Emergency Demand Coordination Group

ED Critical Pathways Project

Final Report

October 2001

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Executive Summary

A recent study, commissioned by the Victorian Department of Human Services (DHS), explored the use of Short Stay Units in Victorian Hospitals. This study confirmed that few critical pathways and/or guidelines were used in Victorian Emergency Departments (EDs).

The aim of the Emergency Department Critical Pathways Project was to build on previous work undertaken in this area, with a focus on high volume ED presentations that do not require inpatient admission. The project was overseen by a Reference Group with broad membership as shown in Appendix A.

The specific aims of this project were to:

- Produce a critical pathway educational package targeted to EDs,
- Undertake focussed literature reviews for high volume conditions to document best practice principles,
- Develop hospital specific critical pathway(s) in each participating site,
- Develop a generic approach to variance analysis that can be adapted in each site,
- Develop hospital specific implementation plans, and
- Establish an ED critical pathway network to share information relating to the project with all participating sites.

The DHS provided funding for 17 Victorian Emergency Departments to participate in the project, with each site providing project officer(s) to coordinate the project in their department. Additional support and assistance was provided by DHS project officers. Hospitals that participated in the project were and the pathways developed were:

Hospital	Pathway Condition
A&RMC	Asthma (adult & paediatric), Cellulitis, DVT and Epistaxis
Barwon Health	Asthma (adult & paediatric), Croup, DVT, UTI / Pyelonephrirtis
Bendigo Health Care Group	Chest Pain
Eastern Health:	
• Angliss Health Service	Carbon Monoxide Poisoning
• Box Hill Hospital	Renal Colic
• Maroondah Hospital	Cardiac Failure
Frankston Hospital	DVT
Goulburn Va lley Health	Cellultitis
Latrobe Regional Hospital	Pneumonia
The Northern Hospital	Asthma - Paediatric
Royal Melbourne Hospital	Abdominal Pain
Sandringham & District Memorial Hospital	Paediatric Forearm Fractures
Southern Health	
• Dandenong Hospital	Renal Colic
• Monash Medical Centre	PV Bleeding
St Vincent's Hospital	Chest Pain
The Alfred	Asthma - adult
Western Hospital	Deliberate Self-harm

Four evidence-based literature reviews were conducted for commonly selected conditions. The Centre for Clinical Effectiveness at Southern Health conducted literature reviews on renal colic and deep vein thrombosis, and the Clinical Epidemiology and Health Service Evaluation Unit (CEHSCU) at Melbourne Health conducted reviews for chest pain and asthma.

A total of 25 pathways for conditions that present to EDs have been developed out of this project. Further outcomes of the project include educational material for staff on critical pathway concept and use, literature as described above and a quality framework for evaluation of critical pathways (all available on the DHS website). Additionally, a network of ED staff involved in critical pathway activity has developed to provide an opportunity for support for future pathway work.

Critical success factors that contributed to the successful outcomes of this project, which was undertaken over a short time frame, were provision of education manual, workshops, project plans and timelines, and fortnightly progress meetings where issues, barriers and innovative ways of overcoming these were developed and shared. Other links were maintained via e-mail, telephone and site visits.

The critical pathways developed out of this project provide a sound basis and first step towards the utilisation of critical pathways in EDs. Implementation, uptake, evaluation, variance analysis and quality improvement activities are the next steps required to gain the benefits that can be derived from these tools.

It is intended to conduct a quarterly forum for all project officers to facilitate reporting of ongoing progress, allow networking and promote continuing expansion of pathway development across sites. The Reference Group has agreed to meet six monthly to monitor and track progress and outcomes of this project.

Introduction

The benefits of using critical pathways to guide decision-making, streamline management and processes, and improve the quality of care delivered to patients have been well documented (Dowsey, Kilgour, Santamaria & Choong,1999). However, very few critical pathways have been implemented in the Emergency Department (ED) setting.

A recent study, commissioned by the Victorian Department of Human Services (DHS), explored the use of Short Stay Units in Victorian Hospitals. This study confirmed that few critical pathways and/or guidelines were in use in Victorian EDs.

The aim of the ED Critical Pathways Project was to build on previous work undertaken in this area, with a focus on high volume ED presentations that do not require inpatient admission.

DHS provided each participating hospital with funding for a full time project officer over 7 weeks (from 14th June 2001 to 4th August 2001) to develop hospital specific pathway(s) for ED patients.

The specific aims of this project were to:

- Produce a critical pathway educational package targeted to EDs,
- Undertake focussed literature reviews for high volume conditions to document best practice principles,
- Develop hospital specific critical pathway(s) in each participating site,
- Develop a generic approach to variance analysis that can be adapted in each site,
- Develop hospital specific implementation plans, and
- Establish an ED critical pathway network to share information relating to the project with all participating sites.

Overview of Critical Pathways

Critical pathways are multi-disciplinary documentation tools that focus on a specific patient population (Villaire, 1995, Dowsey et al, 1999). They provide an outline of the patient's expected course of management and care for the episode.

Critical pathways are outcome focused, whereby expected outcomes are pre-established. The pathway documents and sequences the critical elements of treatment that may assist healthcare providers in achieving these outcomes. The pathway also sequences the care and management provided by all members of the multidisciplinary team including the timing of their interventions. For example, the point (day) at which the physiotherapist

commences ambulation and exercises post Total Joint Hip Replacement will be outlined in the pathway.

Critical pathways have been written for various timelines or scopes of care including inpatient, home care, Hospital in the Home (HITH), rehabilitation, maternity, mental health and EDs. They are based on analysis of current practice, following review of retrospective data for the specific population and evidence-based literature. Once consensus by the multidisciplinary team has been gained, the care, management and expected outcomes for the specific patient population are defined.

The benefits of critical pathways include that they can:

- Streamline and coordinate care,
- Allow for clear communication of usual treatments and interventions,
- Facilitate a team understanding of what is expected during the episode,
- Ensure no critical aspects of care are overlooked by any member of the team,
- Ensure that interventions are performed in a timely manner,
- Assist with the implementation of evidence based practice if content of the pathway is based on best practice,
- Serve as an education tool for patient and family,
- Enhance documentation, and
- Allow for variance analysis, which enables measurement of practice, identification of trends and quality improvement activities.

Trials have documented the benefits of pathways in term of optimising or improving the quality of care, reducing length of stay (LOS) without compromising care or outcomes and reducing in costs (Dowsey et al 1999, Goldberg et al 1998).

Critical pathways are usually developed for conditions that are:

- High volume,
- High cost,
- Significant LOS,
- High variation in LOS, management, or cost per case, and/or
- Where there is room for streamlining process or management.

A variance occurs when there is an unexpected event or deviation from the pathway. For example, if it is expected that the patient is afebrile on day 2 post Total Hip Joint Replacement and they are in fact febrile this would be recorded as a variance. A patient presenting with asthma may have a variance recorded if they are not referred to the asthma education unit where this is

considered routine follow-up. As pathways do not override clinical judgement and patients are individuals, variances should not be referred to as negative or have negative connotations associated with them.

Analysing variances allows the measurement of practice, patient and system outcomes. By analysing the variances on a specific population, trends can be identified and thus the pathway can be used as a tool for quality improvement as well as the documentation record. For example, if it is identified by variance analysis that only 10% of asthmatics are being referred to education follow-up as expected on the pathway, then this can be addressed. Another example may be that a significant percentage of patients have significantly high pain scores post surgical procedure with epidural anaesthesia on post operation day one. A change in the epidural pain management regime may be implemented to address this trend.

Critical pathways need ongoing review and require a change in focus from being task oriented to outcomes focused. They require involvement and understanding from all staff. This requires ongoing education and the feedback of variance analysis. Usually when variance analysis is fed back to staff in a timely manner, there is a better understanding of how pathways work and how they are beneficial to the team. Those organisations that have been successful in pathway implementation have usually had dedicated resources to drive the pathway management process by managing education, assessing appropriateness of use and acting accordingly, and by managing variance analysis.

Methodology

This project was conducted with Project Officers seconded from the Victorian Centre for Ambulatory Care Innovation, and literature reviews were conducted by the Clinical Epidemiology and Health Service Evaluation Unit at Melbourne Health and the Centre for Clinical Effectiveness at Southern Health.

The project was overseen by a Reference Group consisting of key stakeholders from EDs (medical and nursing staff), relevant professional associations, hospital administration and quality staff, and the Department of Human Services (see Appendix A).

Eighteen Victorian hospital EDs were invited to participate. One hospital was unable to participate due to resource issues. Each site nominated one or more project staff which were generally members of the ED's medical or nursing staff.

The majority of project officers had little previous knowledge in relation to pathways and most EDs had not developed any specific ED pathways prior to this project, although several hospitals had pathways in place with an ED component (see Appendix B).

The ED Critical Pathways Project was launched at a workshop conducted on 14th June 2001. The launch was attended by key project staff from the 17 participating sites. The workshop presented:

- The project outline and timelines,
- An overview of critical pathways and variance management, and
- A guide to development and implementation.

The following criteria was used by each site to select a condition for pathway development:

- Presentations that do not require inpatient admission (for example, DVT or cellulitis directly admitted into HITH, asthmatics who are managed and discharged to home, conditions transferred to short stay unit), and
- Presentations where a pathway may facilitate improvement in streamlining management or processes (for example, initiation of first nebuliser or times to first nebuliser, increasing appropriate referrals into HITH, fast-tracking investigations performed).

Most sites conducted baseline data analysis of the actual presentations with the target condition from the previous year. This analysis was used to identify and document current practice.

Pathway development then involved:

- Liaison with ED staff,
- Development of a pathway based on current practice data,
- Utilisation of literature,
- Education and communication to ED staff on critical pathways,
- Circulation of the pathway for input and revision, and
- Redrafting of the pathway to achieve consensus.

In some instances the project was used to build on the work already underway. Eastern Health, for example, used the project to implement protocols previously developed at Angliss across the remaining Eastern Health sites (Box Hill and Maroondah Hospitals). Additional protocols were also developed for supplementary conditions.

Project progress was monitored through site visits, telephone and email contact, and fortnightly progress meetings. Contact was maintained on a weekly, and sometimes more frequent, basis. The fortnightly progress meetings facilitated information sharing on issues faced and how these were overcome. It also facilitated discussion on approaches taken and initiatives that assisted the process.

A second workshop was conducted on the 2nd August 2001. This forum provided the opportunity for project officers to share experiences and present their work to others. Project officers presented the following information in relation to their work:

- Pathway type developed,
- Baseline audit data,
- The reason the presenting condition(s) were chosen, the aims of the pathway and the issues the pathway may address,
- Issues encountered during the project, and
- Helpful hints.

Other topics discussed at the workshop included the next steps, that is, implementation, variance management and follow-up reporting.

Literature Reviews

An important component of the pathway development process is conducting an evidence-based literature review. Evidence-based literature informs the development process and enables clinicians to compare current practice with optimal patient management. Additionally the pathway content, which guides practice, should be based on evidence.

The literature review is a time consuming process. For the purpose of this project, four literature reviews were conducted by external organisations, the Centre for Clinical Effectiveness at Southern Health, and the Clinical Epidemiology and Health Service Evaluation Unit at Melbourne Health.

The top four most common conditions chosen for pathway development across the 17 sites determined the selection of the conditions for these literature reviews. Subsequently, the conditions chosen were:

- Renal Colic,
- Deep Vein Thrombosis (DVT),
- Chest Pain, and
- Asthma.

The methodology of the literature review is as described by the Centre for Clinical Effectiveness within the literature review document (Villanueva E., Allen W. & Anderson J., 2001).

The searches were conducted on the following databases and Internet websites and included articles published since 1997:

- Cochrane Library CD-ROM,
- Medline (OVID),
- CINAHL (OVID),
- SumSearch,
- National Guidelines Clearinghouse, and
- NHS Centre for Reviews and Dissemination (NHS CRD).

The following inclusion and exclusion criteria were also used:

Inclusion Criteria

- Focus on adult patients with the identified conditions in the ED,
- Published primary studies, and
- Published clinical practice guidelines (whether generated through evidence-based methods or through consensus).

Exclusion Criteria

- Study examined less than five patients,
- Study was published in a language other than English, and
- Study presented data included in another published report.

The literature reviews are available as separate documents and will be distributed to all participating sites, and be made available to other institutions on the DHS website (www.dhs.vic.gov.au/pdpd/edcg/index.htm). Future pathway work will therefore benefit from the literature reviews.

The Clinical Epidemiology and Health Service Evaluation Unit will also provide an evidence-based literature review in relation to change management and implementation. Critical pathways in the ED are, for the most part, a new concept and require change management and implementation strategies. This literature review will be of benefit to the project officers with the implementation process.

Site Specific Summaries

There were 17 hospitals involved in the ED Critical Pathways Project. A summary of critical pathway project details by each site is provided below [1]:

Austin & Repatriation Medical Centre	
Project Officer: Vanessa Byrne Clinical Nurse Specialist, ED	**Contact Details:** Ph: 9496 5378 Vanessa.byrne@armc.org.au
Pathway Condition: Asthma - Paediatric & Adult, Cellulitis, DVT, Epistaxis	
Aims: Coordinate, streamline and standardise care of patients Improve patient and staff satisfaction Decrease LOS and waiting times Reduce replication Increase referrals to HITH for patients with cellulitis Impact on times to treatment in asthmatics Improve times for HITH assessment where DVT patients present with private ultrasounds Assist junior medical and nursing staff Allow for some components of treatment and investigation to be initiated prior to medical assessment	
Pathway Key Elements: Algorithm on front page, tasks and outcomes organised into time sequences Protocols (where developed and accepted) are incorporated into pathway	
Variance Analysis: Variance analysis will be conducted on an excel spreadsheet.	
Key Lessons and Suggestions: Provision of education inservices on baseline audit data to medical and nursing staff facilitated an understanding of how the pathway would be beneficial Incorporate pathways into the MEDTRAK system (IT system) to trigger use The epistaxis pathway was chosen because medical interest was voiced eg. ENT registrar aimed to standardise management of epistaxis Continuing education of staff is extremely important Good communication between all faculties and input from others is vital Good IT databases for data collection to ensure the information required is captured Don't accept rejection, work through it.	

[1] The Royal Melbourne and Southern Health (Dandenong Hospital and Monash Medical Centre) summaries are not included in this report (incomplete as at September 20 2001).

<table>
<tr><th colspan="2">Barwon Health</th></tr>
<tr><td>Project Officer:
Darren Smith
ED Project Nurse</td><td>Contact Details:
Ph: 5226 7985
Darrens@barwonhealth.org.au</td></tr>
<tr><td colspan="2">Pathway Condition: Asthma - Paediatric, Cellulitis, Croup – Paediatric, DVT, UTI / Pyelonephritis</td></tr>
<tr><td colspan="2">Aims:
Improve percentage of patients referred to HITH
Avoid delays in investigations and treatments
Standardise care
Provide a guide and education tool for junior staff</td></tr>
<tr><td colspan="2">Pathway Key Elements:
Algorithms included
Outcomes are sequenced in time phases
Variances are able to be recorded</td></tr>
<tr><td colspan="2">Variance Analysis:
Will be incorporated into quality initiatives
Hospital has recently appointed a clinical pathway coordinator
To be reported on 3 months following implementation</td></tr>
<tr><td colspan="2">Key Lessons:
Begin with conditions that:
Will be successful – the less complex
Where current practice varies
Easily identifiable at triage
Placed signs at key points such as triage and at medical computer
Can never over-educate staff
Initiate medical record (MR) meetings to obtain MR number and establish record maintenance processes
Create flags for pathways on IT system
Review issues at 1, 3 and 6 months</td></tr>
</table>

<table>
<tr><th colspan="2">Bendigo Health Care Group</th></tr>
<tr><td>Project Officer:
Ellen Wilson
Registered Nurse</td><td>Contact Details:
Ph: 5441 0229 Fax: 5441 0208
Mscholes@bendigohealth.org.au</td></tr>
<tr><td colspan="2">Pathway Condition: Chest Pain</td></tr>
<tr><td colspan="2">Aims:
Improve documentation and communication
Coordinate care
Establish outcomes and staff expectations
Reduce LOS
Facilitate data collection on cost, LOS, volume, and investigations</td></tr>
<tr><td colspan="2">Pathway Key Elements:
Pathway for chest pain incorporated into other standard documentation booklet</td></tr>
<tr><td colspan="2">Variance Analysis:
Have a pre-established system for managing variances, as pathways have been implemented in the hospital for a few years</td></tr>
<tr><td colspan="2">Key Lessons:
Enlist medical support
Run changes by staff constantly
Have informal education sessions during quiet time</td></tr>
</table>

<table>
<tr><th colspan="2">Frankston Hospital</th></tr>
<tr><td>Project Officer:
Nyree Parker

Ann Lindsay</td><td>Contact Details:
Ph: 9784 7373 Fax: 9784 7065
nparker@phcn.vic.gov.au
Ph: 9787 7202 Fax: 9784 7065
alindsay@phch.vic.gov.au</td></tr>
<tr><td colspan="2">Pathway Condition: DVT</td></tr>
<tr><td colspan="2">Aims:
Improve time of referral to HITH
Improve time of HITH review performed
Measure times to pathology, anticoagulation and ultrasound
Improve time to nursing assessment
Decrease waiting time
Increase patient satisfaction
Improve communication</td></tr>
<tr><td colspan="2">Pathway Key Elements:
Algorithm included in document</td></tr>
<tr><td colspan="2">Key Lessons:
Introduce fast track procedure at triage
Don't expect rapid progress</td></tr>
</table>

<table>
<tr><th colspan="2">Goulburn Valley Health</th></tr>
<tr><td>Project Officer:
Tanya Kuiper
Associate Nurse Unit Manager</td><td>Contact Details:
Ph: 5832 2322 Fax: 5831 6044
kuipert@gvbh.org.au</td></tr>
<tr><td colspan="2">Pathway Condition: Cellulitis</td></tr>
<tr><td colspan="2">Aims:
Improve management practices of patients with cellulitis
Formalise antibiotic regimen
Encourage referrals and use of HITH
Reduce investigations</td></tr>
<tr><td colspan="2">Pathway Key Elements:
Pathway developed into phase blocks
Includes flowchart in document as well as standard ED documentation</td></tr>
<tr><td colspan="2">Key Lessons:
Make regular progress meetings with key stakeholders</td></tr>
</table>

Latrobe Regional Hospital	
Project Officer: Jenny Pridgeon Associate Unit Manager Kristan Wells Registered Nurse	**Contact Details:** Ph: 5173 8272 Fax: 5173 8270 pridgeon@net-tech.com.au Ph: 5173 8272 Fax: 5173 8270 Wells_kris@hotmail.com
Pathway Condition: Pneumonia	
Aims: Build on breakthrough project Streamline management of pneumonia – impact on variation in antibiotic practice Guide new medical staff and less experienced nursing staff Decrease LOS	
Pathway Key Elements: Algorithm is attached to the pathway	
Key Lessons: Distribute weekly newsletters to staff to keep them informed Ensure medical team are involved in development	

The Northern Hospital	
Project Officer: Lisa Kuhn Registered Nurse Education Centre Projects	**Contact Details:** Ph: 9271 8000 Pager: 343 Lisa.kuhn@nh.org.au
Pathway Condition: Asthma - Paediatric	
Aims: Standardise and improve assessment and monitoring once stabilised Improve patient and family education Ensure appropriate follow-up	
Pathway Key Elements: Incorporates flowchart with timeframes	
Key Lessons: Be inclusive although form relevant work groups Keep everybody informed Use e-mail to disseminate document but include rationale for work Incorporate others ideas wherever possible and practical	

Sandringham & District Memorial Hospital	
Project Officer: Bruce Greaves Nurse Unit Manager ED Fiona Ronalds Registered Nurse	**Contact Details:** Ph: 9921 1472 Fax: 921 1474 b.greaves@sdmh.org.au
Pathway Condition: Forearm Fractures - Paediatric	
Aims: Standardise management Improve documentation	
Pathway Key Elements: Each stage gets signed off and time noted	
Key Lessons: Question staff – determined not to make the pathway too long as they would not use it Resulted in development of standard forearm splints in various sizes Use IT system so that when patient presents the pathway is automatically printed Found that time to analgesia was good when benchmarking done, however there was variation in documentation – poor to good	

St Vincent's Hospital	
Project Officer: Peta Cork Associate Nurse Unit Manager Cathy Lennon Registered Nurse	**Contact Details:** Ph: 9228 4377 Fax: 9288 4368 Corkp@svhm.org.au Lennonc@svhm.org.au
Pathway Condition: Chest Pain	
Aims: Improve the use of the pain score Assist junior staff with assessment and treatment Assist in discharge planning Streamline care including transfer of patients into new CHEMU Evaluate care provided	
Pathway Key Elements: Other standard documentation is included in the pathway.	
Key Lessons: Used education board with lots of photos and ensured team approach	

The Alfred	
Project Officer: Pauline Roleff ED Project Nurse	**Contact Details:** Ph: 9276 3405 Paulineroleff@hotmail.com
Pathway Condition: Asthma - Adult	
Aims: Improve the rate of nurse initiated nebulisers Standardise management – changes to investigations performed and IV cannulation Increase referrals to asthma education nurse Improve appropriate referral to asthma unit and follow-up consultations	
Pathway Key Elements: Utilises expected outcomes in time frames	

Western Hospital	
Project Officer: Nicole Amsing Continuum of Care Coordinator Western Health	**Contact Details:** Ph: 8345 6385 Fax: 8345 6584 Nicole.amsing@mh.org.au
Pathway Condition: Deliberate Self-harm	
Aims: To improve recognition, treatment and ongoing care of patients who have attempted suicide To develop better community linkages To improve referrals To improve diagnosis of co-morbidities	
Pathway Key Elements: Algorithm with evidence-based guidelines and standards incorporated into the document. Key outcome measures, for example, time to referral etc. documented on front page next to algorithm Progress note reporting at this stage (currently reviewing all documentation and pathway format in the next phase post review)	
Variance Analysis: Development of deliberate self-harm module for existing disease management database	
Key Lessons: Data and evidence based guidelines were most useful Key stakeholder input is vital Variance management database with specific "built in" components for deliberate self-harm helped to sell the project to key stakeholders	

Eastern Health

Eastern Health used the project to implement protocols already developed at Angliss, across the three sites in line with other ED initiatives at Eastern Health, for example the opening of the EMU at Box Hill and Maroondah. Eastern Health also developed additional protocols within this project.

Aim:

Develop a common set of short stay observation unit, EMU and HITH clinical pathways across Eastern Health to:

- Ensure appropriate patients are admitted to short stay or EMU units
- Facilitate streamlining of treatment, admission and discharge in short stay unit or EMU
- Decrease LOS in ED
- Decrease admissions to wards

Key lessons:

- Important to have clear direction
- Difficult when there are differences in site preferences
- Difficult when there are differences in resources at each site
- Eastern Health objective was different to the rest of the participating sites and this made it more challenging.

Angliss Health Service

Project Officer:	Contact Details:
Ann Hains Projects Registered Nurse	Ph: 9870 0091 Anne_hains@hotmail.com

Additional Pathway Condition: Carbon Monoxide Poisoning

Box Hill Hospital

Project Officer:	Contact Details:
Mira Ilic Nurse Unit Manager, ED	Ph: 9895 3215 Fax: 9895 4828 Mira.ilic@boxhill.org.au

Additional Pathway Condition: Renal Colic

Maroondah Hospital

Project Officer:	Contact Details:
Beverley Bird Registered Nurse Joanne Ramsdale Registered Nurse	Ph: 9871 3333 Pager: 157 Mobile: 0404 876 394 Beverley.bird@nursing.monash.edu.au Paul.rumpff@maroondah.org.au

Additional Pathway Condition: Cardiac Failure

Summary of Key Issues

Project officers were asked to identify key issues throughout the project. Commonly identified issues included:

- Change management issues

Clinical pathways are both a new concept to EDs and a new documentation tool in many instances. It is a different way of documenting because expected outcomes are established and documentation is therefore by exception.

- Resourcing

In some instances there was a dedicated full-time resource allocated to the project, whilst in most circumstances there was a part-time project officer or the work was allocated on top of a current workload. The shortage of ED staff was the main reason most were in part-time capacity.

- Time

The timeframe of eight weeks was acknowledged to be a short time period with the DHS project staff providing as much assistance as possible. Additionally, the project timing coincided with school holidays and therefore key staff absence.

- Many projects running concurrently in the EDs.

There were other projects competing for staff members' attention in relation to education as well as other various changes occurring in many of the EDs

- Varying ideas in relation to format

In some instances the inpatient pathway format was found to be unsuitable for the ED. Others used the same/similar format replacing daily timeframes with minute or hourly allocations.

- No additional on-site resources available, eg. Pathway Coordinator.
- System issues.

There were system issues noted that could not be addressed by a pathway, such as time taken to receive pathology results and the availability of/access to services after hours.

- Location of patient notes

It was noted that medical and nursing staff 'hold onto notes' in different places (eg station vs bedside) and that this may be a potential issue.

- Difficulty in gaining consensus in the management of some conditions.
- Resistance by ED staff in some instances
- No ED Director at some sites.

Project Evaluation

Key Outcomes

The key outcomes of this project to date are the:

- Development of pathway(s) at each participating site,
- Provision of the critical pathway education package,
- Four extensive literature reviews,
- Forum to encourage momentum and variance analysis, and
- Resources on website to assist in future development of pathways in the EDs.

Some additional outcomes of this project include:

- The opportunity to link into other projects such as:

  Quality improvement projects in rural health regions which are looking to expand HITH programs, and disease management projects.
- The opportunity to leverage off previous work such as the Breakthrough Series and Designing Care.
- The intention to develop further pathways or enhance pathway work already underway in EDs.
- The opportunity to present the work from this project which is relevant to HITH, at the Victorian HITH Coordinators Seminar in November 2001. It is envisaged that this will encourage further work in this area.

Project Officer Feedback

Project officers were asked to complete a project evaluation form in addition to the presentation they provided at the 2nd workshop. Nine responses were received out of the seventeen participating hospitals.

Question topics ranged from previous pathway knowledge and experience, other pathway activity and resources within the hospital, issues in development, barriers experienced, ED staff participation, how the pathway was developed, baseline data and identification of any issues, aims of the pathway and feedback regarding the project, support, workshops and suggestions. Collation of all these responses can be seen in Appendix G.

In summary, the majority of project officers had had little previous knowledge of critical pathways prior to the project. The majority of EDs had not developed any specific ED pathways prior to this project, although 33% had critical pathways in place in the hospital, which had an ED component.

Implementation of the critical pathway was to take place over July 2001 and September 2001.

The issues and barriers reported ranged from the time taken for education of staff, to minimal staff feedback, to difficulty in gaining consensus on clinical management, to staff availability for meetings.

Project officers emphasised the importance of consulting with ED staff in the critical pathway development process. Most respondents (89%) reviewed current practice in relation to the selected condition, while 88% conducted a literature review as part of the pathway development process. Baseline data findings ranged from poor documentation, to variation in management, to poor response times with assessment and treatment initiation. Issues that were identified by ED teams that could be addressed by the pathway included improvement in:

- Communication,
- HITH processes and referrals,
- Waiting times,
- Referral processes, and
- Clinical management.

"Helpful hints" were also provided to inform future pathway development work.

The project officers were asked to provide feedback in relation to how they felt about the project and the level of support and assistance provided. All respondents stated that the initial workshop assisted them with this project. 78% stated that the timelines provided were also of assistance and guidance. Most respondents felt adequately prepared for this project and that the DHS project officer support, the manual resource, the timelines and the progress meetings all provided assistance in the process.

Generally the respondents found the project both interesting and challenging. All but one respondent stated they would wish to be involved in further critical pathway development and all respondents felt that critical pathways were a valuable tool in the ED.

All respondents were more than satisfied with the level of support provided by the DHS project officers. Other comments suggested that the progress meetings were appreciated as this provided an opportunity to discuss barriers faced and ways in which to overcome them, as well as the sharing of innovative ideas.

Some of the other comments included suggestions that more time for pathway implementation would have been great, the provision of more funded time would have been beneficial as would the inclusion of internet discussion groups.

A summary of project officer feedback is attached in Appendix B.

Next Steps

A follow-up workshop will be conducted in three months time (November 8th 2001). This forum will provide an opportunity to examine the following for each site:

- Uptake and compliance with pathways,
- Volume of patients on the pathway since implementation,
- Variance analysis,
- Issues associated with implementation and follow-up, and
- Other specific data, where applicable, such as readmission rates in asthma populations where the pathway aims to increase community education follow-up rates.

The Interim Report, education package (powerpoint presentation), sample critical pathways developed out of this project and the literature reviews will be available on the DHS website (www.dhs.vic.gov.au/pdpd/edcg/index.htm). A quality review framework for critical pathways will also be available on the website.

It is intended to conduct a quarterly forum for all project officers. This will facilitate reporting of ongoing analysis, allow for networking and promote momentum. The Reference Group has agreed to meet six monthly to monitor and track progress and outcomes of this project.

Summary

A total of 25 critical pathways for conditions that present to EDs have been developed out of this project.

Further outcomes of this project include education material for staff on critical pathway concept and use, four extensive literature reviews, and network of ED staff involved in critical pathway activity. These are available on the DHS website and provide resource for further work in this area. A quality framework for evaluation of critical pathways is also included in the website material.

This project was undertaken in a short time frame and some of the critical success factors were provision of the education manual, workshops, project plans and timelines and the fortnightly progress meetings. Other links were maintained via e-mail, telephone and site visits.

Issues and barriers were identified by the participating site's project officers and innovative ideas on how to overcome some of the barriers were developed and shared.

The critical pathways developed out of this project have been the initial step towards the utilisation of critical pathways in EDs. Implementation, uptake, evaluation, variance analysis and quality improvement activities are the next steps required to gain the benefits that can be derived from these tools.

References

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Appendix A

Reference Group

Name	Title/Organisation
Assoc Prof Jeremy Anderson	Centre for Clinical Effectiveness
Dr George Braitberg	Director, Department of Emergency Medicine A&RMC
Dr Peter Cameron	Director ED RMH
Prof Don Campbell	Head, CE&HSEU Melbourne Health
Ms Sue Daly	Project Manager Emergency Demand Coordination Group (EDCG) DHS
Dr Andrew Dent	Director, Emergency Care Centre St Vincent's Hospital
Ms Katy Fielding	Project Officer, EDCG DHS
Dr Marcus Kennedy	Director, ED Angliss Hospital
Ms Dana Kiley	Clinical Coordinator Southern Health, Dandenong Hospital
Mr Zoltan Kokai	Executive Director, Corporate Services Maroondah Hospital
Ms Ann McCarter	Manager for Quality Integration Maroondah Hospital
Dr Mike Taylor	Director, ED Bendigo
Ms Pat Standen	Emergency Nurses' Association
Dr Andrew Rosengarten	Australasian College of Emergency Medicine
Ms Helen Fithall	HITH Coordinator A&RMC
Mr Bruce Greaves	Nurse Unit Manager, ED S&DMH
Ms Anne Hains	Projects Registered Nurse Angliss Hospital
Ms Beverley Bird	Registered Nurse Project Officer Maroondah Hospital
Ms Kaylene Fiddes	Project Officer, EDCG DHS
Ms Robyn Wall	Project Officer, EDCG DHS

Appendix B

Project Officer Feedback

Responses from Project Officer Feedback Forms
Total number: 9

Pathway knowledge
What knowledge did you have in relation to pathways prior to this project?

11% - None
67% - Minimal to basic
22% - Previously used pathways

Pathway experience:
What experience have you had in relation to pathways prior to this project?

33% - Nil exposure to pathways
22% - Have seen pathways previously
45% - Have used pathways previously.

Has your hospital implemented pathways in other areas? If so, do any include an ED component?

22% - No pathways in hospital
33% - Yes, but no ED component
33% - Yes, with ED component
11% - Yes. No comment in relation to ED component

Has your ED developed specific ED pathways prior to this project? If so, list pathways.

78% - No
22% - Yes. Pathways developed or under development prior to project are chest pain, stroke and thrombolysis.

Critical Pathway types developed out of this project
The critical pathway types developed out of this project include:

22% - Chest pain (one site is extending their pathway into CHEMU)
11% - Cellulitis
11% - DVT
11% - Pneumonia
11% - Paediatric Asthma
11% - Hyperemesis and Carbon Monoxide Poisoning
11% - Deliberate Self-harm
11% - Admission protocols for EMU

Planned Date of Implementation

11% - July 2001
45% - August 2001
11% - September 2001
33% - To be advised or not recorded

Issues in development:

Please outline any issues experienced in developing your critical pathway.
What do you view as the critical factors and processes in pathway development?

The key themes of the responses included:

- Need a critical pathway coordinator
- Complex conditions may need to be developed into 2 pathways, e.g. chest pain
- Collaboration with other ED staff for dissemination of information and to gain stakeholder feedback
- Reporting statistically what happens in the management of a condition, so people are aware of what does happen and how a pathway can address the issues
- Education of staff about pathways was time consuming
- Compromise and change to incorporate different agendas/gaining consensus
- Evidence basis for pathways (utilising literature)

Barriers experienced:

Have you faced any barriers in the development of the critical pathway? What were they?

The key themes regarding barriers included:

- Data collection from IT
- Flagging patients on pathways for follow-up and variance analysis
- Literature review - minimal/too much information
- No pre-designed pathway format – started from scratch
- Minimal staff feedback
- Staff availability for meetings, education etc.
- Personality conflicts
- Working part time
- Consensus regarding clinical management of patients for specific conditions
- Lack of commitment and support from senior/consultant/medical staff

How did they impact on the development process?

The key theme was that this delayed development/progress of pathway

How did you overcome these barriers, if able?

- Became flexible in time used to develop the pathway
- Negotiated with IT to collate medical records
- Trying to add y/n on the triage screen to flag patients on the pathway
- Did not worry about lack of feedback – providing them the opportunity to comment was important
- Utilised other staff as needed
- Involved senior executive management – had open forums so that other views could also be heard
- Worked a lot of hours at home

ED staff participation:

Did you have a pathway development team? If so who were the members of your team?

33% - No response

67% - Yes

All pathway development teams comprised a mixture of the following: senior and junior medical and nursing staff; specialist consultants; pathway coordinator, quality coordinator; and HITH staff.

Did you consult with ED staff members? When, how and for what reason did you communicate with ED staff members? What response did you receive?

11% - N/A – pathways already in place

22% - No response

57% - Yes

Communication strategies included: education sessions, photo board, newsletters, invitation to participate and circulation of pathway for comment.

Any helpful hints for others when developing and implementing ED pathways.

Helpful hints included:

- Ensure team approach and support from management
- Make regular progress meetings with key players
- Don't expect progress to be quick – expect difficulties when promoting change
- Ensure medical team are involved
- Keep everybody informed – use e-mail to disseminate documents, but include rationale for work.
- Incorporate others ideas wherever practical and feasible
- Clear direction

How did you develop the pathway?

Did you review current practice? How many records were reviewed?

11% - No - not relevant

89% - Yes

5 -100% of the previous month, quarter or year's worth of histories related to the chosen condition were reviewed.

Did you establish inclusion /exclusion criteria for when to use the pathway?

22% - No

22% - No – all patients presenting with the condition were to be put on the pathway

56% - Yes

Did you review literature or did you access literature reviews?

22% - No

88% - Yes

Did the baseline data identify any issues? If so, what were they?

Some of the key findings of the baseline data included:

- Poor documentation, e.g. pain score, time to nebuliser, time to HITH referral/review etc.
- Diversity of treatment/conflicting evidence for some conditions made data analysis complicated
- No useful data available
- Availability/access to services after hours, e.g. radiology, pathology etc.
- Long waiting times, e.g. pathology for results
- LOS times
- HITH not being utilised/under-utilised
- Inappropriate/over investigation – bloods etc.
- Big problems with reassessment and ongoing documentation
- Slow response times: to assessment, to referrals/review and pathology results

Did the ED team identify any issues that could be addressed by a pathway? If so, what are they?

Some of the key issues identified included:

- Improvement in communication
- Reduce waiting times for:
  - pathology results
  - patient assessment – medical and nursing
  - investigations , e.g. ultrasound
  - referral reviews, e.g. HITH
  - LOS
- HITH processes and referrals:
  - earlier referral
  - encourage referral and use
- Initiating standard treatment prior to doctor's assessment through pathway and accepted protocols in specific conditions
- Reduce inappropriate investigations
- Streamline processes/reduce time
- Ensure appropriate follow-up appointments
- Facilitate patient and family education
- The pathway - an opportunity to monitor practice and accountability

What are the aims of the pathway?

The key themes of the aims include:

- Improve patient outcomes
- Standardise care
- Streamline assessment, investigations, referrals, treatment and follow-up
- Reduce admission to wards/improve HITH utilisation
- Improve patient and staff satisfaction
- Reduce waiting times – pathology, ultrasound, HITH review, LOS
- Improve patient/family and staff education
- Improve documentation
- Improve communication – with staff, patient/family, follow-up services

Do you have a hospital wide pathway template?

22 % - No

78% - Yes

Does your hospital have a pathway co-ordinator?

67% - No

33% - Yes

Education/inservice conducted: yes/no. If yes who attended

11% - Not required

44% - Yes. Nursing staff only

44% - Yes. Nursing and medical staff

How frequently did you conduct inservice/education?

22% - once

22% - twice

33% - fortnightly

11% - adhoc

11% - twice weekly (to cover all staff)

Feedback re Workshop 1

Did the initial workshop assist you with the process?

Of those respondents that attended the initial workshop, they all stated that the initial workshop did help with the process.

Did the timelines and project plan assist you with the process?

11% - not applicable

11% - made own timeline

78% - Yes

Do you have any further suggestions or recommendations that would have assisted you more with this process?

Most respondents stated no, however some suggestions included an onsite pathway coordinator, and the same funding over a 12-week period instead of 8 to enable more flexibility.

Feedback Form Final Project

Did you feel that you were adequately prepared for the project?

Most respondents stated yes, considering the lead-time and project timeline. Comments included:

- "support provided by Robyn & Kaylene was fantastic"
- workbook/manual was a great resource
- talking to other sites at meetings was a good opportunity.

What are your thoughts about participating in this project? Eg interesting, disliked it, challenging

Generally the respondents found the project both challenging and interesting. Most felt that they learnt something of significance in relation to improving clinical practice. Some found it frustrating due to local issues and in one instance the constant change of direction.

Would you wish to be involved in further critical pathway development? Please provide reasons for your answer.

All respondents answered yes to this question, with the exception of one person who stated that her workload was the main issue. Most respondents would like the opportunity to consolidate the skills and knowledge learnt throughout the project.

Do you feel critical pathways will be a valuable tool in your ED? Please provide reasons for your answer.

All respondents replied yes to this question. Key themes included:

- Streamline/standardise treatment/care
- Improve patient outcomes
- Improve communication
- Educational tool – staff and patients/family
- Reduce LOS

Did you feel adequately supported by the DHS project officers?

All respondents were more than satisfied with the level of support provided by the DHS project officers. Key themes included:

- "Extremely – only a phone call away"
- "Robyn & Kaylene always made themselves available to help in any way they could"
- "Yes they were great"

Can you suggest or recommend additional ways in which the DHS project officers may have assisted you? What could have been improved?

Some comments included:

- Fortnightly meetings were great.
- More time for face-to-face discussions, re. actual physical layout.
- I found the site visit really useful. Other DHS projects I have been involved with have developed internet discussion groups/chat group, which may have been useful.
- Greater project lead-time.

Other comments:

Final comments were mostly directed at thanking the DHS project officers for their support. Additional comments included:

- Project may assist the development and implementation of trauma pathway that is to be introduced in the near future
- About 6 more weeks to bed down implementation would have been fantastic – allowed time for some closure and perhaps assist with sustainability
- Thanks for the opportunity to be involved.