

Identification of unplanned activity in a regional home dialysis training unit

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Abstract

Aim: To investigate how much time was taken by unplanned activities within a home dialysis training centre.

Background: Training patients for home dialysis is frequently interrupted by unplanned events, which impact on home training.

Method: This study was a quality improvement project conducted over a four-week period. Data was collected during this period and included the number of telephone calls and unexpected visits from home dialysis patients into the home dialysis training unit.

Results: Findings from the study reported a total of approximately 24.5 hours of staff time was taken for unplanned activities during the four-week period of data collection. The unplanned activities included: technical troubleshooting; issues around fluid management; medication prescriptions; and monthly blood forms.

Conclusion: Unplanned activities take a substantial amount of staff time and there are a range of potential changes to work practices that may assist in minimising this unplanned activity. Reducing unplanned activity time would allow more time for teaching patients the home dialysis procedure, resulting in reduced training times.

Keywords

Access adequacy, nursing staff, haemodialysis, renal clinic, unplanned activities.

Introduction

The Australian Government Department of Health is promoting home dialysis vigorously at the present time. Home-based dialysis is encouraged based on evidence of enabling a better quality of life (Agar *et al.*, 2010), as well as benefiting the health care system with a dramatic decrease in the costs of renal replacement therapies — particularly those within the acute care hospital sector (Howard *et al.*, 2009). The primary aim of a home training unit (HTU) is to train and educate people with end-stage chronic kidney disease to dialyse safely within their own homes. However, telephone calls and unexpected visits from patients who are already dialysing at home impacts on the time available for staff to teach patients who are in their training period, and as a consequence their home dialysis training period is increased.

A single HTU in a major regional centre of NSW which caters for 68 home dialysis patients was chosen to investigate unplanned activity in the unit. This HTU caters for both

peritoneal dialysis (PD) — including both continuous ambulatory peritoneal dialysis (CAPD) and automated peritoneal dialysis (APD), and haemodialysis (HD). As with any HTU, a major nursing staff role is to undertake regular and planned assessments of each home dialysis patient's competency to ensure a safe and efficient home dialysis program. The HTU does not have a pre-emptive home dialysis visiting program in place at the present time; however, home patients are expected to contact the HTU if they are having difficulties at home which are related to their dialysis. The HTU service is available from 0800 to 1630, Monday to Friday and there is an on-call service thereafter. This may result in telephone calls to the HTU at irregular times, and drop-ins to the HTU for advice and/or assistance — especially if the patient is attending a renal clinic and/or seeing their renal physician. These are categorised as unplanned activities and interrupt the primary function of the HTU — that of training people for home dialysis. These activities in general are not included as part of the daily workload for the nurses in the HTU as they are somewhat

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Identification of unplanned activity in a regional home dialysis training unit

difficult to plan for. Therefore an investigative study was initiated to identify the number and character of the unplanned activities, and to identify what impact they have on the primary function of the HTU.

Background

Home dialysis is the preferred option for those with ESKD and in Australia home dialysis is undertaken by 3,015 people, which accounts for 27.4% of all dialysis-dependent patients (ANZDATA, 2012). Home dialysis is much more popular in Australia than in the United States where there are very few patients on home dialysis programs (6.6% of all dialysis patients are on peritoneal dialysis) (United States Renal Data System, 2012). Education and training are a vital part of the HTU in ensuring safety for those who dialyse at home and although interruptions are inevitable in any field of nursing, in an HTU they can extend the length of training time as well as risk diminishing the amount of information that the patient takes in.

There is a substantial amount of information on general interruptions to nursing (particularly related to medication administration) and the frequencies have been identified in numerous studies; however, there was limited literature (Redding & Robinson, 2009; Baker, 2010) in relation to training of patients and phone call interruptions as a specific issue. Patients would not 'drop in' until there were significant issues (for example, when an infection was already present) whereas a dedicated home patient visiting service would have detected these issues earlier (Kennedy, 2009). There is no literature on unplanned patient visits as an interruption to workload, nor the impact such interruptions would have on patient education.

The HTU nursing staff has a diary which identifies the work planned for that day. This may include patients who have called to say they need to come to the HTU for a review or a blood form; if this has been flagged with a staff member then it is a planned activity. The unplanned activities that occur in the HTU are primarily telephone calls from patients and/or their carers or patients dropping in for any reason without prior notification to staff. Less common unplanned activity is the overflow from the renal clinic involving patients who require admission or procedures, and overflow from the in-centre HD unit.

In general, home dialysis patients are visited by the HTU nurses on an ad hoc necessity basis; for example, when a patient first dialyses at home. However, it is strongly recommended that these visits should be a regular and planned occurrence to allow for the early identification and intervention to reduce risk of negative outcomes for the patient; such as hospital admissions (Pearson *et al.*, 2006). The benefits of hospital in the home programs, whereby nurses attend to the patient in their

home, include improving the efficiency of hospital beds and minimising the resources required for patients to attend hospital (Tran & Taylor, 2009). If HTU could minimise unplanned activity, then planned home visits could be more frequent. However, this could be a 'chicken and the egg' phenomenon; for example, a regular and planned home visiting service would decrease the unplanned activities. As a consequence of the lack of literature reporting the impact of unplanned activities in HTUs, we conducted a small, single-site study to investigate how much time was taken by unplanned activities in a regional HTU.

Methods

Design

A cross-sectional and descriptive study was undertaken to investigate unplanned activity within one HTU in a major regional centre of NSW. This study was a quality improvement activity for the chosen HTU; because of this there was no requirement to obtain formal Human Research Ethics approval. However, approval to conduct this study was obtained from the Medical Director of the Department of Renal Medicine and the Senior Renal Nurse Unit Manager, and the Quality and Accreditation Unit of the Area Health Service. The methodology for this activity was a quantitative and qualitative approach.

Participants

Participants included all home dialysis patients under the care of the one HTU. This involved a total of 68 patients, of which 50 were on PD and 18 were on HD. The data collection required for this project was associated with the daily role of the HTU nursing staff; therefore, consent from individual patients was not required (Schneider, Whitehead, Elliot, Lobiondo-Wood & Haber, 2007). Further, no information recorded which identified any individual patient.

Data collection tool

The audit tool was designed by the researcher based upon the observation and involvement in unplanned activities of the chosen HTU. Further the researcher had collaborative discussions with the senior nurse unit manager, the unit's nurse educator, and the HTU nursing staff regarding the design and content of the tool. The audit tool collected information from telephone calls to the HTU by patients and from HTU staff when follow-up calls following an unplanned activity was required where the purpose of the phone call and the unplanned patient visits was recorded. The time taken for each event was also recorded on the audit tool in minutes.

Identification of unplanned activity in a regional home dialysis training unit

Procedures

The audit tool was secured next to each phone in the HTU nurses' station over the four-week period of data collection between the hours of 0800 and 1630 hours, Monday to Friday. Data was collected for a full month, equating to 20 working days, as there are certain periods throughout the month that are known to be busier times, such as monthly blood collection and stocktake from home patients. All unplanned activity by means of phone calls and unplanned patient visits were recorded on the audit tool. Four registered nurses collected the data over the audit period (two full-time nurses and two part-time nurses equating to two–three staff per shift).

At the completion of the four-week data collection period it was recognised that a review of the number of routine monthly phone calls made to patients during the data collection time frame would be useful for this study.

Data analysis

The data was analysed using simple descriptive statistics such as frequencies, and the mean and standard deviation for particular variables. This analysis was via the use of formulae within the Excel program of Microsoft Office version 2010. Data which was considered to be of a qualitative nature (such as the reason for a phone call) was analysed using a simple thematic analysis frame to determine the most common reasons of all unplanned activity which occurred during the data collection period. After identifying common reasons from the data collection, the unplanned activities were then grouped into major themes.

Results

Data was collected on 14 full days, three half days, two incomplete days and one missed day.

A full day of data collection refers to the working hours of 0800–1630 with the complete day of interruptions being documented. Days that were preempted to be too busy for a full day of data collection due to the planned workload, were allocated to a half-day, the expected busiest time frame for interruptions for the data to be collected. This was between 0830 and 1130hrs for a half day of data collection. An incomplete day was a day that was not preempted, but instead an unexpected heavy workload. On these days data was collected sporadically throughout the day between the working hours of 0800 and 1630. A missed day was a day where no data was collected either due to understaffing or unexpected workload. Figure 1 shows the days of data collection which are grouped into weeks 1–4. This was to determine if there was any particular week in the month which was the busiest time for interruptions for staff to be able to collect the data. As can be seen, week 4 had more incomplete days than the other weeks, whereas week 1 had more half days for data collection.

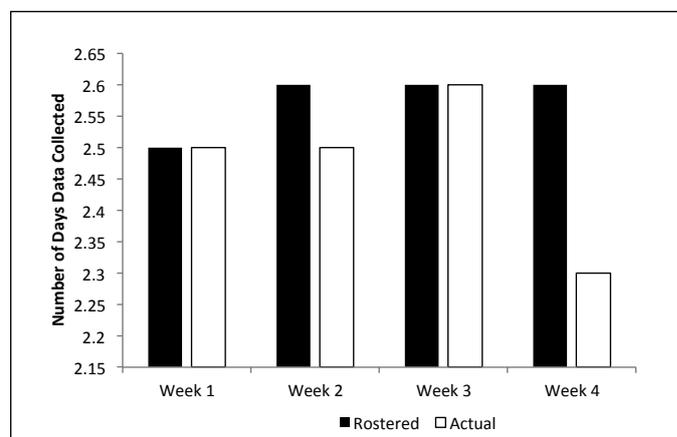


Figure 1: Four-week data collection period

During the data collection period, the staff rostered to work in the HTU and the actual staffing of the HTU differed (Figure 2). The staffing for the data collection period was between 2.5 and 2.6 FTE, at the time of the study the funding for staffing was 2.6 FTE. However, in week 2 a staff member was on leave, dropping the staffing for the week to 2.5. Fewer staff impacted on the data collection due to increased workload per staff members. This is most evident in week 4 where staffing levels dropped to 2.3 FTE due to sick leave, thus week 4 was the only week that contained incomplete days of data collection.

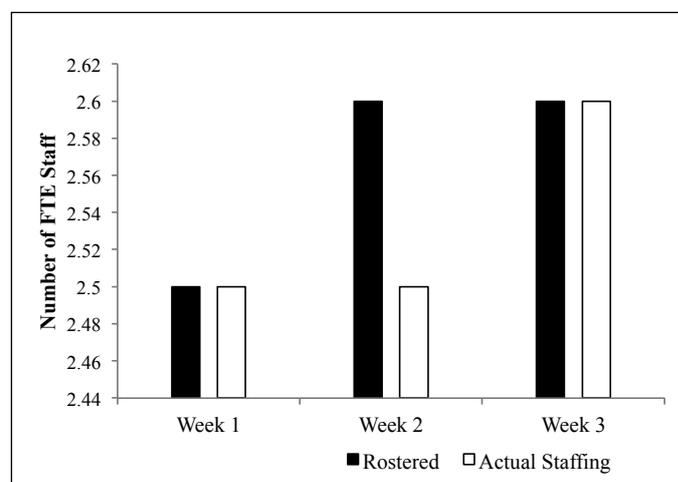


Figure 2: Staffing of HTU during data collection period

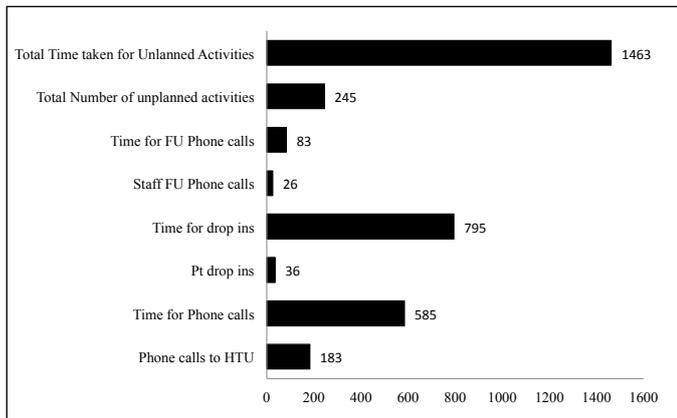
HTU activity

Unplanned activity

Figure 3 shows the number of interruptions (unplanned activity) that occurred during the data collection period and the time taken for these activities in minutes. The total number of phone call interruptions was 183, 3 unexpected patient drop-ins, 26 staff follow-up calls which accounted for a total of 245 unplanned activities.

Phone calls from patients took a total time of 585 minutes for 183 calls, which is an average of 3 minutes per call. The average

Identification of unplanned activity in a regional home dialysis training unit



Note: Pt = patient; F/U = follow-up; Category units for time taken for various activities are in minutes patient; F/U= follow-up; Category units for time taken for various activities are in minutes

Figure 3: HTU unplanned activities during data collection period

time for a staff follow-up phone call was also 3 minutes. The time taken for the unexpected patient drop-ins was 795 minutes in total, which is an average of 22 minutes for each of these drop-ins. However, the total time taken for all the unplanned activities which the HTU staff had to deal with during the data collection period totaled 1463 minutes, or approximately 24.5 hours, or just over 3 x 8-hour shifts. This time was compounded by lower levels of nursing staff at stages during the data collection period, due to leave previously discussed.

The time period in which the unplanned activity occurred was categorised into two hourly intervals from 0800 to 1630 hours to determine the busiest time of day for unplanned activity. As can be seen in Figure 4, almost 63% of unplanned activity occurred between 0800 and 1200 hours (68.9% of phone calls and 78% of drop-in visits) of the data collection period. This period is the busiest for the HTU as this time is also when patients are being trained and educated regarding home dialysis, whether it be HD or PD.

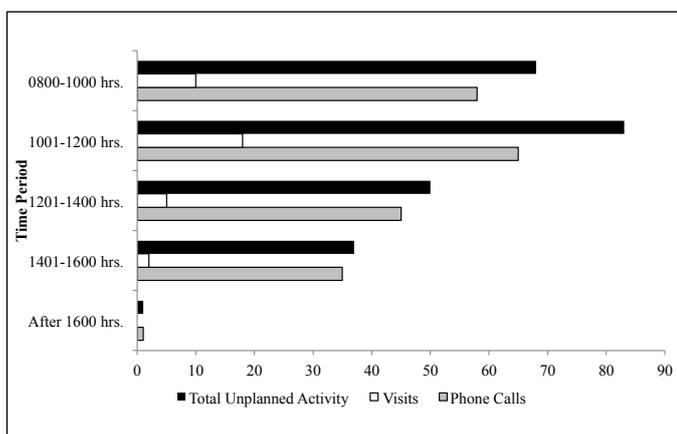


Figure 4.: Time categories of unplanned activities to HTU

Reasons for the unplanned activities

The unplanned activity was categorised into the eight common themes which can be seen in Figure 5 and included: bloods/pathology, stock, medications/pharmacy, technical troubleshooting, fluid issues, patient/carer/nursing home concerns, patient reminders/instructions, health professionals/colleagues, miscellaneous and missed calls. As can be seen on Figure 5 the majority of the unplanned activities were related to collaborating with other health professionals and colleagues. This was closely followed by ‘miscellaneous, activities, which included non-clinical issues such as: wrong area (in-centre HD required), roster-related and on-call staffing, drug company representatives or holiday patient queries. There were also a lot of missed calls,

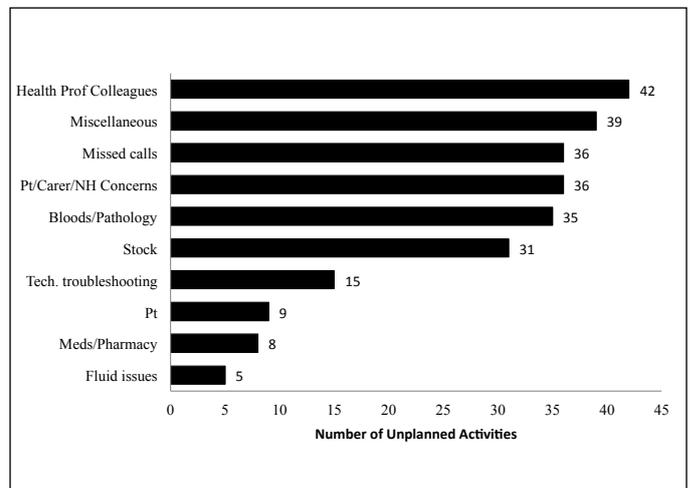


Figure 5: Reasons for unplanned activity

which were documented when staff were unable to get to the phone in time.

Time taken for each identified theme

The amount of time that was taken for each individual theme was identified in minutes per theme (Figure 7). There were 10 separate occasions that a patient had contacted the unit for two of the themes and one occasion that a patient contacted the HTU for three of the themes in one unplanned visit or telephone call. For these 11 situations the time taken was divided into the two to three themes that the patient had contacted the HTU for. Although there were eight themes, the miscellaneous accounted for a substantial number and was therefore divided into three groups as was conducted for Figure 6. However, the three groups for unplanned activity time included miscellaneous, health professionals/colleagues and clinic patients (Figure 6).

Interestingly, the most frequent unplanned activity was interactions with other health professionals and colleagues; however, these only accounted for 92 minutes of the time taken

Identification of unplanned activity in a regional home dialysis training unit

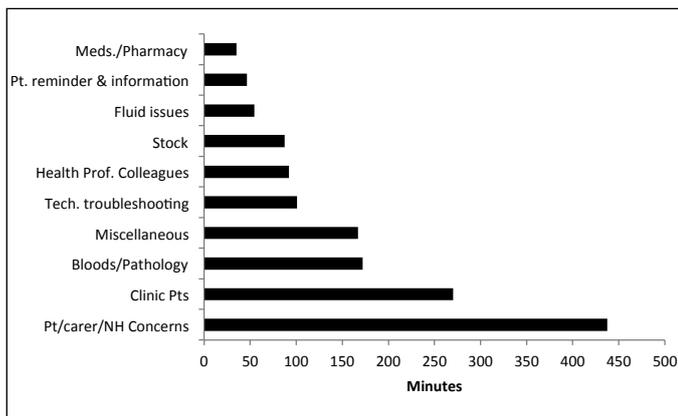


Figure 6: Time taken for individual theme

for unplanned activity. The fourth most common activity, patient carer and/or nursing home inquiries, accounted for the majority of time taken for unplanned activities (approximately 30% of the total time for unplanned activity). Each of these interactions took approximately 12 minutes. Those activities related to bloods and pathology accounted for 35 of the unplanned activities and accounted for 172 minutes of the unplanned activity time.

Discussion

A major finding of this study was the large volume of unplanned activity that occurs in the HTU. This unplanned activity contributed to both the essential and potentially non-essential workings of the HTU, based on the themes that arose from the study. The busiest time for unplanned activity to occur was during the morning, which is generally the busiest part of the day in terms of organising the shift and setting up/starting training and education.

The number of unplanned patient visits as an interruption were minimal in comparison to the number of telephone calls documented; however, the amount of time that was taken on unplanned patient visits was substantially higher than that of calls. This is comparable to Kennedy's (2009) findings that a drop-in system creates problems, as the unplanned patient visits are clearly of higher concern than that of the telephone calls due to the time taken.

Other studies (McGillis, Pederson & Fairly, 2010; McGillis *et al.*, 2010) have shown that a high number of interruptions are from the multidisciplinary team. Due to the general outlay of the unit and no doctors' rounds, it was an unexpected finding that this study reiterated what other studies had found. However, this study included all health care colleagues as the multidisciplinary team, such as secretaries and pathology, which may prove somewhat different to the other studies.

The time taken on individual themes varied greatly and often the themes that took the most amount of time were the ones which would require immediate nursing assistance, such as patient concerns. There are other themes that arose from this study which were non-immediate nursing assistance required; for example, medications/pharmacy and bloods/pathology. It is possible that activities such as stocktake and routine monthly blood tests could be planned for by nominating a particular day of the month when the stocktake will occur for all home patients, and routine blood tests could be addressed in several ways. It could be that the private pathology collection services be used and that the patients attend these, or the private collection service could attend the patient's home and collect the blood. If these alternatives are not acceptable, then plan a particular week of the month where the patients can attend the HTU for routine pathology. Themes such as stocktake and bloods may take less time as an interruption; however, focus on such themes may be a simple way to begin to decrease the overall time taken on interruptions within the HTU. Emergency calls are amongst the immediate nursing assistance required themes; however, the reason for these was not specifically documented at the time of data collection. Emergency calls are generally in relation to technical troubleshooting, fluid issues and/or patient concerns, which require telephone support immediately or transport for the patient to attend the HTU or emergency department.

As communicating and liaising with patients at home is a high priority, telephone contact is necessary (Rivera-Rodriguez & Karsh, 2010). Thirty-six unanswered calls were documented; however, follow-up for unanswered calls, for example, voice messages, was not documented in this study. These missed calls were not answered due to workload/training/inability to get to the phone in time and there were potentially more that were not documented during the data collection period. This shows that unplanned activities and current workload, in conjunction with workplace organisation, has a major impact on patient care. Taking into consideration the high volume of immediate nursing assistance required calls and the issue that these calls are potentially emergency calls that are being unanswered, there is a genuine risk to patients at home and therefore a new system is required.

Implications for practice and future research

The significance of this study is that it is a beginning investigation into the impact that multiple interruptions have on the primary functions of HTUs. The findings from this study provide an impetus for further rigorous investigative research into the impact of unplanned activity for HTUs. Further,

Identification of unplanned activity in a regional home dialysis training unit

recommendations are made for potential work practice changes to reduce the impact of these interruptions to the workload of the HTU staff, and promote better home dialysis training times. Further, the findings from this study suggest that there is a greater need for supportive care in the home dialysis context and that this is not being acknowledged by management. However, this may be more recognised in the near future as there is a major drive to promote home dialysis-based therapy across Australia.

Study strengths

This study was an original piece of work and is the first study into unplanned activity phenomena in Australian HTUs. Other units may be experiencing similar issues and can then compare their unit's work practices and environment. Therefore, this study's findings strongly encourages further research into the impact of interruptions on the functioning and work practices of home dialysis training units in Australia.

Limitations

There were many limitations to this study. These limitations related to the use of a single HTU and the short data collection period. A single HTU may not present a true picture of HTUs in general within the Australian context, as there may be different staffing mixes and different work practices required of staff for the planned workload. Strategies which may reduce the impact of these unplanned activities were not investigated in this study, which can be further researched.

Recommendations

The findings from this small, single-site study do suggest recommendations for change to work practices to reduce the impact of those unplanned activities that present to the HTU.

Firstly, changes to work practices could include the nomination of a specific registered nurse being allocated each day to be responsible for responding to any unplanned activity presented to the HTU. Furthermore, this person could also be responsible for making planned calls to home dialysis patients and following up on any concerns or issues identified.

Secondly, the introduction of the primary care nursing model which would enable the allocated 'primary nurse' to be responsible for regular assessments and follow-up phone calls for their specific patients. This would enable a 'plan' to be developed for each patient and would allow for early identification and intervention for any identified issues.

Conclusion

The purpose of this study was to identify unplanned activity in a single HTU. Findings suggest that this unplanned activity had a significant impact on the HTU, especially in relation to the time taken for these activities. There are a range of potential recommendation to changing work practice that may minimise the total number of unplanned activities in the future. By minimising unplanned activity, staff will be able to structure their workload to better cater to the home-based dialysis training program, as well as maintain regular and planned contact with all home patients.

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