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EDITORIAL

By Sue Daly, Business Manager, VCACI

Inside this issue

- 1 Editorial
- 2 Australian Home & Outpatient Intravenous Therapy Association (AHOITA)
- 4 Critical Paths and Variance Analysis
- 6 Hospital in the Home Variance Form
- 7 Upcoming Conferences
- 8 Mid-Term Progress Report
- 9 Considering the Cost
- 10 Patient Acute Treatment and Care at Home (PATCH)
- 11 Case Study
- 12 Victorian HITH Contact Names and Numbers

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A key focus in this Newsletter is Critical Pathway development. We have included a summary article on the background and use of critical pathways along with an extensive bibliography for those interested in further reading on this topic. In addition we have reproduced our generic variance tool which may be used as the starting point for development of path specific variance reporting for new pathways. Within this generic template we have included a number of HITH specific variances so that this tool could be adapted for both in-hospital and HITH care. We are particularly interested in sharing information on people's experience with the use of clinical pathways in the HITH environment. Please contact me to discuss this further if you are using clinical pathways in your HITH care.

The Cochrane database of systematic reviews has recently published a review which examined "The effectiveness of hospital at home compared to in-patient hospital care" undertaken by S. Shepard and S. Iliffe. The objective of this review was to determine the effectiveness of managing patients in hospital at home compared with in-hospital care. This international review examined studies which incorporated a randomised controlled trial methodology and focussed on patients aged 18 years and over. Studies were included on the basis that hospital in the home care substituted for acute in-hospital care. Studies which examined patients with long term care needs, paediatric and obstetric patients, and those requiring mental health services were excluded. A total of 5 trials were included in the review all of which were described as small and lacking in statistical power. There were no statistically significant differences detected in patient outcomes for these studies. Patients discharged early from the hospital to hospital in the home following elective surgery expressed greater satisfaction with care than those who remained in hospital. This review

reported that carers expressed less satisfaction with hospital at home compared with hospital care. Only one of the five trials formally tested for a difference in cost. No statistically significant difference was detected for overall net health care costs.

This review concluded that there is insufficient evidence to determine the effect of hospital in the home on patient outcomes or cost to the health care system. Each of the trials included in the review were reported to have methodological limitations.

Considering the heterogeneity of what is included in hospital in the home programs and the uncertainty surrounding the effects of this form of care, the review concluded that future research should clearly specify the type of service being provided, both at home and at hospital, and the specific patient groups being studied. The authors recommended that patient health outcomes, patient and carer satisfaction, and costs should be measured, and studies should include a formal, planned economic analysis. Further, it was concluded that future studies should be large enough to detect important differences and to ensure generalisability of the results.

This review highlights a number of key issues encountered in the evaluation of hospital in the home programs. From experience within the Victorian context there is no evaluation work which has been designed using a randomised controlled trial. While randomised controlled trials are considered the "gold standard" in scientific research methodologies they can be costly and very time consuming to implement, while the use of this approach does not ensure a high standard outcome. Extensive heterogeneity both within and between HITH Programs, along with relatively low patient volumes present challenges to be addressed in local evaluation studies.

Australian Home & Outpatient Intravenous Therapy Association (AHOITA)

Annual Scientific Meeting, Gold Coast, May 1998

by Dr Lisa Demos, Research Scientist, VCACI

VCACI gratefully acknowledges sponsorship from Roche for a member of staff to attend this conference. This one day seminar included invited presentations from several Australian speakers as well as Dr Mark Kunkel from the USA, contributed papers and a small poster section.

Invited Presentations

The seminar commenced with a presentation by Dr Kunkel, Chief, Infectious Diseases, Danbury Hospital, Connecticut and President of the Outpatient Intravenous Infusion Therapy Association (OPIVITA). He gave 3 presentations during the day. The first presentation was on quality outcomes in hospital-in-the-home (HITH) focusing on the OPIVITA Outpatient Parenteral Antimicrobial Therapy (OPAT) registry which commenced data collection in 1997 and currently has 19 participating sites. Data collected includes patient demographics, underlying disease, infection, bacteriology, oral and intravenous antibiotics, days in hospital and OPAT, IV access, location of care, method of antibiotic delivery, adjunctive clinical procedures, planned and unplanned re-hospitalisation, interruptions in therapy, access complications, adverse drug events, clinical and bacteriological outcome, and return to work or school. Information was presented from a pilot outcomes project on adverse events, antibiotics and outcomes as well as some preliminary analysis of patterns of antibiotic prescribing between sites, differences in delivery modes and access devices used. The registry is useful for external benchmarking and identifying best-practice methods. Dr Kunkel's other presentations included the economics of HITH with a discussion of the methodologies used in costing studies and the recently published US consensus guidelines for outpatient ambulatory therapy from the Infectious Diseases Society of America

(Williams D.N., Rehm S.J., Tice A.D. et al. Practice guidelines for community-based parenteral anti-infective therapy. Clin Infect Dis 1997; 25:787-801).

Dr Michael Montalto, Director Frankston HITH and Research Associate, Monash University Centre for Health Program Evaluation, Victoria, spoke on the establishment of quality indicators for HITH. He reported on a collaborative project between Frankston HITH and ACHS Care Evaluation Program funded by a Victorian Government HITH Service Development Grant to develop clinical indicators. He described the ten clinical indicators that have been developed. These are being field tested in 10 centres across Victoria and will be reviewed by the working party before being forwarded to the ACHS for ratification.

Dr Tony Alworth, Director, Infectious Diseases Unit, Royal Brisbane Hospital, Queensland, spoke on management of HIV in HITH. He described the variety of treatments administered to HIV patients at home (including ganciclovir, foscarnet, zidovudine, blood transfusions and total parenteral nutrition), the access devices and the choice of delivery system.

Professor Michael Ashby, Medical Director, Cancer and Palliative Care, Monash Medical Centre, Victoria, gave a presentation on palliative and terminal care at home with a snap shot of current Australian practice. Subcutaneous drug infusions including opioid analgesics, anti-emetics and sedatives may be administered via a Grasby syringe driver in palliative care patients in hospitals, hospices

or in the community. Subcutaneous fluid infusions are sometimes used to improve hydration status.

Associate Professor John Wilson, Consultant Respiratory Physician, Alfred Hospital, Victoria, spoke on their study comparing home and hospital management of adult cystic fibrosis patients. Patients elected to enter either the hospital or home management group and were matched into 15 pairs on the basis of age and lung function. Both medical outcome and quality of life measures were assessed. There was no statistical difference in lung function but a significant quality of life improvement in the home therapy group.

Mrs Gail Neilson, Senior Pharmacist, Alternative Site Infusion Service, Prince Alexander Hospital, Queensland, spoke on sterile drug compounding issues in HITH. These included reconstitution, filling of ambulatory devices, stability considerations and the use of freezing to extend the life of solutions.

Contributed Papers

Dr C. Cherry was awarded the best paper award for her presentation of a retrospective review of complication rates for PICCs and Hickman catheters in HITH at Austin and Repatriation Medical Centre. Ninety three PICCs and 23 Hickman catheters were used in 92 patients. Of these, 32 PICCs and 1 Hickman catheter were removed due to non life threatening complications. They identified factors that influenced the occurrence of complications which included line occlusion, catheter damage

and inflammation at the site. These were the use of continuous infusions, admission of the patient to hospital for any reason and position of the catheter tip peripheral to the SVC. They recommended further study to confirm the relative safety and to determine whether the complication rate could be reduced.

Mrs Heather Lyall, Deputy Director of Pharmacy, presented Geelong Hospital's experience with cephazolin 2g 12 hourly for cellulitis in 180 patients. Patients had a median duration of treatment of 5 days with a success rate of 97% and re-admission rate of 2.4%. Diarrhoea occurred in 2% and rash in 1.3% of patients. There was a high degree of patient acceptance. They concluded that cephazolin 2g 12 hourly was a safe, effective and preferred alternative for the treatment of cellulitis in the home.

Ms D. Bingley, Townsville District Health Service, described an Ambulatory Home Intravenous Antibiotic Service in North Queensland including the methods of delivery, infections treated, drugs, access and infusion devices and estimated costs.

Ms Fran Chambers, HITH Program, Monash Medical Centre spoke on the impact of a HITH program using low molecular heparin for the management of deep vein thrombosis on health professionals.

Dr G.P. Comadira, Emergency Department, Toowoomba Base Hospital presented a 6 month appraisal of their HITH pro-

gram which is co-ordinated through the Emergency Department with a review of indications, comparative treatment times, cost savings, patient satisfaction and admission rates. They demonstrated the program allowed for a more flexible use of bed resources and was cost effective provided the beds that would have been used by the HITH patients were closed.

Poster Presentations

Cagney R. and co-workers from the Department of Infectious Diseases, Mater Adults Hospital, Brisbane, presented "A randomised prospective trial to compare home and hospital intravenous antibiotic therapy in adults". A preliminary summary of the trial which included 13 patients randomised to home or hospital management with cellulitis, pneumonia, osteomyelitis or cystic fibrosis was presented.

Grant J. and co-workers, The Gold Coast Hospital, presented "Community parenteral therapy project: a pilot study in the Gold Coast district health service, Queensland". This included a comparison of community providers and hospital outreach services, costs and patient, carer, hospital physician, general practitioner and nursing satisfaction. Financial modelling revealed substantial cost-savings for community based care and satisfaction surveys demonstrated an acceptance for all respondents and a preference for community based care.

Foster L. and co-workers, Labrador,

presented a poster on "Establishing the Queensland Intravenous Nurses' Society". This has been established in response to the increased growth of intravenous therapy, especially home infusion programs, complex administration of intravenous therapies and advancing technology in infusion delivery and access devices to allow networking of hospital and community nurses. The group meets two monthly and is planning an inaugural seminar titled "IV Nurses Make a Difference" on March 5-6, 1999 at the Gold Coast International Hotel, Surfers Paradise.

J. Chesser and co-workers from the Society of Hospital Pharmacists of Australia presented a poster on "Standards of pharmacy practice for parenteral therapy in home health care for SHPA and AHOITA" which summarised the first national profession standards that are available for parenteral therapy in home health care.

B. Viertel, Townsville General Hospital, presented a poster on "Home-based intravenous therapy- an analysis of patient and clinician satisfaction". This described results from a survey of patient and clinician satisfaction conducted during 1997/98.

P. Brand, The Wesley Pharmacy Home Care Services, presented "Home Health Care Services in the Private Sector - Home IV Antibiotic Therapy" from the pharmacy perspective and included funding sources, costs and the patient's perspective.

C O N T A C T U S

We are keen to receive your feedback so that we can address areas of interest to you.

Please feel free to contact us if you:

- would like more information about the VCACI,
- wish to be added to our mailing list,
- have feedback, ideas or items for future Newsletters,
- would like to share details of forthcoming conferences, seminars or workshops,
- would like more information on HITH/ Acute Care in the Home Issues.

Critical Paths and Variance Analysis

By Anita Grindlay
Project Officer, VCACI

Introduction

Health care is becoming increasingly complex and costly, with greater demands from consumers and payers for quality, cost effective care. One tool that has experienced a rapid growth in recent times and is being used widely in the planning and coordination of care are Pathways. There are many names for Pathways including critical paths, clinical paths, care maps, integrated care paths; however, for the purpose of this paper they will be referred to generically as Pathways. Pathways are tools that are being utilised in all areas of health care: acute, community, mental health, maternity, adult and paediatric (Johnson 1997). Their development aids in the provision of seamless care across disciplines and between care settings.

Defining the Pathway

Pathways were borrowed from industry. Traditionally, builders used them to plan each step of the construction process (Moss et al 1993). In health care a Pathway is "a multidisciplinary road map of how clients/patients will be managed through an episode of care" (Villaire 1995). "They amalgamate all the anticipated elements of care and treatment of all members of the multidisciplinary team, for a patient or client of a particular case type or grouping within an agreed time frame for the achievement of agreed outcomes (Johnson 1997)".

Pathways are a concept, not a fixed method cast in stone (Johnson 1997). Although they are developed to be group or population specific, they in turn, are individualised to meet the specific needs of the client. Within the acute setting pathways are diagnosis or procedural specific, whilst in the community they may

be developed more according to stage of treatment. It has been found that approximately 70-75% of patients within a specific population group do follow a similar path (Hale, 1995). It is for this group of patients that Pathways are extremely beneficial. For the remaining 25-30%, the system will assist in identifying common causes of variation, and facilitate continuous improvement in the quality of client care.

The development of a Pathway begins with a strategic planning process (Newell 1996). Who are the stakeholders, what are the desired outcomes and in what time frame, and what criteria will the achievements be judged on? By asking these questions you ensure that the pathways are client focused. Outcome goals depend on such things as the practice setting, the nature of the service, and the expectations of the clients and patients (Newell).

Why Use Pathways?

The potential benefits of using Pathways are well documented in the literature (Daus 1996, Villaire 1995, Birmingham & Strassner 1996, Leininger 1996, Freeman & Chambers 1997, Kretz & Pantos 1996, Coffee et al 1992, Petryshen & Petryshen 1991, Zander 1992), and include improved clinical outcomes, decreased resource utilisation, decreased costs, improved quality, improved collaboration and communication between health professionals and settings, increased client and family satisfaction, increased client involvement in care, and decreased variation in care within homogenous client populations.

The development of outcome focused Pathways provide essential data for both interim and final goals of care. The data

made available through the pathway are used to continuously assess and refine care processes and systems operations to ensure desired client goals are met (Blancett and Flarey 1996). Data is collected through the monitoring of variances. Pathways are tools, which will facilitate continuous service improvement in the quality of client care.

Who Uses Pathways?

In the acute setting Pathways have been utilised since the early 1980's. The first pathways came from Zander and associates at the New England Medical Centre (Newell). Pathways are developed according to DRG's, ICD-9 codes, patient diagnosis or procedure (Blancett and Flarey). Successful implementation of Pathways has occurred in areas such as Orthopaedics, Urology, Cardiac, General Surgery, General Medicine, Oncology, Neurosurgery/science, Obstetrics and Gynaecology.

Implementing the Pathway

The successful implementation of Pathways requires excellent change management and is directly related to management support and careful planning. It requires a change in culture from being task orientated to outcomes focused and the understanding, involvement and support from all disciplines involved in the care of the specific patient group. Implementation can be the beginning of the end, when planning has not laid the foundations and commitment is lacking. Successful implementation of Pathways is dependent upon a planned implementation process, broad support for this approach, and integration of the changes with the organisation's vision.

Variances from the Pathway

In the context of Pathway analysis, Blancett and Flarey (1996) define variance as the deviation of actual outcomes from a predetermined norm, standard, rate, goal, threshold, or expected outcome. Variance analysis is the process of assigning meaning and interpretation to data and converting the data into information. Variance is classified differently between settings; some have a multitude of codes that specify individual variances,

whereas others group variances related to patient/family, practitioner, system or community. The VCACI has developed a coded variance form that is being utilised with orthopaedic pathways at St Vincent's and The Alfred. This form has only recently been implemented and will be adapted as required following feedback from the two sites.

An essential component of Pathway development is the establishment of a system, either manual or preferably computerised, to collect and analyse the data obtained when a variance occurs. Analysis of this data provides essential information on the frequency and causes of variation from the Pathway. Every step of a Pathway can be considered a source of variance if not completed or achieved within the time frame proposed by the Pathway. Many organisations utilising Pathways have found their data collection efforts overwhelmed with variances, most of which are not important for monitoring clinical outcomes (Pearson et al 1995). Because it is difficult to monitor every variance unless you do have a comprehensive computerised system, variances must be prioritised and those that are most important or that are felt to have the most impact, are the ones that should be tracked.

Conclusion

Pathways are not the answer for all patient groups, as they are time and resource intensive to develop. When deciding where to develop Pathways, management must concentrate on population groups that are high volume, high throughput, high cost and outside of the state average length of stay. While not all of the aforementioned criteria must be met, population groups should fall into at least two of these categories.

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REGULAR FEATURES

In future issues of the Newsletter we plan to include regular features such as . . .

- HITH Pharmacy issues
- HITH Program Showcase
- Recent Research Findings
- New Product Information
- HITH Case Studies
- Summaries of relevant publications
- Relevant conferences, short courses, workshops and seminars

UPCOMING CONFERENCES

Seminar in Geriatric Medicine

June 20-21, 1998, Greenslopes Private Hospital, Brisbane
Phone: SHPA Secretariat (07) 9690 6733

Working Together for an Electronic Patient Record

July 26-28, 1998, Carlton Crest Hotel, Brisbane, Australia
Phone: (03) 9388 0555 email: Lisa@Lisa.org.au

Integrated Bed Management: Critical Elements for Success A Seminar on City and Remote Perspectives

July 30th 1998, Sir Charles Gairdner Hospital, Perth, Australia
Phone: (03) 9276 2533 Fax: (03) 9276 2825 email: D.Gerrard@alfred.org.au

5th National Post Acute Treatment and Care in the Home

July 31-August 1, 1998, Novotel Brighton Beach, Sydney, Australia
Phone: (02) 9818 3344 Fax: (02) 9555 7522 email: hsansw@ozemail.com.au

Oncology Case Management Conference, Sharing Concerns, Finding Solutions

July 31-August 1, 1998, Philadelphia, PA.
Phone: 0011 1 412 921 7373 Fax: 0011 1 412 921 6565 email: meeting@ons.org

Implementing the Health Outcomes Approach

August 7-8, 1998, Rydges Lakeside, Canberra
August 6, Pre-conference Workshops
Phone: (02) 6205 0869 Fax: (02) 6205 2037

ASHP Home Care Meeting - Home Care '98

August 22-24, 1998
Pre-meeting Seminars on Accreditation Requirements on August 21
Navy Pier, Chicago, IL.
Fax: 0011 1 301 664 8888 email: eduserv@ashp.org

Tenth Casemix Conference in Australia - Looking Back Moving Forward

September 6-9, 1998, Melbourne Convention Centre
Phone: (02) 6281 6624 Fax: (02) 6285 1336 email: casemix@conlog.com.au

Biotechnology in Healthcare Symposium 1998

September 27-October 1, 1998, Singapore International Convention Centre
Phone: 0011 65 737 0275 Fax: 0011 65 737 6430 email: gmcs@parkway.com.sg

17th National Association for Home Care Annual Meeting and Homecare Expo

October 3-7, 1998, Atlanta, Georgia, USA
Phone: 0011 1 202 547 7424

Cancer, Culture & Clinical Innovation in Cancer Management

October 22-25, 1998, Hamilton Island, Queensland
Phone: 1800 808 108

3rd National Allied Health Conference - Towards 2000, Opportunities, Obstacles, Outcomes

November 4-6, 1998, Carlton Crest Hotel, Brisbane
Phone: (07) 3240 2187

NHMRC Clinical Trials Centre

Data Management for Clinical Research

Various Short Courses

Contact The University of Sydney

Phone: (02) 9562 5000 Fax: (02) 9565 1863

May 1998

“Improving access and service responsiveness of the NWHCN’s Hospital in the Home Programs for patients from culturally and linguistically diverse communities”

Background

This report was prepared by the Centre for Culture Ethnicity and Health (CEH) or the North Western Health Care Network - Hospital in the Home Program. It outlines the progress to date of the ‘Improving access and service responsiveness of the North Western Health Care Network (NWHCN) Hospital in the Home (HITH) Programs for patients from culturally and linguistically diverse communities’ Project. The Project was designed to be implemented in two phases and has now entered the second phase.

Phase One: Service Review

In 1997 the NWHCN (then the Western Health Care Network) engaged CEH to conduct a thorough assessment of all HITH Programs operating from the Western, Royal Melbourne, Werribee and Williamstown Hospitals. The overall objective of the project was to identify ways to increase access and improve service outcomes for culturally diverse patients and their families. It was envisaged that the identification of these communities’ needs would also assist in the development of more culturally and linguistically appropriate HITH information.

This phase of the project reviewed policies, practices, protocols and service systems, and explored avenues for increasing participation rates of people who speak languages other than English, in particular those from Italian, Greek and Vietnamese backgrounds.

The Service Review comprised two

main components. The first sought to elicit qualitative information about the Program from community members. This included key representatives from the selected communities as well as people who had experienced the Program first hand (both patients and carers) and from potential users of the Program. The second component sought input from the Program’s service providers on issues relevant to the ethnicity of their clients.

The Review highlighted a range of key issues needing to be addressed by the Program. Most importantly, it provided invaluable insight into the three communities’ perceptions of the HITH Program. This information will be used to better target services to these communities.

As a result of the Review CEH was able to present the NWHCN with recommendations across a range of areas. These included:

- strategies for implementing a localised promotional campaign with the target communities;
- the development of culturally appropriate information about the HITH Program;
- strategies for improving communications between patients, carers and health providers;
- improvements in service delivery protocols;
- the development of cultural diversity policies and guidelines;
- the need for crosscultural skill development for Program staff; and
- improvements in current data collection systems.

The report was submitted to the NWHCN in December 1997 and can be obtained from Mr Elwyn Davies, HITH, Western Hospital on:

Telephone: (03) 9319 6199 or

email: elwyn.davies@nwhcn.org.au.

Phase Two: Implementation of Service Review Recommendations

The NWHCN has engaged CEH for a further 12 months to implement a range of the recommendations which emerged from the Service Review.

In December 1997 CEH submitted a proposal to NWHCN outlining the objectives and deliverables pertaining to phase two. The proposal was accepted and forms the basis of a new Contract Agreement between NWHCN and CEH. A comprehensive work-plan was subsequently submitted to NWHCN in March 1998 and includes the following four components:

- Crosscultural staff development sessions for HITH Program staff;
- Localised promotional campaign with the three targeted ethnic communities promoting the HITH Programs;
- Development of new cultural diversity and language service policies relevant across NWHCN HITH Programs; and
- Development of culturally and linguistically appropriate HITH Program information for the three targeted communities.

Preliminary work on this phase began in early May 1998 and is due to be completed in May 1999.

CONSIDERING THE COST

By *Dr Michael Montalto*
Director, Frankston HITH Program

Aim

This project was funded through the Victorian Department of Health and Human Services Hospital in the Home Service Development Grants. The aim of this project is to contribute to a better understanding of the costing issues and the measurement of efficiency of hospital in the home (hereafter HIH) care by:

- 1 Reviewing the relevant literature, both international and Australian;
- 2 Conducting a costing comparison for one clinical condition, using secondary analysis of costing data collected for the Victorian Government Hospital in the Home evaluation by the Frankston Hospital in the Home Unit; and
- 3 Identifying gaps and difficulties in the costing of hospital in the home and to suggest strategies to overcome these.

Summary of Findings

Most authors who have published cost comparisons between HIH and traditional hospital care have found saving in HIH care, although the scope of savings differs. Some studies have included indirect costs, and found that the impact of these may be positive or negative for families informally caring for HIH patients.

The work by Plumridge concludes that the acquisition cost of a drug is less important than the frequency of delivery and the level of laboratory monitoring required in determining the total cost of drug delivery. This is important in the consideration of HIH efficiency.

There appears to be certain qualifying factors to be considered in the literature regarding the efficiency of HIH care:

- difficulty in termination of the HIH episode has been identified, and may influence the efficiency of HIH care;
- the likelihood that rehabilitation conducted in HIH is not cost efficient;
- that many costing studies use different sources to acquire costing data on HIH and traditional hospital patients, threatening the validity of these comparisons. In the Victorian Government study this feature was evident in influencing the neutral outcome of the study.

The following problems also complicate a global assessment of the efficiency of HIH services: the recent history of such care; a lack of uniform definition of HIH care; a lack of an accepted model for delivering such care; poorly defined clinical outcomes; the relatively small scale of HIHs; and the variety of conditions and therapies delivered, particularly differences in the delivery of HIH care and traditional hospital care for the same condition.

The variety of conditions and therapies can be controlled in future studies, although therapies may be a more practical and appropriate approach rather than conditions. The model used to deliver HIH care should be used as a variable in any future study, and any assumptions about the delivery of care must be avoided. This will allow comparisons between models of HIH to occur.

The issue of informal care and indirect costs is complex. However, it may be argued that the costs and benefits of HIH compared to traditional hospital care in the context of informal care are likely to

balance out, with no greater marginal benefit or cost in either scenario. A well conducted questionnaire study, using appropriate controls, will be able to identify and measure such indirect costs. A balance sheet approach may then be used.

The major advantage to patients and carers of HIH is in the area of intangible benefits and improvements in quality of life during an acute illness episode. Intangible costs exist and should be described. However, intangible benefits to the patient have been attributed a value in only one US study of the treatment of pneumonia at home. These should be examined further. Trade-off methodologies may be employed in the assessment of intangible benefits.

In a small scale secondary costing study performed on one condition managed in the HIH and in a traditional hospital setting at Frankston Hospital the following findings were made:

- HIH care was less costly in the areas of pathology, nursing, overheads and medical costs;
- HIH was as costly or costlier in the areas of pharmacy, procedures, imaging and allied health;
- If HIH patients are admitted directly from the emergency department, the savings in nursing and overheads for HIH are increased.

It found that direct measurement of staff time for traditional hospital patients was difficult to arrange, and labour intensive to maintain as a database. Measurement of medical time is also particularly difficult. Direct measurement of staff time for HIH patients was, on the other hand, relatively straightforward. The use of diaries held by the patient or videotaping of an entire episode are probably impractical.

Staff costs in HIH care may be overestimated due to the relative seniority of the staff used in HIH compared with that used in traditional wards.

The use of a randomised trial is considered optimum for the conduct of a study by efficiency, although other suggestions may still be useful. The difficulties of randomisation in a trial are recognised, but should be balanced against variation in patients within therapeutic or condition based groups who remain in hospital.

PATIENT ACUTE TREATMENT AND CARE AT HOME (PATCH)

HOME INTRAVENOUS ANTIBIOTIC THERAPY

by PATCH Team, Royal Hobart Hospital

The PATCH Program at the Royal Hobart Hospital was established under a Medicare Incentive Program early in May 1997. The program allows suitable patients to be transferred to a home setting for their acute admission with clear medical and nursing guidelines, backup and emergency protocols and a process for medical review. This paper presents an analysis of the home intravenous antibiotic therapy aspect of the service, which to date comprises 29% of the patient referrals.

Types of Infections Suitable for Home Intravenous Antibiotic Therapy.

The most common condition treated to date has been cellulitis (17 cases) followed by pneumonia (6 cases) and osteomyelitis (5 cases). A total of 51 patients have been treated in the first 9 months of the program. Patients may be referred midway through an acute admission episode, when they are medically stable, or in some cases, directly from the Emergency Department. In the latter instance, the patient is admitted under the appropriate medical unit, however they go home after their first dose of antibiotic.

In all instances of home IV antibiotic therapy, a consult is required with the Infectious Diseases Physician. The PATCH staff work closely with the Infectious Diseases team, who are conversant with our guidelines and admission criteria.

Most referrals have been from general medical and surgical units, with 31% from specialist units. The program has developed a wide profile within the hospital and there has been a process of gradual acceptance and understanding of our service over the past nine months.

Whilst most of the patients received treatment at home for an average of five days, some have had conditions (such as sub-acute bacterial endocarditis) that required longer and more complex IV therapy.

Nursing Skills Required

Amongst the nursing skills required for this service, cannulation and central line care proficiencies are essential. The nurses often administer the 2nd and 3rd doses of antibiotic, so competency must be demonstrated in the protocols that have been developed for the management of anaphylaxis in the home.

Comprehensive assessment skills are required, as a thorough assessment of the patient is made on each visit by the PATCH nurse and progress is relayed to the medical team. Patients are reviewed by medical staff routinely, weekly or twice weekly, but agree prior to transfer to the program, to come back to hospital for review if the nursing and medical staff think it necessary.

Patient education is an important aspect of the service. Patients and their carers are fully informed of what to expect, side effects to report and general guidelines pertaining to their condition. Patients are given a "When to Seek Help" pamphlet that outlines possible problems and information on who to call 24 hours a day, should they be at all concerned about any aspect of their condition or treatment.

There have been several occasions to treat patients from nursing homes, the prison, and group homes. These situations gave us opportunities for mutual staff education. In the case of the prison, PATCH staff were able to reduce visits once RN's from the prison felt comfortable with administration of the treatment. In all cases the patients were more appropriately cared for in their own environment with hospital staff providing specialist care and advice for the acute episode.

New Antibiotics Facilitate Home Care

Ceftriaxone was the most common antibiotic used by the PATCH team, being prescribed in 20 cases (39%). This was followed by Cephazolin used in 6 cases (12%). Due to its long half-life and ease of

administration, Ceftriaxone is ideally suited to home administration. IV access is decided on an individual basis, but in many cases this regimen is ideally suited to once daily administration via a butterfly needle, thus eliminating the need for a permanent IV access device.

PATCH nurses are able to visit at the most twice daily, due to the structure and staffing of the service, so referrals for twice daily antibiotics are accepted after consideration of present workload, home address of patient, and the feasibility of being able to deliver the drug within one hour of the 12 hourly requirement. Where the appropriate antibiotic requires more frequent than twice daily administration, consideration is given to continuous infusion via a pump. A computerised ambulatory pump was used on five occasions to deliver continuous infusions of flucloxacillin & cephalothin. This method requires either a central venous line or a peripherally inserted central catheter (PICC). The development of PICC lines and various types of delivery devices has further improved the range of conditions that can be treated outside the hospital setting.

Patient Demographics

The age range of patients treated varies from children to the elderly with a high concentration of patients in the 35-44 and 45-54 age ranges. PATCH nurses visit patients whose homes are within 30 minutes drive of the hospital in the greater Hobart district. Suitable patients living further away from the hospital are given the option of staying with family members or friends to enable their participation in the program.

Quality Improvement

Quality indicators being measured by the team include:

- a) Rate of hospital readmission
- b) Unexpected phone calls
- c) Total length of stay on program

CASE STUDY

d) Complications of treatment

e) Patient satisfaction

There have been 7 cases of complications related to the IV administration of the antibiotic. Careful assessment of patients prior to transfer to PATCH should prevent a significant number of treatment complications. The literature suggests that there is no difference in the incidence of complications in or out of hospital.

Outpatient Parenteral Antibiotic Therapy (OPAT) Throughout the World.

The benefits of home parenteral antibiotic therapy are well documented. Psychological well being is generally enhanced and the risk of nosocomial infections reduced. Patients report improved appetite and sleep, others report greater ease of access and comfort for visitors. Many experience an enhanced sense of involvement and "ownership" of their condition.

Cost savings are a driving force in the health care setting. Data on costings and length of stay on the program have been collected. Preliminary estimates and experience in other centres strongly suggests that home antibiotic therapy and in particular treatment with ceftriaxone, significantly reduces hospital costs.

IV antibiotic therapy outside the hospital setting is gaining popularity throughout the world. Programs successfully running in the US, referred to as OPAT, include visiting nurses, infusion centers and self-administration centres. Outpatient IV therapy centres are also operating in Argentina, Canada, Israel, Mexico, Norway, The Netherlands and Venezuela.

The drive towards cost savings in health is important, but the primary goal for health care workers is to increase quality of care. This program has undoubtedly provided high quality care, so the challenge for the PATCH team is to continue looking at cost saving measures within this framework.

Young Mr N is a five year old boy. He was initially assessed at St John's Private Hospital then referred to the Royal Hobart Hospital (RHH) for direct admission on 15 November 1997.

He had been unwell with a fever for 48 hours. He had no other symptoms until the day of admission when he became unwilling to weight bear on his right leg and complained of hip and thigh pain.

Clinical Examination

- Temperature 40 degrees Celsius
- Chest clear
- Normal heart sounds
- ENT - ears clear, enlarged tonsils
- ROM legs R<L and unable to weight bear

Investigations

- Blood tests 15 November 1997
Hb 117, WCC 22.0, Plat 261, CRP 50, ESR 59.
- Bone Scan (Day 3 admission) suggestive of osteomyelitis right pubic symphysis.
- Active skeletal inflammatory pathology in the region of the pubic symphysis.
- Blood cultures positive for Group A Streptococcus.

He was initially commenced on IV Flucloxacillin and Penicillin for 48 hours then changed to IV Flucloxacillin and Ceftriaxone for a further 5 days. He was then referred to the Patient Acute Treatment and Care in the Home (PATCH) team.

Assessment

Family situation: Father and Mother (primary carer) is a midwife and there were two young siblings.

The family lived 15 minutes from RHH. Education was given to the parents about when to seek help including phone contacts and times were arranged for PATCH nurses to visit. Appointments were arranged for review by Paediatricians.

Young Mr N had a long line inserted and was transferred to the PATCH program for a continuous infusion of flucloxacillin for a further 8 days via a CADD pump.

Treatment went along smoothly with no phone calls received from the parents. He was visited twice daily and had a total of 15 visits at home.

After six (6) days as an inpatient and eight (8) days at home with PATCH care he was discharged on the 28th November 1997. The outcome was complete cure. His family were extremely happy that he could be treated at home and they would not hesitate to use the service again if the need arose.

Advantages

1. Child happier and slept better at home.
2. He spent quality time with the whole family with less disruption to daily life.
3. Mum was able to resume normal life and work as a child carer and student.
4. Mr N was not exposed to nosocomial infections in hospital.

PATCH Nursing Team

Ruth Wednster
Karen Stevens
Margaret Waters
Edna Kwan
Jenny Connolly

Victorian HITH Contact Names and Numbers

					Telephone	Fax
Angliss Health Services	Albert Street	Upper F'tree Gully	Ms Gael	Traa	(03) 9764 6114	(03) 9764 6399
Austin & Repat Medical Centre	Studley Road	Heidelberg	Ms Helen	Fithal	(03) 9496 3378	
Austin & Repat Medical Centre	Studley Road	Heidelberg	Ms Lisa	Hill	(03) 9496 5775	(03) 9496 5772
Austin & Repat Medical Centre	Studley Road	Heidelberg	Ms Kim	Lumsden	(03) 9496 3603	(03) 9459 0971
Bacchus Marsh Memorial Hosp.	P.O. Box 330	Bacchus Marsh	Ms Jan	McEgan	(03) 5367 2000	(03) 5367 4537
Bairnsdale Regnl Health Service	Day Street	Bairnsdale	Ms Kay	Cotter	(03) 5150 3333	(03) 5152 6784
Ballarat Base Hospital	P.O. Box 577	Ballarat	Ms Patricia	Twaits	(03) 5320 4676	(03) 5320 4549
Benalla & District Memorial	P.O. Box 406	Benalla	Ms Margaret	Aldous	(03) 5760 2258	(03) 5760 2246
Bendigo Health Care Group	14 Bayne Street	Bendigo	Ms Robyne	Faye	(03) 5441 0222	(03) 5443 8005
Box Hill Hospital	Nelson Road	Box Hill	Ms Helen	Hamilton	(03) 9895 3442	(03) 9895 4901
Box Hill Hospital	Nelson Road	Box Hill	Mrs Philippa	de Voil	(03) 9895 3442	(03) 9895 3443
Central Wellington Health Service	Guthridge Parade	Sale	Ms Paula	Hart	(03) 5149 6677	(03) 5149 6633
Colac Com. Health Svces Hospital	Corangamite Street	Colac	Ms Marie Louise	Tucker	(03) 5230 0275	(03) 5230 0191
Dandenong Hospital	Box 478	Dandenong	Ms Dana	Kiley	(03) 9554 8416	(03) 9554 8453
East Grampians Health Service	P.O. Box 155	Ararat	Mr Ray	Elsworthy	(03) 5352 2221	(03) 5352 4612
Echuca Regional Health	P.O. Box 25	Echuca	Ms Diane	Egan	(03) 5482 2800	(03) 5482 5478
Geelong Hospital	P.O. Box 281	Geelong	Mrs Judi	Gravett	(03) 5226 7303	(03) 5226 7005
Hamilton Base Hospital	P.O. Box 283	Hamilton	Ms Betty	Jooden	(03) 5571 0222	(03) 5571 0240
Goulburn Valley Hospital	102 Corio Street	Shepparton	Ms Christine	Ryan	(03) 5831 6390	(03) 5822 2584
Kyneton District Health Service	P.O. Box 34	Kyneton	Ms Judith	Bloomfield	(03) 5422 1177	(03) 5422 2373
Latrobe Regional Hospital	Locked Bag No 1	Moe	Ms Rosemary	Nation	(03) 5127 0608	(03) 5127 0775
Maroondah Hospital	P.O. Box 135	East Ringwood	Mr Ian	Jackson	(03) 9871 3712	(03) 9871 3716
Mercy Public Hospitals Inc	Clarendon Street	East Melbourne	Ms Ann	Turnbull	(03) 9270 2237	(03) 9270 2777
Mildura Base Hospital	P.O. Box 306	Mildura	Ms Sheena	Clark	(03) 5022 3468	(03) 5022 3258
Monash Medical Centre	Locked Bag 29	Clayton	Ms Fran	Chambers	(03) 9550 2433	(03) 9550 6925
Monash Medical Centre	246 Clayton Road	Clayton	Dr Lindsay	Grayson	(03) 9550 2617	(03) 9550 4533
PANCH	205 Bell Street	Preston	Dr Marie	Pirotta	(03) 9285 2631	(03) 9285 2641
Peninsula Health Care Network	P.O. Box 52	Frankston	Dr Michael	Montalto	(03) 9784 7241	(03) 9784 7242
Peter MacCallum Cancer Institute	St Andrews Place	East Melbourne	Dr Guy	Toner	(03) 9656 1190	(03) 9656 1408
Portland & District Hospital	Bentinck Street	Portland	Ms Michelle	Henningsen	(03) 5521 0333	(03) 5521 0358
Royal Children's Hospital	Flemington Road	Parkville	Ms Jann	Cooney	(03) 9345 6548	(03) 9345 6231
Royal Melbourne Hospital	Grattan Street	Parkville	Dr Denise	Ruth	(03) 9342 8549	(03) 9342 8548
Royal Melbourne Hospital	Room W224 - 2 W	Parkville	Ms Jane	Peirce	(03) 9342 7801	(03) 9342 7700
Royal Melbourne Hospital	2 Grattan Street	Parkville	Ms Joanne	Moss	(03) 9342 8597	(03) 9342 8268
Royal Women's Hospital	132 Grattan Street	Carlton	Ms Pamela	Bull	(03) 9344 2324	(03) 9348 1840
St Vincent's Hospital	41 Victoria Pde	Fitzroy	Ms Carole	Staley	(03) 9288 3818	(03) 9288 3848
Stawell District Hospital	P.O. Box 116	Stawell	Ms Jan	Sherwell	(03) 5358 8572	(03) 5358 4092
Swan Hill District Hospital	P.O. Box 483	Swan Hill	Ms Sandra	Cole	(03) 5033 9310	(03) 5032 9528
The Alfred	P.O. Box 315	Prahran	Ms Di	Richards	(03) 9276 3908	(03) 9276 2794
The Williamstown Hospital	P.O. Box 125	Williamstown	Ms Allison	Chircop	(03) 9393 0133	(03) 9393 0178
Wangaratta District Base Hospital	P.O. Box 386	Wangaratta	Ms Kath	Hattersley	(03) 5722 0348	(03) 5721 9526
Warrnambool & District Base Hosp	Ryot Street	Warrnambool	Ms Jenice	Smart	(03) 5563 1682	(03) 5563 1627
Werribee Mercy	300 Princes Highway	Werribee	Ms Vicki	Geytenbeek	(03) 9216 8700	(03) 9216 8777
Werribee Mercy	300 Princes Highway	Werribee	Ms Wendy	Dunn	(03) 9216 8691	(03) 9216 8692
West Gippsland Hospital	Landsborough Road	Warragul	Mrs Marie	Young	(03) 5623 0611	(03) 5623 0609
West Wimmera Health Service	P.O. Box 231	Nhill	Ms Pauline	Scottow	(03) 5391 4222	(03) 5391 4228
Western Hospital	Gordon Street	Footscray	Mr Elwyn	Davies	(03) 9319 6199	(03) 9319 6314
Wimmera Health Care Group	Baillie Street	Horsham	Mrs Pat	Dodson	(03) 5381 9184	(03) 5381 9187
Wodonga District Hospital	Vermont Street	Wodonga	Dr Andrew	Watson	(02) 6051 7470	(02) 6051 7477
Wodonga District Hospital	Vermont Street	Wodonga	Ms Dianne	Wicks	(02) 6051 7334	(02) 6051 7319



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