

ISBP

Beijing

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Satellite Self Care Hemodialysis in Ontario, Canada

Preamble

- In Ontario, hemodialysis is provided in a hub and spook model
- Base hospital (regional center) provides dialysis treatments and all supportive cares including in-patient care
- Satellite units provide out-patient dialysis care close to patients' homes
- Self care means patients use the facilities but do the dialysis themselves



Mississauga Hospitals

-  Credit Valley Hospital
-  Trillium Health Centre

Self care

Why we need self care in Ontario?



Labor costs account for 80% of what government covers

Annual cost of dialysis patient in Canada

In-center hemodialysis	\$51,252
Satellite hemodialysis	\$42,057
Home/self care hemodialysis	\$29,961
CAPD	\$26,959

Lee H et al, *Am. J. Kidney Dis.* 2002; 40:611–22.

DEFINITION OF LEVELS OF CARE

- **Self Care**

Patient carries out total treatment without help. This includes cannulation.

- **Assisted Self Care**

Patient carries out the skills of dialysis without help, but needs assistance with some aspect of the treatment, such as cannulation.

- **Teaching**

Patient is actively being taught the skills needed to carry out the dialysis treatment.

Medical Supervision at Self Care Hemodialysis Satellite Unit

1. Patients are selected based on willingness to learn and specific medical standards are to be strictly adhered to, to ensure quality care and patient satisfaction in this out of hospital setting.
2. Self-care unit is for dialysis treatment only. The referring hospital continues to provide physician coverage, backup dialysis, social work, and dietary support.
3. Patients will have a mandatory clinic assessment every 2 months.

Medical Supervision at Self Care Hemodialysis Satellite Unit

4. The only drugs supplied by the self care unit are Heparin, and ESA. Other drugs may be prescribed and given into the lines during dialysis
5. If a blood transfusion is required, the cross match and transfusion will be done at the home hospital.
6. The self care unit will work in conjunction with the hospital transplant coordinator to facilitate the patient's transplant needs.

Medical Supervision at Self Care Hemodialysis Satellite Unit

8. Patients deemed incapable, or medically unstable to carry out own treatment safely, will be referred back to the home hospital.
9. Patient fails to comply with the recommended treatment regime, or policies of the self care program, will be transferred back to home hospital.
10. If urgent medical problems occur, patients will be sent to emergencies. The patient can return when stabilized

Nursing at Self Care Hemodialysis Satellite Unit

- Comprehensive self care package has been developed, and will be given to the patient and/or partner during training.
- The teaching program will be individualized to the patient's and/or partner's needs, abilities, and learning styles.
- All dialysis procedures will be taught, including cannulation.

Nursing at Self Care Hemodialysis Satellite Unit

- Primary nurse will be responsible for development of the teaching program, documentation, and communication of this information.
- Together, the nurse and patient will decide, when specific tasks may be carried out, without direct supervision.
- The primary nurse will monitor the progress of the patient, and communicate with the home hospital, as needed.

Nursing at Self Care Hemodialysis Satellite Unit

- The primary nurse will also carry out periodic reviews of procedures, and assist each patient to maintain or improve their level of competence. These reviews will be done yearly, and documented.
- Prior to any patient commencing dialysis, he or she must be assessed by a nurse.
- On a monthly basis, a nurse will review with each patient, the monthly blood results.

Pros for Satellite Self Care Hemodialysis (Provider Perspectives)

- Less costly, saving on personnel
- No need for individual reverse osmosis system like home HD patients
- Less individual technical support for water treatment and machines than Home HD
- Better and more interactions with care team
- Prompt medication, tests and psychosocial reviews
- Earlier intervention because of closer monitoring

Cons for Satellite Self Care Hemodialysis (Provider Perspectives)

- Costs of building and furnishing the unit
- Rental cost
- Utility costs
- Facility cleaning and waste disposal costs
- Still needs to pay more personnel and overall more expensive than HHD
- Less efficient than in Center HD in terms of scheduling

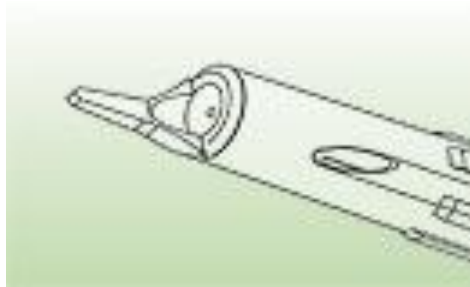
Pros for Satellite Self Care Hemodialysis (Patient's Perspectives)

- Empowerment for own treatment
- Not having to disrupt home life and environment
- Not having to pay higher utility bills
- Easier scheduling than in hospital in-center HD
- More accessible to health care providers if having problems
- Getting cannulated if self cannulation fails

Cons for Satellite Self Care Hemodialysis (Patient's Perspectives)

- Self cannulation can be difficult and painful
- Blood stream infection rate is higher with central line as access
- Button hole technique is time consuming and septicemia associated with high morbidities and mortalities
- Travelling to the unit requires time and expenses

Self Cannulation with Button Hole Technique



Buttonhole Infections: Literature

- Doss et al., Nephrol Nurs J, 2008
 - N=137 in combined units using buttonhole (USA)
 - 2004-2007:
 - In-centre: 10 episode of sepsis
13 buttonhole infections
 - Home pts: 6 episodes of sepsis
 - Calculated infection rate=0.16/1000 (in-centre)
0.19/1000 (home)

This is 2.75-24 x greater than using rope ladder technique!

Almost the same rate as CVC infection rate! (depends on centre)

COOR data, prevalent renal replacement treatment

Type of Treatment		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
HD Home	N	221	227	259	304	370	488	573	638	715	781
	RPMP	7.2	7.3	8.3	9.6	11.6	15.1	17.6	19.4	21.5	23.2
	%	0.9	0.9	0.9	1.0	1.2	1.5	1.7	1.8	2.0	2.1
HD Institutional	N	11,385	12,427	13,343	14,213	14,941	15,607	16,192	16,627	17,024	17,486
	RPMP	371.0	400.6	425.3	448.9	467.7	483.6	496.3	504.9	510.8	518.3
	%	45.7	46.8	47.5	48.1	48.1	48.1	47.8	47.2	46.7	46.3
CAPD	N	2,015	1,886	1,781	1,686	1,659	1,613	1,555	1,582	1,609	1,566
	RPMP	65.7	60.8	56.8	53.3	51.9	50.0	47.7	48.0	48.3	46.4
	%	8.1	7.1	6.3	5.7	5.3	5.0	4.6	4.5	4.4	4.1
APD	N	1,296	1,468	1,595	1,696	1,912	2,078	2,221	2,310	2,387	2,477
	RPMP	42.2	47.3	50.8	53.6	59.9	64.4	68.1	70.1	71.6	73.4
	%	5.2	5.5	5.7	5.7	6.2	6.4	6.6	6.6	6.6	6.6
Transplant	N	9,998	10,567	11,093	11,642	12,164	12,669	13,306	14,045	14,694	15,434
	RPMP	325.8	340.6	353.6	367.7	380.8	392.6	407.9	426.5	440.9	457.4
	%	40.1	39.8	39.5	39.4	39.2	39.0	39.3	39.9	40.3	40.9
Total	N	24,915	26,575	28,071	29,541	31,046	32,453	33,847	35,202	36,429	37,744
	RPMP	811.9	856.7	894.8	933.1	971.8	1,005.7	1,037.5	1,068.9	1,093.1	1,118.7

Why patients are not choosing self care hemodialysis

- Knowledge barriers:
 - Lack of a satisfactory explanation of the various techniques.
- Attitude barriers
 - Patients should not dialyze without direct supervision
 - Fear of failure to perform self-care dialysis adequately
 - Fear of social isolation
- Skill barriers
 - Needle phobia
- Lack of space at home
- Variables significantly associated with a negative attitude toward self-care dialysis were age/fear of substandard care (interaction), needle phobia, fear of change, fear of social isolation, and unwillingness to remain awake during dialysis

Incident ESRD patients in Canada 2009

Age Group	0-19 Years			20-44 Years			45-64 Years			65-74 Years			75+ Years			Total	
	N	RPMP	%	N	RPMP	%	N	RPMP	%	N	RPMP	%	N	RPMP	%	N	RPMP
1990	93	12.1	4.1	559	48.2	24.6	859	161.5	37.8	508	271.7	22.4	253	202.8	11.1	2,272	82.0
1991	83	10.8	3.2	600	51.5	23.0	908	166.8	34.7	694	361.0	26.5	329	254.1	12.6	2,614	93.3
1992	88	11.3	3.2	602	51.6	22.1	983	175.0	36.2	701	356.7	25.8	344	258.6	12.7	2,718	95.8
1993	89	11.3	3.1	607	52.0	20.9	1,020	176.1	35.0	802	39						
1994	69	8.7	2.2	629	53.9	20.2	1,111	186.1	35.7	882	43						
1995	98	12.3	3.0	636	54.4	19.3	1,117	181.8	33.8	941	454.9	28.5	508	352.6	15.4	3,300	112.6
1996	70	8.8	2.0	639	54.5	18.0	1,237	195.8	34.9	1,003	480.2	28.3	596	399.9	16.8	3,545	119.7
1997	90	11.2	2.3	695	59.2	17.6	1,316	202.2	33.2	1,145	542.9	28.9	714	461.9	18.0	3,960	132.4
1998	86	10.7	2.0	685	58.5	16.2	1,417	211.2	33.5	1,198	563.3	28.3	848	530.9	20.0	4,234	140.4
1999	90	11.3	2.0	717	61.3	15.8	1,483	213.9	32.6	1,253	586.8	27.5	1,008	610.5	22.1	4,551	149.7
2000	103	12.9	2.2	674	57.7	14.2	1,559	217.5	32.8	1,295	603.4	27.2	1,124	658.6	23.6	4,755	154.9
2001	104	13.1	2.1	604	51.6	12.0	1,585	213.9	31.6	1,359	628.9	27.1	1,361	772.4	27.1	5,013	161.6
2002	86	10.8	1.7	632	53.8	12.5	1,567	204.2	31.1	1,377	633.1	27.3	1,381	759.5	27.4	5,043	160.8
2003	87	11.0	1.7	593	50.5	11.6	1,673	210.8	32.6	1,391	635.0	27.1	1,384	737.8	27.0	5,128	162.0
2004	75	9.6	1.4	627	53.3	12.0	1,736	211.9	33.2	1,344	607.3	25.7	1,444	748.9	27.6	5,226	163.6
2005	98	12.5	1.8	607	51.6	11.5	1,690	200.1	31.9	1,399	625.6	26.4	1,506	760.0	28.4	5,300	164.2
2006	85	10.9	1.6	637	54.1	11.8	1,795	206.0	33.1	1,367							
2007	75	9.5	1.4	645	55.4	11.7	1,840	204.7	33.3	1,411							
2008	80	10.2	1.5	627	53.7	11.4	1,846	199.9	33.6	1,389	578.0	25.3	1,549	719.2	28.2	5,491	164.8
2009	78	9.9	1.5	561	47.9	10.4	1,859	196.3	34.6	1,339	538.2	24.9	1,538	699.2	28.6	5,375	159.3

$22.4 + 11.1 = 33.5\%$

$24.9 + 28.6 = 53.5\%$

Other factors against satellite self care hemodialysis

- Language barrier between trainers and patients
- Patients with multiple comorbidities
- Transportation issues to the selfcare unit
- Willingness to learn

The Economist

- **Dialysis in China**
- **Free for now**
- Apr 16th 2009 | TONGZHOU | from the print edition
- IN TONGZHOU, a town near Beijing, one group of people appears to have reaped immediate benefits from official efforts to put a positive spin on health-care reform. **A group of kidney patients had pooled their meagre resources to buy their own second-hand dialysis equipment in order to avoid crippling hospital charges.** In March the local government confiscated it. But sympathetic coverage from local newspapers has helped persuade officials not to leave the impoverished patients to the mercy of the health system. They are now enjoying free dialysis at the government's expense.

Limitation of Satellite Self Care Hemodialysis

- **Inadequate incentives for providers**
Cost saving not substantial enough
- **Inadequate incentives for patients**
Cost
Convenience
Safety