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Taking Healthcare Home

IDEAS LAB ISSUES PAPER



Summary: Ideas Lab – Areas for potential discussion

FACILITATION OF INTEGRATED MODELS OF CARE

To identify drivers of successful integrated models of care, based on current case studies of Hospital in the Home (HITH) service provision.

To identify characteristics of successful models of care that transition from hospital to the home for home parenteral nutrition (HPN), based on current case studies of HPN service provision.

To promote the consolidation of HPN services at jurisdictional and national levels to share capacity and expertise.
To identify drivers of successful home dialysis models of care, based on current case studies of home dialysis service provision.

To promote clinical leadership and the development of best practice guidelines to facilitate uptake of home dialysis.

To investigate the extent to which current and innovative information technology solutions are being incorporated to facilitate integrated delivery of HITH, HPN, home renal dialysis, and other conditions amenable to home-based care across hospital and community-care settings, relating to (i) customised surveillance functions, (ii) common data environments, and (iii) portable medical devices.

CULTURAL CHANGE IN HOSPITALS AND COMMUNITY SETTINGS

To develop strategies and interventions that change perceptions of HITH among patients and clinical staff in hospital settings, and also in community, policy and political settings.

To investigate systems and referral processes at the initial hospital presentation to identify reasons for why HITH may not be promoted as part of hospital care for eligible patients.

To promote education and training of hospital staff for HPN and the facilitation of dedicated multi-disciplinary HPN teams.

To promote education and training of hospital staff in 'home-first' models of dialysis, and facilitation of dedicated multi-disciplinary home dialysis teams.

ONGOING RESEARCH AND EVALUATION OF THE IMPLEMENTATION OF HOME-BASED CARE MODELS

To identify the determinants of sources of variation in HITH services by service area in terms of (i) uptake, (ii) effectiveness, and (iii) cost.

To improve data collection systems for the monitoring of HPN service provision and to promote the establishment of an HPN data registry.

PRIVATE HEALTH INSURANCE LEGISLATION

To promote the potential benefits of legislative changes to the Private Health Insurance (Benefit Requirements) Rules.

To promote the potential benefits of HITH services to Health Funds. There is a case that requires further exploration that Health Funds may improve their value proposition to their clients or the market overall by providing for HITH services under their policies.

MODELS OF FINANCING UNDER ACTIVITY BASED FUNDING

To promote the potential financial benefits of HITH services and home based care (such as HPN and home dialysis) for appropriate chronic conditions in the annual process of activity planning and budget allocations.

To identify gaps and disincentives under the Medicare Benefits Schedule associated with available MBS Items for the delivery of HITH services and home based care for chronic conditions.

TAKING HEALTHCARE HOME

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1. Background and context

“Where a patient presents with an appropriate condition, and where hospitals can provide the appropriate models of care and support, home-base care for acute and chronic conditions potentially provides a cheaper model of care with better health outcomes. This paper considers current policy guidelines for HITH services, home parenteral nutrition, and home dialysis, discusses a series of barriers to uptake, and proposes recommendations to promote uptake of home-based care in NSW.”

Taking health care home

The overarching theme of this issues paper is to consider healthcare treatments relating to acute and chronic conditions that are conventionally delivered in the hospital setting but which can also be delivered in a home setting. The issues paper considers the rationale for home-based care for acute and chronic conditions in terms of effectiveness, cost, current policies and guidelines, and potential barriers and enablers to uptake. Chronic conditions are also considered given their prominence in hospital admissions data, particularly for haemodialysis (Table 1). Two broad categories of health care treatment are considered: (1) Hospital in the Home (HITH) relating to acute and subacute conditions, and (2) home-based care for chronic conditions, using home dialysis and home parenteral nutrition as case studies.

1.1 HOSPITAL IN THE HOME (HITH)

Hospital in the home (HITH) provides acute, subacute, or postacute treatment in a patient's residence for a condition that would normally require an admission to hospital. [1, 2] HITH services reflect a response to the growth in demand for inpatient care in public hospital settings, rising health care costs, shifting demographics, and innovations in portable hospital technologies and treatments.

HITH services are provided as a substitution for in-hospital care (in that if a patient is not receiving HITH the patient would require hospitalisation), or as prevention of in-hospital care (where HITH services are provided to avoid an imminent admission or re-admission to hospital). [1]

TABLE 1: TOP 15 DRGS IN AUSTRALIA BASED ON HOSPITAL SEPARATIONS DATA.
SOURCE: IHPA (ROUND 17 NHCDC COST WEIGHT TABLES, 2012-2013).

AR-DRG	DESCRIPTION	SEPARATIONS	AVERAGE COST (\$)	TOTAL COST (\$M)	TOTAL COST RANK
L61Z	Haemodialysis*	1,065,600	540	578	2
R63Z	Chemotherapy*	139,600	1,490	208	10
O60B	Vaginal delivery w/o catastrophic or severe CC	110,600	5,120	566	3
F74Z	Chest pain	98,100	1,960	192	14
C16Z	Lens procedures	64,100	2,680	171	17
G70B	Other digestive system diagnoses w/o, catastrophic or sever CC	61,000	2,690	164	18
G48C	Colonoscopy, same day	53,900	1,610	87	68
Q61B	Red blood cell disorders w/o catastrophic or severe CC	52,400	1,520	80	75
G66Z	Abdominal pain or mesenteric adenitis	50,800	2,410	122	41
O01C	Caesarean delivery w/o catastrophic or severe CC	47,700	9,710	464	5
O66B	Antenatal and other obstetric admission, same day	46,400	560	26	292
J64B	Cellulitis w/o catastrophic or severe CC*	45,400	4,000	181	16
G67B	Oesophagitis and gastronteritis w/o catastrophic or severe CC	43,000	2,450	106	44
Z64B	Other factors influencing health status, same day*	41,900	1,160	49	153

* Chronic conditions

Key principles of HITH services are that they are person centred, voluntary, are accessible to those who need it, and are cost neutral to the patient. HITH services are also time limited with rapid response and transfer of care. To date, HITH services have been employed for a range of treatments and conditions (Table 2) for acute, subacute, and postacute conditions requiring daily or intermittent care.



TABLE 2: TREATMENTS AND CONDITIONS [3]

TREATMENTS INCLUDE (BUT ARE NOT LIMITED TO):	CONDITIONS INCLUDE (BUT ARE NOT LIMITED TO):
Intravenous antibiotics	Pneumonia
Anticoagulation	Acute exacerbation of COPD
Transfusions	Urosepsis
Other infusions	Cellulitis
Rehabilitation	Osteomyelitis
Nebuliser therapy	Septic arthritis
Home oxygen	Endocarditis
Chest physiotherapy	Septicaemia
Occupational therapy home visits	Deep Venous Thrombosis
Medication counselling and acute interventions for domiciliary care and support	Pulmonary Embolism
Supply and fitting of aids	Anticoagulation for Atrial Fibrillation
	Acute exacerbations of Congestive Cardiac Failure
	Post-Orthopaedic rehabilitation
	Post-operative treatment for other surgical patients

Evidence for effectiveness of HITH

The most recent systematic review of HITH services concluded that HITH, compared to in-hospital care, was associated with reductions in mortality (or no difference in mortality[4, 5]), and reductions in readmission rates and costs. [2]

Findings from this systematic review suggested that HITH (defined as the duration of out-of-hospital care being either ≥ 7 days or $\geq 25\%$ of the average length of stay) was associated with a 20% lower rate of mortality and 25% lower rate of re-admission compared to in-hospital care across the 40 identified studies (Table 3). Additionally, HITH was also associated with increases in patient and carer satisfaction, but no change in carer burden. [2]

Economics of HITH

In addition to evidence showing an association between HITH and lower mortality and re-admission rates, previous studies have also indicated lower costs associated with provision of HITH, [2, 6] although not in all contexts. [7, 8]. Costs of HITH care relative to in-hospital care are influenced by the specific condition and its severity, the individual patient and eligibility criteria for HITH, and hospital-level factors. Additionally, studies have also found that HITH care is associated with decreased hospital length of stay, but an increased total days of care. The costs of HITH are likely to vary according to health service context, and will differ according to a given condition and its severity. However, the most recent economic analysis of HITH in Australia [6] suggests that HITH care would cost 22% less than in-hospital care per separation across six of the most common DRG groups referred to HITH (Table 4).

TABLE 3: COMPARISON OF MORTALITY AND RE-ADMISSION RATES BETWEEN HITH AND IN-HOSPITAL CARE [2]

		HITH		IN-HOSPITAL		
	No. of studies	Events	Total	Events	Total	Odds Ratio (95%CI)
<i>Mortality rates</i>						
Medical	23	242	2269	257	1991	0.79 (0.65–0.97)
Surgical	5	7	235	9	245	0.78 (0.29–2.1)
Rehabilitation	13	122	972	158	1080	0.83 (0.63–1.08)
Psychiatric	1	1	100	0	100	3.03 (0.12–75.28)
All subgroups	40	372	3576	424	3416	0.81 (0.69–0.95)
<i>Readmission rates</i>						
Medical	17	264	1301	256	1126	0.76 (0.60–0.97)
Surgical	8	22	561	34	694	0.66 (0.36–1.22)
Rehabilitation	9	107	556	103	509	0.96 (0.70–1.31)
Psychiatric	4	64	316	103	309	0.29 (0.05–1.65)
All subgroups	38	457	2734	496	2638	0.75 (0.59–0.95)

TABLE 4: COST PER HITH SEPARATION AND COST PER HOSPITAL SEPARATION FROM A SOCIETAL PERSPECTIVE[6]

AR-DRG	DRG CODE	HITH CARE COSTS	HOSPITAL CARE COSTS	DIFFERENCE (HITH - HOSPITAL)	COST RATIO (HITH/HOSPITAL)
		\$ per separation	\$ per separation	\$ per separation	%
Cellulitis	J64B	3,260	4,546	-1,286	72
Venous thrombosis	F63B	2,784	3,688	-904	75
Pulmonary embolus	E61B	4,112	4,873	-761	84
Respiratory infection/Inflammation	E62C	3,446	3,593	-147	96
COPD	E65B	4,751	4,481	270	106
Knee replacement	I04Z	18,457	19,359	-902	95

1.2 HOME PARENTERAL NUTRITION

Parenteral nutrition (PN), or feeding a person intravenously, can also be provided in a home-based setting. Home parenteral nutrition (HPN) can be provided as part of the HITH services described above, and also to non-admitted patients as part of the management of chronic conditions. Common disease and underlying conditions that commonly result in patients requiring PN include Crohn's disease, cancer, HIV-AIDS, anorexia nervosa, and chronic pancreatitis, relating to conditions associated with intestinal failure (Table 5).

Over recent decades there has been increasing efforts to facilitate the provision of PN in the home or other suitable environment, given the chronic nature of these underlying diseases and the potential benefits of home-based care in terms of improved quality of life and potentially lower cost.

Evidence for effectiveness of HPN

HPN has been implemented in Australia under a series of clinical guidelines from the United Kingdom, Europe the United States and Australia, developed over previous decades and based on clinical expertise, [9, 10] with most studies comparing HPN with PN on relevant outcomes based on observational (non-randomised) studies. [9] The management of under-nutrition using PN has been associated with fewer complications and lower rates infection, decreased muscle loss, improved wound healing, and shorter length of hospital stay. [10-12] There are also risks associated with HPN, and predominantly relate to catheter related infections, liver disease, metabolic bone disease.[13] The effective delivery of HPN is dependent on multidisciplinary expertise in the development and monitoring of HPN services. [10, 14] In the Australian context, there is limited routinely collected data on HPN.

Economics of HPN

In addition to the potential benefits of home-based care in terms of improved health outcomes and quality of life, HPN also is associated with lower costs compared to in-hospital care. [15] However, a comparative economic analysis of HPN compared to in-hospital PN in the Australian context has not been conducted. This is important as the cost of HPN has been cited as a barrier to its use. [10] The 2015-16 Independent Hospital Pricing Authority (IHPA) pricing determination set the monthly funding for HPN at \$16,068 per patient; an increase from \$9,481 in 2013-14 (HPN was block-funded in 2014-15), adjusted as a result of findings in a costing study in 2014. Consultation with IHPA suggests that the IHPA were generous with this price determination as they could not accurately and consistently determine the full cost of HPN. [10] The cost of HPN is particularly burdensome for smaller and regional hospitals from a planning and budgetary perspective, and is likely to be influenced by the specific condition and its severity, the eligibility criteria for individual patients and hospital level factors.

1.3 HOME DIALYSIS

Home dialysis relates to the provision of the range of dialysis treatment modalities in a home-based setting, allowing, among other benefits, flexibility and control of health and treatment regimes, and reduced travel and the need to re-locate to service sites. Home dialysis refers to home haemodialysis (HHD) (delivered according to standard, enhanced, short daily, or nocturnal regimes), home continuous ambulatory peritoneal dialysis (CAPD), and home automated peritoneal dialysis (APD).

Home dialysis reflects a growing demand for renal services in the context of limitations to physical, human and funding resources. [16, 17] Facilitating access to home dialysis is an additional service response to the burden of disease associated with chronic kidney disease and the estimated annual 6-7% increase in demand for dialysis in Australia. [16] Currently, home dialysis represents approximately 10% of all dialysis, with past government policies and funding models promoting demand for in-centre or satellite dialysis rather than home-based settings. [16] The relatively low uptake of home dialysis represents an opportunity to understand barriers and enabling factors that could conceivably expand home-based care.

TABLE 5: SOME COMMON DIAGNOSES AND UNDERLYING CONDITIONS IN PATIENTS WITH LONG-TERM INTESTINAL FAILURE (IF) [9]

DIAGNOSIS	UNDERLYING CONDITION
Short bowel syndrome	Volvulus
	Mesenteric vascular disease
	Mesenteric tumours
	Crohn's disease
Radiation enteritis	Neoplastic disease undergoing radiotherapy
Chronic intestinal obstruction	Diffuse intra-abdominal adhesions or certain malignancies
Intestinal pseudo-obstruction	Enteric neuropathies or myopathies
	Secondary amyloidosis
Chronic intestinal fistulae	Crohn's disease
	Adhesive disease
	Malignancy

Evidence for effectiveness of home dialysis

The majority of studies indicate consistent benefits with more intensive haemodialysis (either by more frequent sessions, longer sessions, or both) across many clinical outcomes, including effects on blood pressure management and cardiovascular outcomes, nutritional effects, and quality of life.[18] A limited number of studies also suggest improved survival among those using home haemodialysis compared to conventional dialysis, with one study suggesting comparable survival with those receiving renal transplantation.[18] The majority of these studies are based on observational (non-randomised) studies, and the extent to which modality selection bias affect these findings needs to be considered (i.e. those patients receiving home-based intensive therapies may be healthier and more likely to have better clinical outcomes irrespective of treatment modality).

Economics of home renal dialysis

In addition to potential benefits in clinical outcomes, home dialysis can also potentially provide treatment modalities more cost-effectively. [16, 18, 19] However, there is a balance between expected reductions in overheads and staffing costs with a move to home-based care from hospital care, with

higher costs for dialysis associated with more frequent treatment, transportation and servicing of equipment. [18] In the NSW context, previous costing studies have indicated that home-based dialysis can result in potential cost savings, [19, 20] with higher costs for acute and satellite/in centre services compared to home dialysis. This has been acknowledged in previous renal health service plans in NSW [21] and other States.[22-25]

In general, for each patient in home-based dialysis there is an annual cost saving of \$36,826 for PD and \$23,877 for HD per year compared to dialysis through facility outpatient services (Table 6). These estimates incorporate the Independent Hospital Pricing Authority's (IHPA) 2015-16 National Efficient Price (NEP) determination combined with accepted and independent dialysis costing analysis.[19] Home PD is costed at almost half (56 per cent) that of non-admitted facility-based treatment (Table 6). This presents a clear funding incentive for home dialysis, a lower cost treatment that also attracts a relative funding premium through Activity Based Funding. The challenge is that the financial incentive needs to manifest at the point of the clinical decision in the hospital setting (see Section 3.1 below for further discussion).

1.4 SUMMARY

Where a patient presents with an appropriate condition, and where hospitals can provide the appropriate models of care and support, home-base care for acute and chronic conditions potentially provides a cheaper model of care with better health outcomes. This paper considers current policy guidelines for HITH services, home parenteral nutrition, and home dialysis, discusses a series of barriers to uptake, and proposes recommendations to promote uptake of home-based care in NSW.

TABLE 6: NATIONAL ACTIVITY BASED FUNDING MODEL BENCHMARK DIALYSIS PRICE PER PATIENT BY TREATMENT MODALITY

DIALYSIS MODALITY (a)	EXPECTED EPISODES	COST PER YEAR (b)	YEARLY NATIONAL BENCHMARK PRICE (c)	COMMONWEALTH CONTRIBUTION (d)	DIFFERENCE
Home PD /month	1	\$35,751	\$77,208	\$29,339	-\$6,412
Home HD /month	1	\$47,891	\$75,078	\$28,530	-\$19,361
Facility outpatient/week	3	\$63,954	\$54,516	\$20,716	-\$43,238

(a) The 2015-16 NEP framework considers home dialysis on a per month basis, while non admitted satellite/outpatient facility treatment is priced on per episode basis (typically occurring three times per week).

(b)NSW Costing Study 2008 [19]

(c) Uses the NEP price weights to establish and compare the IHPA's annual benchmark price for each treatment.

(d) Australian Government's national contribution in 2015-16 is approximately 38% of the IHPA benchmark treatment price



2. Current policies and guidelines

2.1 SUMMARY OF CURRENT POLICY GUIDELINES IN NSW FOR HITH

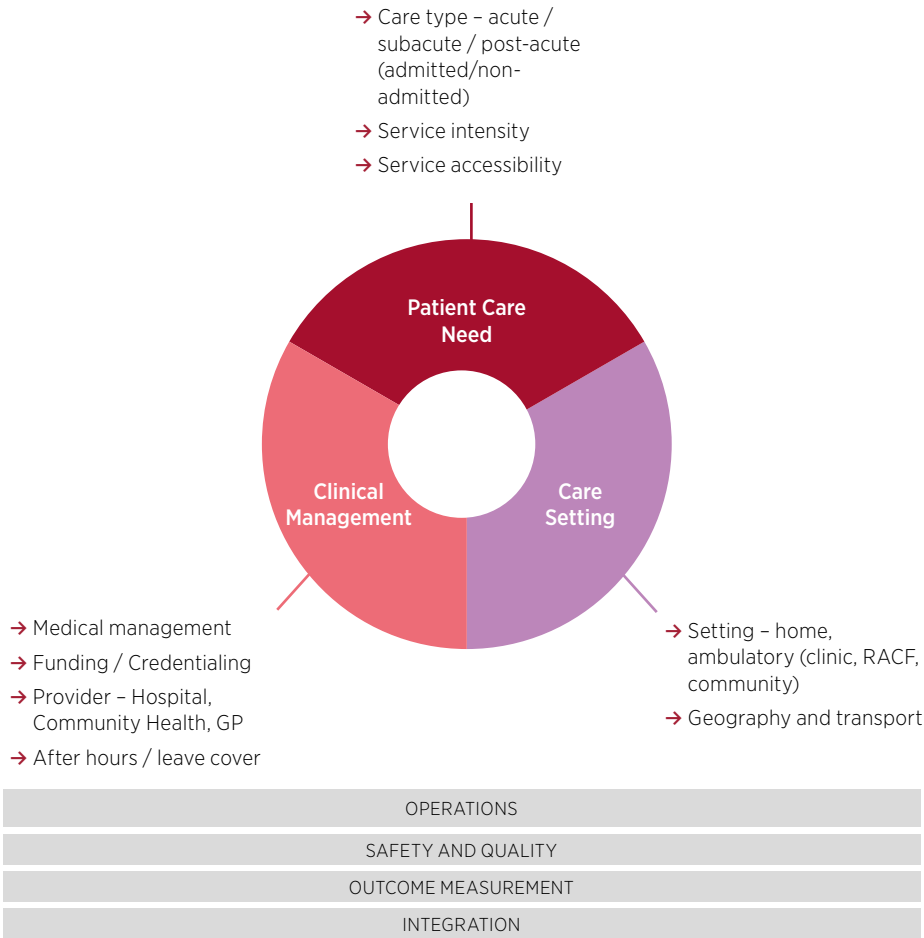
A number of states and territories have established policy guidelines for the provision of HITH. [1, 26, 27] It is acknowledged that inter-state HITH services differ in terms of definitions of HITH and patient eligibility, which presents challenges in comparative analyses of utilisation and effectiveness. For the purposes of this Issues Paper, current HITH guidelines in NSW[1] are summarised to provide a policy context for the discussion of potential barriers and enablers of HITH services discussed in following sections.

Defining elements of HITH in NSW

The defining elements of HITH services include (i) Patient care need, (ii) Clinical management, and (iii) Care setting, integrated with formal systems relating to operations and models of care, safety and quality, and outcome measurement (Figure 1). These defining elements guide locally appropriate, and district-wide approach to HITH service planning and delivery. HITH services are ideally integrated across hospitals, General Practice, primary and community based care, and chronic disease management programs. Integration across these services, with defined roles and responsibilities, ensures continuity of care, reduced clinical risk, and reduced duplication in the delivery of HITH services.

HITH services have operational elements in place to avoid re-admissions (where clinically appropriate), including formalised local referral processes, development of initial care plans, a care plan review process, management of capacity and workload, and transfer of care to mainstream community-based services.

FIGURE 1: DEFINING ELEMENTS OF HITH IN NSW [1]



Patient care need

The patient care need is the defining factor as to whether a person's entry to HITH is clinically equivalent to an admission or not, and is also assessed in the context of the safety of the individual and the care delivery team. Care need is determined through a comprehensive clinical assessment, which is reviewed regularly. Criteria for being an admitted patient are based on the NSW Admissions Policy.

Care Setting

Care setting relates to the best location to deliver optimal care, and is dependent on patient need and local service options, available models of clinical management, and service costs. HITH teams do not necessarily have dedicated clinician resources, but may employ integrated models of care with local primary and community care.

Clinical Management

Various models of clinical management are employed in the delivery of HITH services, to respond to the different costing, funding and data implications for local health settings. This reflects local circumstances, and is likely to evolve further under Primary Healthcare Networks. Clinical management is defined by the medical officer who is managing the episode of HITH care. Models of care include specialist care, forms of shared care and interdisciplinary care, stand-alone HITH teams, and supervised self-administration.



2.2 SUMMARY OF CURRENT POLICY GUIDELINES FOR HOME PARENTERAL NUTRITION

As noted above, currently HPN is implemented based on a series of clinical guidelines from Australia, the United Kingdom, Europe the United States and Australia, the most relevant for the NSW context being the AusPEN and ACI guidelines. [9] A previous consultation with HPN stakeholders suggested that the AusPEN guidelines do not represent national guidelines, as they were not developed in consultation with the main HPN providers in Australia and may have overlooked important local clinical needs. [10] HPN is provided in the context of Commonwealth and State government funding under the overall annual operational funding for public hospitals, and HPN funding based on allocation as part of the overall budget for the relevant clinical service unit. [10] Additionally, patients can receive HPN under the HITH program or as 'Tier-2' non-admitted patients (Table 7).

Defining elements of HPN

The defining elements of HPN relate to (i) patient referral and selection, (ii) the initiation of therapy, and (iii) the monitoring and cessation of HPN.

Patient referral and selection:

HPN services typically involve patients referred from inpatient services already receiving PN or patients from other hospitals. The criteria for selection for HPN relate to documented intestinal failure that would lead to deteriorating nutrition and/or fluid status, a multidisciplinary assessment for eligibility including the appropriateness of the domestic situation, and patient ability to physically and emotionally undertake HPN training, and to co-operate with therapy.

Initiation of therapy

Initiation of therapy relates to the selection and placement of central venous catheters, infusion pumps and ancillary products. This also includes the selection and monitoring of prescriptions, and an assessment of the extent to which patients can be safely prescribed other intravenous medication.

Monitoring and cessation

Patients undergoing HPN are provided close support and monitoring by a hospital-based team with a baseline and ongoing nutritional and quality of life assessment, with individual regimens based on nutrition requirements. Monitoring also relates to contingencies for the management of complications associated with HPN, and cessation plans where appropriate.

2.3 SUMMARY OF CURRENT POLICY GUIDELINES FOR HOME DIALYSIS

A number of states and territories have established policy guidelines for the provision of renal services. [21-25] For the purposes of this issues paper, current approaches in NSW [21] and home first dialysis models of care [16, 17, 20] are summarised to provide a policy context for the discussion of potential barriers and enablers of home dialysis discussed in following sections. Renal services in NSW are delivered primarily by public health services (although there is an increasing number of patients accessing services from private providers [17]) and promotion and facilitation of home dialysis is included in service planning in NSW. [21] NSW currently has a benchmark of 50% of dialysis to be provided via home-based modalities, [21] and 'home-first' dialysis models are more prominent. [16, 17, 20]

TABLE 7: A COMPARISON OF HPN DELIVERED IN HITH AND NON-ADMITTED SETTINGS. [10]

	HOSPITAL IN THE HOME (HITH) PROGRAM	TIER-2 NON-ADMITTED PATIENTS
Nature of care	Provides care in a patient's permanent or temporary residence for acute care that would otherwise require an inpatient hospital bed. Patients receive daily clinical care from clinical staff.	Provides care in a patient's permanent or temporary residence. Patients and carers visit outpatient clinics at scheduled appointments with the nutrition team. 24-hour support line for clinical enquiry.
Typical patients	Patients in transit between care: (i) awaiting surgery; (ii) being trained for HPN prior to being discharged from inpatient care.	Trained patients or carers or those assessed as suitable for receiving HPN.
Funding arrangement	HITH patients are considered inpatients of the acute hospital facility and are funded through Activity Based Funding (ABF).	As part of the funding arrangement for non-admitted services.
Sub-contractor and funding arrangement	Delivery of HPN may be contracted to an external service provider, as a sole service or as a component of care.	Limited information available about contracting arrangements from the public sector to the private sector. Subcontracting arrangements may exist, especially for rural hospitals.

Defining elements of home dialysis models

The defining elements of home dialysis are a patient centred approach supported by multi-disciplinary clinical teams comprising nephrologists, pre-dialysis educators, allied health, care coordinators and home dialysis nurses at stages of care relating to (i) pre-dialysis (ii) home dialysis assessment, and (iii) care coordination and monitoring

Pre-dialysis

Pre-dialysis relates to the diagnosis, likely pathways of care and services, care expectations for patients with chronic kidney disease, and establishment of multidisciplinary team membership. This includes pre-dialysis patient education relating to prognosis, dialysis options, and facilitation of patient-led decision making in selection of treatment modality.

Home dialysis assessment

Home dialysis assessment involves a detailed assessment of social and living arrangements, support structures, potential barriers for home dialysis, and consideration of training support of patients in home dialysis. In 'home-first' dialysis models of care, home dialysis is the default treatment modality, with strong clinical reasons required for an alternative modality. [17]

Care coordination and monitoring

Care coordination and monitoring involves integrated service coordination and communication across the multidisciplinary clinical team and in supporting patient led-decision making. Care coordination facilitates transition in care from hospital to home in the context of local service options and resources, available models of clinical management, and service costs.



3. Barriers to taking healthcare home

A series of proposed barriers to the uptake of healthcare in the home setting is discussed below, organised according to (1) financial barriers, (2) workforce barriers, and (3) cultural barriers and community perceptions.

3.1 FINANCIAL BARRIERS

Lack of incentives in Activity Based Funding for HITH

The current funding model for NSW public hospitals makes growth in home-based care for hospital services in general, and HITH activity in particular, difficult. Activity based funding (ABF), where hospitals receive funding for their level of activity in terms of patient numbers and complexity, appears to create a system where the funding follows the patient. This misconception, and the necessary complexities within an ABF model, are themselves barriers to further HITH uptake.

In reality, hospitals receive annual funding based on an agreed level of activity. Should a hospital exceed this activity level, they generally do not receive any additional funding. HITH services are a hospital-substitution option for the patient (and usually a more cost effective treatment option) but from a hospital perspective they also increase the total service capacity of the hospital. Unless physical beds are closed to keep capacity the same – often a difficult exercise in itself - this creates a significant risk of budget overrun, and a funding shortfall for the hospital.

Secondly, the value for money advantages of HITH while easier to comprehend at a macroeconomic and theoretical level, do not necessarily translate in practice. HITH services are usually run from a different service and cost centre to in-hospital care. This makes it virtually impossible to grow HITH services organically because it requires one service to give up part of their budget to fund another service. With cost centre managers monitored against their budget, it is unlikely they would agree to this.

With these factors to consider, hospitals would be in the best position to plan for HITH service growth during the budget cycle. The annual process of activity planning and budget allocations to cost centres may allow hospital management to consider the value for money proposition apparent in HITH and plan to grow HITH services in lieu of in-hospital capacity, with likely benefits for both patients and the budget. Further, in calculating annual payments for hospital activity, the NSW Ministry of Health does not reduce payments for HITH services included as part of the total hospital activity, therefore the hospital will retain the financial benefit should their HITH services be lower cost than in-hospital activity.

Current private health insurance legislation and HITH

Under current legislation, private health insurers are only required to pay for providing services to privately insured patients at public hospital sites [Private Health Insurance (Benefit Requirements) Rules 2011, Schedule 2, Paragraph 1(b)]. That is, for a patient with a condition that meets eligibility criteria for HITH, private health insurers do not need to re-imburse hospitals for HITH services, but do need to re-imburse hospitals for on-site services.

While Private Health Funds may offer to provide funding for HITH (and some do), the benefit of doing so is difficult to justify as the decision for a patient to access HITH services is a clinical decision rather than a financial one. Therefore the Health Fund may consider that they are offering a benefit to a patient which could otherwise be accessed for free. Notwithstanding, there is a case that Health Funds may improve their value proposition to their clients or the market overall by providing for HITH services under their policies, but this requires further exploration.

Medicare Benefit Schedule Item numbers

Existing Item numbers do not adequately compensate GPs for HITH services, and there are gaps for specialist services. [3]

Variations in funding arrangements for HPN

HPN services are provided according to clinical need, but in the context of service and resource capacity in hospital catchment areas, which may create inconsistencies in allocation of funds to HPN teams across geographic catchments and different jurisdictions. Additionally, some HPN patients may receive HPN as part of the HITH program, and the processes that capture resource utilisation data for funding purposes can also be inconsistent,[10] and disincentives associated with ABF as described above may also apply.

Variations in funding arrangements for home dialysis

Funding for home dialysis is based on a mixed of Commonwealth and State funds and grants, the Department of Veterans Affairs (DVA) and personal costs, [28] and clear and consistent funding models differ across geographic catchments and jurisdictions. Private health providers also fund dialysis services, however this is restricted to hospital settings. Patients who opt for home dialysis as a treatment option also face out-of-pocket expenses, relating to increased utility costs, which are subsidised in some jurisdictions. Funding is also capped which may prevent some patients to choose home dialysis programs. [16]

Complexities of Commonwealth and State funding in home-based care

In the context of integrated care models aiming to provide continuity of care, there are perceived complexities in allocation of resources for home-based care services (including HITH) that are delivered across hospital and primary- and community-care settings.

3.2 WORKFORCE BARRIERS

Workforce barriers to integrated models of care for HITH

Providing integrated models of care under HITH presents challenges, in that HITH services span Commonwealth and State jurisdictions, and a range of disciplines across hospital and community-based services. The success, or otherwise, of HITH implementation relates primarily to local interest and demand, and commitment from local services in negotiating the operational elements that ensure effective HITH implementation.

A lack of HPN provider awareness of HPN guidelines

Non-specialist HPN providers do not have strong knowledge of HPN guideline recommendations or employ multi-disciplinary approaches to HPN, which present challenges in the provision of consistent, quality HPN care. [10]

A lack of detailed data on HPN use

The management and monitoring of HPN services is limited by a lack of routinely collected data relating to patterns of HPN use.

Clinical governance, quality and leadership in home dialysis models of care

There is a lack of policy procedures and best practice guidelines in the provision of home dialysis, and a perceived lack of interest in clinical leadership roles in the facilitation of home dialysis. [16]

Limitations in workforce training and capacity for pre-dialysis pathways.

The facilitation of uptake of home dialysis is limited by the availability of training for health professionals, including culturally specific education and educators. Additionally, there are limitations to education and training resources for staff to promote integrated models of care that facilitate transition to home dialysis pathways, and also for patient training.

Making the transition from hospital to home for home dialysis

There are a range of individual and structural factors that present barriers in facilitating home dialysis, including waitlists for surgery and access to care coordinators, costs associated with home preparation or relocation and home dialysis training, establishing appropriate pathways of care and service provision, and inadequate social work support.

3.3 CULTURAL BARRIERS AND COMMUNITY PERCEPTIONS

Perceptions and preferences

Barriers relating to perceptions and preferences are relevant to each of the home-based care settings considered above (HITH, HPN, and home dialysis). Despite previous studies indicating potential improvements in quality of life and clinical outcomes in home-based settings compared to in-hospital settings for appropriate conditions, there are patient and carer perceptions that care provided in the home setting may be less effective, and represent less value for money, than in-hospital care. This is problematic in the context of home dialysis given the lower cost and potentially better clinical outcomes associated with home dialysis modalities.

Similarly, the provision of home-based care, particularly for HITH services, may be considered less convenient to hospital staff, and be associated with a perception of lower quality of care than in-hospital services. Patients may not have sufficient knowledge of home-based care services for particular acute or chronic conditions, or the extent of their availability in a given service area, which will also influence preferences for home-based care over in-hospital care or vice versa.

Political perceptions of hospital care

The provision and funding of hospital services is a contentious and highly political area of public policy. The promotion of 'virtual' or home-based services for acute and chronic conditions (despite potentially representing better care and value for money for some conditions), does not have the same political impact as the tangible expansion, or construction, of public hospital sites or outpatient services.



4. Enabling uptake and recommendations for discussion

Based on current evidence and the proposed barriers above, the following recommendations to facilitate uptake of home-based healthcare are proposed for discussion.

Models of financing under Activity Based Funding

To promote the potential financial benefits of HITH services and home-based care (such as HPN and home dialysis) for appropriate chronic conditions in the annual process of activity planning and budget allocations.

To identify gaps and disincentives under the Medicare Benefits Schedule associated with available MBS Items for the delivery of HITH services and home-based care for chronic conditions.

Private health insurance legislation

To promote the potential benefits of legislative changes to the Private Health Insurance (Benefit Requirements) Rules.

To promote the potential benefits of HITH services to Health Funds. There is a case that requires further exploration that Health Funds may improve their value proposition to their clients or the market overall by providing for HITH services under their policies.

Facilitation of integrated models of care

To identify drivers of successful integrated models of care, based on current case studies of HITH service provision.

To identify characteristics of successful models of care that transition from hospital to the home for HPN, based on current case studies of HPN service provision.

To promote the consolidation of HPN services at jurisdictional and national levels to share capacity and expertise.

To identify drivers of successful home dialysis models of care, based on current case studies of home dialysis service provision.

To promote clinical leadership and the development of best practice guidelines to facilitate uptake of home dialysis.

To investigate the extent to which current and innovative information technology solutions are being incorporated to facilitate integrated delivery of HITH, HPN, home renal dialysis, and other conditions amenable to home-based care across hospital and community-care settings, relating to (i) customised surveillance functions, (ii) common data environments, and (iii) portable medical devices.

Cultural change in hospitals and community settings

To develop strategies and interventions that change perceptions of HITH among patients and clinical staff in hospital settings, and also in community, policy and political settings.

To investigate systems and referral processes at the initial hospital presentation to identify reasons for why HITH may not be promoted as part of hospital care for eligible patients.

To promote education and training of hospital staff for HPN and the facilitation of dedicated multi-disciplinary HPN teams.

To promote education and training of hospital staff in 'home-first' models of dialysis, and facilitation of dedicated multi-disciplinary home dialysis teams.

Ongoing research and evaluation of the implementation of home-based care models

To identify the determinants of sources of variation in HITH services by service area in terms of (i) uptake, (ii) effectiveness, and (iii) cost.

To improve data collection systems for the monitoring of HPN service provision and to promote the establishment of an HPN data registry.



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