Clinical pathways in foot ulcer management: a pilot study

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Abstract

This is a pilot study to determine if podiatrists prefer to use a clinical pathway in ulcer management rather than their current documentation procedure. A clinical pathway was developed at The Queen Elizabeth Hospital (TQEH) podiatry department to decrease the amount of time spent documenting details of ulcer therapy. The podiatry department sees predominantly high-risk patients in an outpatient setting. These patients often suffer from diabetes and its complications resulting in foot ulceration(s). The clinical pathway was used as a tool to provide outcomes on ulcer therapy that could easily be monitored or evaluated.

Rural and metropolitan South Australian public sector podiatrists agreed to participate in this study. The podiatrists trialled the clinical pathway for approximately 3 months, after which a questionnaire was completed. The results from this pilot study indicated that the majority of the podiatrists agreed and supported the concept of clinical pathways. However, there was a more varied response as to whether they would implement it in their current workplace.

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INTRODUCTION

Clinical pathways are "documented plans of expected clinical management where treatments and interventions are identified and sequenced along a timeline" [1]. Many organisations adopted clinical pathways to provide a multidisciplinary approach towards a specific DRG or ICD-10 level and they can offer many benefits; for example, they:

- eliminate time and clinical inefficiencies;
- ensure a better utilisation of resources;
- prevent duplication of information and care;
- promote and provide consistent quality care outcomes;
- improve continuity of care;
- identify problems and resolve them promptly;
- prevent the variability of treatment modalities;
- increase staff and patient satisfaction by improving communication;
- act as an education tool for new staff, inexperienced staff or students by triggering all details of care;
- provide a standardise pattern of care, and
- act as a tool to evaluate and review the effectiveness of treatment [1-5].

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Clinical pathways can be used in an inpatient or outpatient setting. Inpatient pathways are measured in days while outpatient pathways are measured in visits [6]. Both pathways are similar in principle but can differ by the timelines. An example of an outpatient clinical pathway is the podiatry foot orthoses pathway developed by Petchell *et al* [1]. This pathway incorporated interventions of orthotic therapy by visits rather than days and used it as a tool to validate their clinical guidelines.

Outpatient clinical pathways can be used for ulcer therapy. Ulcer management can be unpredictable due to the many factors influencing the healing process, therefore an ulcer pathway should be flexible enough to accommodate individual patients and to include new or updated treatment

protocols. From experience, using pathways at Western Pennsylvania Hospital, Hill *et al.* [7] has stated that wound pathways should be based on the progress of wound healing rather than specific time lines reflected by other pathways.

Care plans for ulcer therapy are individualised and documentation should be consistent among clinicians. Diversification and conflicting interventions in ulcer management can occur if there is a lack of communication and teamwork among various clinicians. Clear and appropriate documentation can help to provide continuity of care within and between disciplines for optimal ulcer management.

This pilot study is focused on feedback from podiatrists on a clinical pathway in foot ulcer management. The clinical pathway in ulcer management was developed at The Queen Elizabeth Hospital (TQEH) podiatry department and was used for approximately 6 months prior to the study. Feedback from colleagues was therefore required to provide a more broad and objective evaluation on how useful the pathway would be in a variety of podiatry outpatient clinics.

Background

TQEH podiatry department employs three podiatrists. The majority of the work involves outpatients who are at high risk of ulceration. Many of these patients suffer from diabetes and its complications, resulting in a variety of ischaemic and neuropathic foot ulcerations. Approximately 30 per cent of the workload is associated with ulcer therapy. This work may involve callus debridement, evaluating the effectiveness of ulcer dressings, pressure relief devices (especially for neuropathic ulcers), digital padding and footwear advice. The department works very closely with the endocrine, orthopaedic and vascular teams at the hospital as well as a variety of health professionals in the community to provide the optimal care for high-risk patients.

The podiatry clinical pathway form was introduced to improve documentation procedures in the department. It was first developed at TQEH podiatry department by the author during a time when a variety of clinical pathways were been trialled in other areas of the hospital. These pathways were specific for inpatient care and were not particularly useful for outpatient podiatry clinics. The article by Petchell *et al.* [1] involving a clinical pathway for foot orthoses triggered the idea that pathways do not have to be limited to inpatient episodes of care. The podiatry clinical pathway in ulcer management was introduced by the author to provide another way of documenting information about ulcer progression and allow easy evaluation and monitoring of ulcer therapy for the clinician.

The pathway consists of two forms; each must be completed for each episode of foot ulceration. The forms are:

- Ulcer management summary form (Table 1).
- Current ulcer regime form (Table 2).

Ulcer management summary form

The first form is a one page summary of the details required to provide a general overview of the patient and the course of the ulcer outcome. Each section or intervention is signed and dated by the podiatrist. The sections are:

- *Clinical evaluation:* an interview is conducted with the patient to ascertain risk factors.
- *Treatment regime:* involves the initial date, summary of the ulcer assessment, dressing and progress of ulcer.
- *Review:* dated and signed when the ulcer has healed. There is also a follow-up review to ensure the ulcer has not recurred.
- *Variance:* attached to each intervention. Any events that differs from the outcomes specified on the pathway are documented in this section.

Current ulcer regime form

The second form involves the treatment regime given at the time of the visit. Again, this is signed and dated by the podiatrist who saw the patient that day. The form contains the following details:

- *Ulcer assessment:* involves details such as site, size, exudate, state, border, colour and the presence of an infection.
- *Dressing protocol:* involves general podiatry care of ulcers. The podiatrist is required to circle yes or no and document any change of dressings.
- *Progress:* a quick evaluation to ascertain the progression of the ulcer.
- *Variance:* attached to each entry. Any event that influences the outcome of wound healing is documented here.

This format allows each clinician some flexibility in providing a treatment regime to the patient.

Research design

Aim

To obtain feedback from podiatrists on the podiatry clinical pathway in foot ulcer management and compare it to their own documentation procedure in an outpatient setting.

Participants

A sample was selected from the podiatry profession. Sixteen registered public sector podiatrists working in either country or metropolitan hospitals were invited to participate.

Method

This pilot study consisted of an evaluation involving a mailed questionnaire. Approval was obtained from TQEH Ethic of Human Research Committee. Verbal contact was made to obtain consent from the sample group. A follow-up package involving a letter, instructions, guidelines, ulcer clinical pathway example sheet and copies of the pathway were sent to each podiatrist.

The pathway was tested in the podiatrist's own department for 3 months. At the end of the period, a questionnaire was sent out with an instruction letter and stamped addressed envelope. Podiatrists were given approximately 2 weeks to complete the anonymous questionnaire.

The questionnaire format consisted of a five point Likert Scale and open-ended questions for comments. Positive and negative feedback was sought on the clinical pathway. Details on patient care were not required in the questionnaire and this was reinforced in all the letters sent during the study. The questionnaire aimed to provide feedback on the following questions:

Table 1. Ulcer management summary.

Process	Action required	Outcome	Podiatrist	Variance
Clinical evaluation				
Assessment/predisposing risk factors • Diabetes Yes / No • PVD Yes / No • Neuropathy Yes / No • Adequate self care Yes / No • BME problems Yes / No	Interview patient	Patient describes diagnosis and prognosis as advised by podiatrist. Podiatrist has a care plan based on assessment and risk factors: Low Mod High Extreme		
Footwear assessment	Footwear therapy	Appropriate modification made to footwear		
Education	Handouts & verbal instructions/information	Patient demonstrates behavioural modifications		
Informed consent	Verbal discussion	Patient agrees to proceed		
Treatment regime				
Ulcer assessment	Refer to clinical pathways for current ulcer regime – ulcer assessment	Podiatrist evaluates the ulcer to determine process	Initial date: _____	
Dressing	Refer to clinical pathways for current ulcer regime – dressing	Appropriate dressing will be recommended based on risk factors and assessment	Signature: _____	
Review according to ulcer management protocol	Refer to clinical pathways for current ulcer regime – progress	Patient will understand the progress of ulcer and changes in therapy as required		
Review				
Ulcer has healed		Patient is able to return to normal ADLs		
Post-ulcer	Review in 4 weeks	Ulcer has not recurred		

- Was the form was easy to understand and complete?
- Were desired patient outcomes met?
- Did the form capture details of ulcer therapy?
- Was the form more comprehensive and time efficient than current documentation procedure?
- Were podiatrists able to evaluate their treatment more effectively and efficiently?
- Would podiatrists prefer to use it in preference to their current procedure?
- Did it capture relevant variances?

Results

Sixteen questionnaires were sent and 12 were returned, providing a 75 per cent response rate. The results are summarised according to the five point Likert Scale and comments made in the questionnaire. Only question 5 involving whether the podiatrist would use a clinical pathway form in the future had a different Likert Scale (Table 3).

Table 2. Clinical pathway current ulcer regime.

Podiatrist to sign & date:
Signature: _____
Date: _____/_____/_____
Ulcer assessment
Site _____
Size _____
Exudate _____
State _____
Border _____
Colour _____
Infection Yes No
Dressing
Cleaned with N/Saline Yes No
Callus debrided Yes No
Initial dressing: _____
Progress
• Healed
• Improved
• No Change
• Deteriorated
Variance
i.e. Other services involved in wound healing
1 _____
2 _____
Created by Diana Brown

Ulcer management summary form

The results indicated that 17 per cent of podiatrist 'agree a lot' and 83 per cent 'agree' that the clinical evaluation section had provided enough information for an accurate assessment of risk factors. This result was also reflected in the treatment regime where it provided an accurate detail of ulcer outcome (Table 4).

The review section had 17 per cent agree a lot, 67 per cent agree, 8 per cent unsure and 8 per cent disagree that it provided enough detail to adequately review the ulcer after it had healed. Whether the form was easy to complete resulted in 42 per cent agree a lot, 42 per cent agree and 16 per cent disagree. There was a similar result when asked if the form adequately summarised the recording of ulcer management (Table 4).

Some constructive suggestions were made to improve this form such as sections on the past history of ulcer, a diagram of the foot, measuring pain levels and a small section for comments; these should be included as part of the predisposing risk factors. There were negative comments as well as positive ones such as the form was "very confusing", "time consuming" and that there was "not enough space to record" information. Others have suggested that "no change" was necessary and more details would make it "more time consuming to fill out".

Table 3. Likert Scale used in questionnaire.

A & B sections except for Question 5:
1 = Agree a lot
2 = Agree
3 = Unsure
4 = Disagree
5 = Disagree a lot
Question 5:
1 = Definitely
2 = Possibly
3 = Unsure
4 = Probably not
5 = Definitely not

Current ulcer regime form

This form had 17 per cent agree a lot and 83 per cent agree that all necessary details of ulcer assessment were covered in this section. The dressing protocol covered all details with 25 per cent agree a lot and 75 per cent agree. This was similarly reflected in whether the progress section provided a good summary of ulcer progression.

Seventeen per cent agree a lot and 83 per cent agree that the form was comprehensive in evaluating the previous treatment. However, there was a more varied response on whether it was easy to complete, with 42 per cent agree a lot, 33 per cent agree, 17 per cent unsure and 8 per cent disagree (Table 4).

This form had many comments regarding possible improvements such as a "facility for pictures/ photos", "visual recording of size" and an area for tracing such as the progress box. An ulcer classification was also suggested such as the type of ulcer and/or Wagner classification. No changes were suggested in the dressing protocol section and the progress section was well received by the podiatrists. It was suggested that more space could be achieved by "reducing the number of days from 4(r)3" or "all tick and flick" details on the form. Another comment, "multiple ulcer sites can end up with a large number of forms" has a potential to become a problem when finding or evaluating patient details. There was also a suggestion to incorporate details such as "biomechanical interaction" and "pressure management such as innersole" to provide a more comprehensive evaluation of the previous treatment.

The variance section indicated that 42 per cent agree a lot, 33 per cent agree, 17 per cent are unsure and 8 per cent disagree that it was useful. Twenty five per cent agree a lot, 58 per cent agree and 17 per cent are unsure whether the clinical pathway was able to validate outcomes for ulcer therapy (Table 4).

The variance section had a mixed response from the podiatrists. Comments about this section included "noting other services" was useful, "can help in problem solving" and "there are always variances and there needs to be a section to review this".

The majority of the podiatrists documented that the pathway was able to validate outcomes for ulcer therapy with 25 per cent agree a lot, 58 per cent agree and 17 per cent disagree a lot (Table 4). This was also reflected in the comments such as the "standardised format" helped to validate the outcomes. One podiatrist stated that it was "too soon" to adequately comment on this section.

Table 4. Clinical pathway feedback.

	5 point Likert scale (n=12)				
	1	2	3	4	5
Ulcer management summary form					
• The clinical evaluation section provided enough information for an accurate assessment of risk factors.	2	10			
• The treatment regime section provided an accurate detail of ulcer outcome(s).	2	10			
• The review section provided enough detail to adequately review the ulcer after it had healed.	2	8	1	1	
• The form was easy to complete.	5	5		2	
• The form adequately summarised the recording of ulcer management.	5	6		1	
Current ulcer form					
• All necessary details of ulcer assessment were covered in this section.	2	10			
• The form covered all details covering dressing protocol.	3	9			
• The progress section provided a good summary of ulcer progression.	4	8			
• The form provided a comprehensive evaluation/summary of the previous treatment.	2	10			
• The form was easy to complete.	5	4	2	1	
The variance section on each form was useful in completing details that influenced ulcer treatment	5	4	2	1	
The clinical pathway was able to validate outcomes for ulcer therapy	3	7	2		

Clinical pathway vs traditional recording

This section indicated that 34 per cent agree a lot, 42 per cent agree, 8 per cent are unsure, 8 per cent disagree and 8 per cent disagree a lot that they would use the clinical pathway form instead of their current documentation procedures. Slightly less agreed that the pathway was more useful in evaluating ulcer management than their current recording procedure with 25 per cent agree a lot, 34 per cent agree, 25 per cent unsure, 8 per cent disagree and 8 per cent disagree a lot.

Whether the pathway was more time efficient than current procedures received 33 per cent agree a lot, 25 per cent agree, 25 per cent unsure, 17 per cent disagree a lot. More agreed that the pathway was more comprehensive than current documentation procedures, with 42 per cent agree a lot, 25 per cent agree, 17 per cent unsure, 8 per cent disagree and 8 per cent disagree a lot. Most podiatrists would use a clinical pathway form in the future with 50 per cent definitely, 17 per cent possibly, 8 per cent unsure, 8 per cent probably not and 17 per cent definitely not (Table 5).

A number of positive comments were made on whether the pathway was more comprehensive than current documentation procedures, including "more efficient and easier to review and problem solve".

Discussion

Overall, the majority of podiatrists made positive comments on the pathway such as it was "easy to follow and complete", "liked the standardised format", "self explanatory", "user-friendly", "time efficient", "easy to reference" and "provide clear details on the progression of the ulcer".

Whether the pathway was a better alternative than their current recording of information varied among the participants. This provides an interesting perspective on alternative ways of documenting information such as clinical pathways. Leuknecht *et al.*[6] found lack of compliance was one reason why pathways were not viewed as a positive tool for documentation. This was due to staff viewing clinical pathways as another form to complete and was overcome by incorporating the pathway as the primary documentation tool.

The *John Hunter Hospital Clinical Pathways Education Package*[4] have also supported this by stating that clinical pathways can be an integral part of patient medical records. It is a valid and legal document that can replace other forms of documentation. As stated by one podiatrist, "it's easy to record the same information in progress notes for our organisation ...". Whether this is an example of podiatrists viewing pathways as 'another piece of paper' may be one underlying reason why the pathway had a negative response by some. Also, the reluctance to embrace another alternative way of documenting information may be another reason for these comments. As stated by Pearson[8], scepticism of ideas such as pathways does not mean we should use cynicism to block the search for ways to bring evidence, reduce unnecessary variation and improve the use of effective treatments into current practice.

Compliance is an important issue when applying any new format especially for documentation. This has caused problems when applying clinical pathways in a multidisciplinary setting. Ramos and Ratliff[9] have stated that many hours of emotional debate can occur during the process of developing pathways to a multidisciplinary setting. This can incur a huge amount of expense with minimal results due to lack of enthusiasm and opinions such as pathways are "cookbook medicine". If there is not 100 per cent compliance, the pathway becomes a pointless exercise.

In summary, the majority of the participants would prefer to use clinical pathways than the current recording of patient details. This was reflected in the Likert scale and the comments such as it "cut down on writing time dramatically", "less writing

Table 5. Clinical pathway vs traditional recording.

	5 point Likert Scale (n=12)				
	1	2	3	4	5
I prefer to use the clinical pathway form instead of my current documentation procedures.	4	5	1	1	1
The form was more useful in evaluating ulcer management than my current recording procedure.	3	4	3	1	1
The clinical pathway was more time efficient than my current documentation of ulcer treatment.	4	3	3	–	2
The clinical pathway was more comprehensive than my current documentation of ulcer therapy.	5	3	2	1	1
I will be using the clinical pathway forms for future documentation and evaluation of ulcer management.	6	2	1	1	2

required", "a standardised format makes it easier when there is the potential for different podiatrists to see the same patient", "more efficient and easier to review and problem solve", "systematic in its approach to ulcer therapy/management" and was "visually easy to follow and clear".

Clinical pathways can be used to provide details for clinical audits, quality improvement programmes or an overall evaluation on how effective the department has been in healing ulcers. The use of clinical pathways as a tool for such programmes has been criticised in recent times. They have not proven to be more superior than other forms of quality improvement methods and fail to improve patient care outcomes in a hospital setting[8, 10]. Pathways have been rushed into use by many organisations and have been implemented without consideration of whether they are effective or not. It is recommended that more research is necessary to adequately evaluate their effectiveness in patient care.

Limitations

The following limitations to this study are noted:

- *Small sample size:* due to the anonymous mailed questionnaires and the limited availability of podiatrists who deal with ulcer management in South Australia.
- *Short timeframe of testing the clinical pathway:* obviously 3 months was not long enough to truly evaluate the pathway. As one podiatrist stated, "Didn't actually get an ulcer to heal in the timeframe given" and another stated "I was slow on uptake using pathways as was acting as sole practitioner and taking on new responsibilities, but I finally got there".

Recommendations

Following completion of the study, the following can be suggested:

- Take into account the various comments made to change or modify the clinical pathway forms to improve the study.
- Adapt the pathway to accommodate multiple ulcers. Currently, each ulcer site has a pathway and if there are multiple ulcers this will create many forms that could lead to confusion when documenting and evaluating information.
- Test the pathway at a national level to provide a larger sample size over a longer period of time.
- Test the pathway among other health professionals to evaluate how universal the form is to all disciplines involved in ulcer management.

Conclusion

The study indicated that the majority of podiatrists sampled agreed and supported the concept of clinical pathways. Whether they would implement it in their current workplace had a varied response. If an alternative procedure such as a pathway becomes a just another piece of paper to complete, then it becomes a worthless tool. It needs 100 per cent acceptance before it can provide all the benefits of a pathway.

Not all ideas are going to suit every organisation or department but current procedures need to be challenged. New ideas and challenges enable the podiatrist to question their current clinical practices and make the necessary adjustments, whether it is improving efficiencies, reducing variation or meeting budget costs.

Clinicians have been continually asked to justify their service by providing evidence for best practice outcomes for the minimal amount of cost. Standardised forms such as clinical pathways can provide a systematic approach to procedures, such as ulcer management, and can help to justify best practice outcomes for patients, staff and management.

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