

A COMPARISON OF NURSE VERSUS PATIENT/CARER ADMINISTERED HOME IV THERAPY

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Introduction

The Out & About IV Therapy Program provides home IV therapy (HIVT) for paediatric and adult patients in the Hunter Region of Australia. The majority of patients referred for HIVT require long term intravenous antibiotic therapy for serious infections. This HIVT is usually administered through a central venous catheter (PICC 80%, Implantable Port 16%, Tunnelled catheter 2%, Short term subclavian CVC 2%) and over 85% of patients receive continuous infusions. Some patient / carers administer multiple antibiotic therapy (up to 3 antibiotics) by different modes (bolus, intermittent, continuous). Suitable patients and carers have the option to decide if they want to self-administer their HIVT. We studied whether HIVT administered by patient/carers was equivalent in outcomes to HIVT administered by health care workers.

Methods

Data are entered into a computerised database in real time, commencing with admission to the HIVT service. Patients are divided into two groups: selected patients or carers who elected to administer their own infusions or bolus injections (PTC), and patients who had their HIVT administered by a health care worker (HCW), usually a visiting nurse. Readmission and early discharge rates and catheter complications that led to catheter removal were compared. Survival analysis techniques were used in Stata 10.1 software.

Results

3510 admissions involving 75,121 patient days (98% of admissions to the program from 1995 – May 2010) were complete and included in the analysis. Bone & Joint infections accounted for 50% of admissions, followed by cystic fibrosis, infective endocarditis, abscess (spinal, lung, liver etc.), wound infection, septicaemia, bronchiectasis, and 48 other conditions. There was no difference in the numbers of admissions with osteomyelitis, septicaemia, bronchiectasis & abscess between the two groups. Cystic fibrosis patients were most often self-caring (81%) $p < 0.005$.

	PTC	HCW
Admissions	1305	2205
Program days	29561	49747
Mean days	22.4	22.3
Mean age (range)	38yrs (3wks-89yrs)	57yrs (3mths- 96yrs)
Adults	34%	66%
Gender (%)	Male: 57.5%	Male: 63.8%

Table 1. Demographic details

The PTC group accounted for 37% of admissions and patient days (see table 1), had an equivalent length of stay, with fewer males. The most significant difference between the two groups was age and conditions being treated. The PTC group had a greater proportion of paediatric patients resulting in a lower mean age and a different mix of conditions.

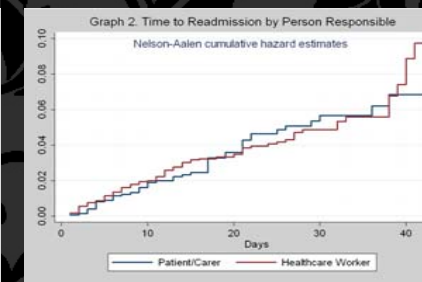
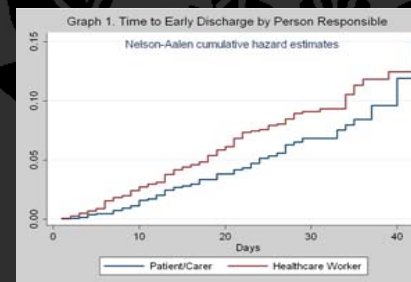
Complications

Patients with HCW managed catheters were twice as likely to have their line removed due to phlebitis, nearly three times for thrombosis, and had nearly five times the risk for accidental removal (Table 2). Rates of removal due to blockage, suspected line infection, and exit site inflammation were equivalent in both groups. Definite line infection was a rare event, with a greater hazard in the PTC group (4 infections in one patient).

The HCW group were more likely to call the on-call nurse after hours IRR 1.2 (95% C.I., 0.96-1.49) and nearly twice as likely to require a call-out to fix problems IRR 1.79 (95% C.I., 1.2 – 2.8). There was no significant difference in rates of early discharge and readmissions between the two groups (Graphs 1 & 2). There was a trend to a shorter time to early discharge in the HCW group.

Table 2. Complications

Complication (events)	Hazard Ratio HCW Managed lines	Rate per 1000 patient days	
		PTC group	HCW group
Phlebitis (92)	1.99 (1.23-3.2)	0.8	1.4
Blockage (96)	1.02 (0.68 – 1.55)	1.3	1.2
Thrombosis (28)	2.88 (1.09-7.58)	0.2	0.5
Accidental removal (25)	4.6 (1.37-15.48)	0.1	0.5
Suspected line infection (17)	0.96 (0.36-2.55)	0.25	0.2
Definite line infection (11)	0.14 (0.03-0.63)	0.3	0.04
Exit site inflammation (79)	0.96 (0.61-1.52)	1.1	0.99



Discussion & Conclusion

We have demonstrated that HIVT for serious infections can be safely administered by patients and their carers, with most complication rates equivalent or better than HCW administered care. The higher rate of definite line infection in the PTC group can largely be attributed to one long term patient with multiple co-morbidities, and remains within the lower range for blood stream infections in CVCs.

These results reflect a high standard of selection and training provided by an experienced team. We believe the results may be due to a heightened sense of responsibility when caring for one's own catheter. The advantages of PTC provision of HIVT are that it involves the patient actively in their own care, provides them with more flexibility and saves the cost of HCW time. This option can be offered to a large proportion of HIVT patients. In 2010, over 50% of our HIVT patients are self-caring.