead of spending time with patients providing direct clinical care.

A number of technological solutions are emerging that have the potential to reduce unnecessary walking and give nurses more time to spend with patients. One is the Vocera, a hands-free mobile voice communication system.

This article discusses whether this device reduces the average distance staff walk during a shift and their experiences of using it. The study was undertaken on a 32-bed ward with all single-room en-suite accommodation. The distance staff walked reduced by an average of 19.8% when the device was used. However, semi-structured interviews showed that signal reception and voice recognition need further development.

This study adds to a growing body of evidence that hands-free communication devices free up nursing time by increasing the effectiveness and efficiency of communication on inpatient wards.

Hospital nurses can spend a significant amount of time walking around the ward to find and communicate with other staff and coordinate clinical care. The design of hospital wards, including the spacing of beds and location of clinical areas and supplies, can enhance or hinder communication between staff and affect the amount of time staff spend on walking rather than on providing direct care.

Technological solutions have the potential to improve communication and reduce unnecessary walking, freeing up nursing time (Duncan and Shabot, 2000). Hands-free voice communication devices in particular can improve communication between staff, without users having to use their hands to take and make telephone calls (Richardson and Ash, 2010; 2008).

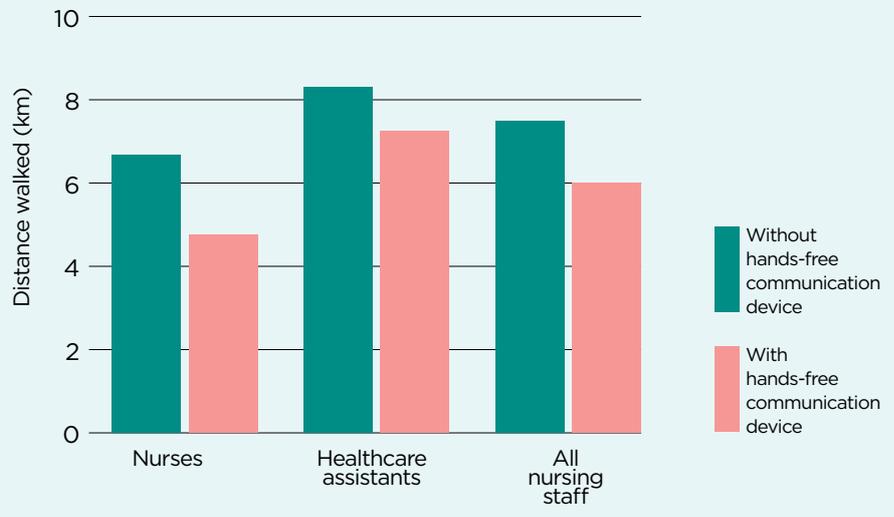
Previous research suggests health professionals prefer communication technology that allows them to remain mobile, work flexibly and contact other staff without needing to stop what they are doing (Richardson and Ash, 2008). However, current hospital communication systems, such as pagers, often suffer from poor signal reception, low battery life and electromagnetic interference from medical equipment (Taylor et al, 2004). Vocera (Fig 1) is a hands-free communication device that aims to overcome these issues. It can be clipped to clothing or worn around the neck on a lanyard and uses voice prompts to connect staff to other users without the need to remember phone numbers or hold a handset.

A number of studies have evaluated this device and found that Vocera is better than alphanumeric paging systems at

FIG 1. THE HANDS-FREE COMMUNICATION DEVICE



FIG 3. AVERAGE DISTANCE WALKED DURING A 7.5-HOUR SHIFT



Technology can free up time for care

FIG 2. AVERAGE NUMBER OF STEPS TAKEN DURING A SHIFT

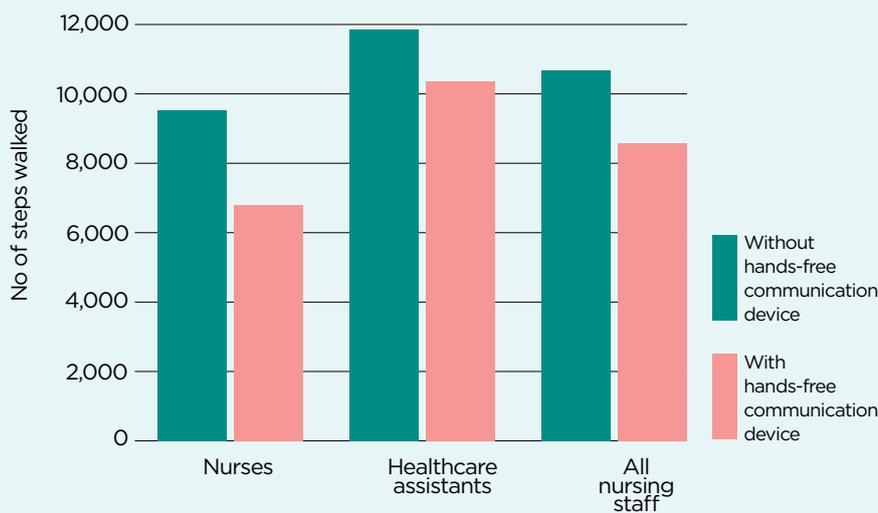


TABLE 1. NUMBER OF STEPS AND % REDUCTION

Type of staff	Average no of steps walked		Reduction
	Without device	With device	
Nurses (n=4)	9,522	6,808	2,714 (28.5%)
Healthcare assistants (n=8)	11,858	10,358	1,500 (12.6%)
All nursing staff	10,690	8,583	2,107 (19.8%)

improving the efficiency of care delivery in hospitals (Forrester et al, 2011; Vandenberg et al, 2009) and in a perioperative environment (Jacques et al, 2006). However, the device has not been assessed in a large ward with all single-room en-suite accommodation.

Aim

The aim of this study was to evaluate whether using a hands-free wireless voice communication system reduces the distance walked by nursing staff in a ward with single-room, en-suite accommodation. Two outcomes were compared while staff were and were not using the device:

- » The average number of steps taken during a 7.5-hour shift;
- » The average distance walked during a shift.

These outcomes were assessed in groups of nurses and healthcare assistants. Semi-structured interviews were also used to assess whether the device affected nurses' working patterns, their perceptions of the device and their satisfaction with it.

Method

The study was undertaken in a 32-bed orthopaedic rehabilitation ward (Ebbw Ward) at the Aneurin Bevan Hospital in Eddw Vale, Wales. The ward has two corridors forming a V-shape and each corridor has 16 en-suite bedrooms.

The corridors are identical in terms of layout and have a similar patient case mix. Ebbw Ward was chosen because of concern that this type of ward layout presents communication difficulties for nurses and HCAs. A total of 12 staff – four nurses and

TABLE 2. THEMATIC ANALYSIS OF INTERVIEWS

Theme	% of participants commenting on theme	Example of comments
Ease of use	100	"It is simply a great gadget and it makes our work so easy, especially finding my colleagues on the ward"
Reliability	58.3	"As long as it works it's fine, but sometimes the Vocera can be unreliable to use in some areas of the ward"
Voice recognition	75	"Sometimes it can be a nightmare to call... [and] then the Vocera can't recognise the voice"
Communication access	100	"It is so easy to call and contact my colleagues working in the other rooms on the ward"
Walking	66.6	"Vocera makes our life so easy, especially with all the walking we do"

eight HCAs – took part in the study.

In the first phase of the study, all participants wore pedometers to measure the number of steps taken on the ward during two consecutive early shifts. On the first morning, participants on one corridor wore the hands-free communication device and staff on the other corridor did not. On the second day, the device was used by participants on the other corridor. At the end of the shift, the staff nurse in charge of the shift confirmed that no unusual incidents had occurred that might have significantly influenced the nurses' activities. The average number of steps walked and distance travelled with and without the use of a hands-free communication device was recorded.

For the second phase of the study, we undertook semi-structured interviews with the 12 participants based on two questions:

- » "What do you like most about the Vocera?"
- » "What do you like least about the Vocera?"

Results

The average number of steps walked by the nurses during a shift decreased by 2,107 steps, from 10,690 without the communication device, to 8,583 with it. The average distance travelled during a shift reduced by 1.48km, from 7.48km without the device to 6.0km with it, an average reduction of 19.8% (Table 1; Figs 2 and 3).

The themes identified from the semi-structured interviews are shown in Table 2.

The majority of participants expressed satisfaction with the device in terms of ease of use, communication access and reduction in walking distance. However, the results also showed there were poor network coverage in parts of the ward and occasional voice recognition problems. Five themes were identified:

- » Ease of use;
- » Communication access;
- » Reliability;
- » Voice recognition;
- » Walking distance.

Discussion

We found that, in a typical 7.5 hours early shift, each nurse using the communication device could save an average of 20.5% of their working time. This is consistent with another study (Vandenkerkhof et al, 2009), which found the use of a hands-free communication device reduced the amount of time nurses spent on major communication activities by 25%; this study also noted a greater reduction in the distance travelled by nurses than by HCAs.

The majority of staff interviewed were satisfied with the communication device's ease of use, communication access, and the reduction in walking distance during their shifts. Seckman et al (2001) also found a high level of satisfaction on the ease of use, impact, and usefulness of wireless communication technology. The hands-free communication device also has the potential to reduce the spread of infection as staff are able to operate it without touching them.

A thematic analysis of the interviews found two main limitations of the device – poor network coverage in some parts of the ward and voice recognition problems. Similar concerns have been noted in other studies (Richardson and Ash, 2010; Jacques et al, 2006). This study was conducted using Vocera's B2000 communication badge; however, address voice recognition concerns and increase overall performance, the manufacturer introduced an upgraded version of this product (B3000).

Given the global shortage of nurses, devices that can increase the efficiency of communication are welcome, particularly as national guidance on hospital design increasingly recommends single-room, en-suite accommodation for patients (Hutton, 2004), which increases the distances staff need to walk.

Conclusion

This small-scale study adds to existing evidence that the average distance travelled by nursing staff can be reduced by hands-free voice communication devices. It also shows how technological solutions can be readily integrated into clinical practice to help free up nursing time and contribute towards better patient care. **NT**

Conflict of interest: none

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