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Danish Centre for Evaluation and Health Technology Assessment

WOUND TEAM - ORGANISATION OF TREATMENT TO PATIENTS WITH PROBLEM WOUNDS

A health technology assessment - Summary

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Summary

In recent years, wound management has been attracting increasing attention. In connection with the increasing focus on prevention and treatment of complications of various diseases it has become apparent that the public health system expends considerable resources on the treatment of patients with wounds, both in the primary and the secondary health service.

Wounds arise through damage to the surface of both the skin and the mucous membranes. This allows direct contact between the surroundings and the underlying tissue such that foreign bodies and microorganisms can penetrate, and blood and tissue fluids can seep out.

Wounds can be subdivided into traumatic wounds, which can be anything from skin abrasions to burns wounds, cuts and surgical wounds, and ulcers, which are often caused by a disease process and are often chronic. These include arterial and venous leg ulcers, diabetic foot ulcers and pressure sores.

In the literature, a chronic disorder is defined as a state that develops slowly and is long-lasting, but not incurable. This can be applied to the chronic problem wounds that share the common feature that healing is not achieved solely by instituting wound care with the right product. They are not incurable with the correct treatment, though. The factors responsible for the wound have to be identified, eliminated or compensated for before healing can be achieved.

It should be mentioned that the definition of problem wounds is not unambiguous. Chronic wounds are often defined as wounds that have not healed after 8-12 weeks of treatment. This definition is subject to a number of exceptions, though, and the present project thus employs the following **definition of problem wounds**:

- Wounds that have become chronic and hitherto resistant to treatment, and which pose a special risk to the patient
- Wounds that considerably reduce quality of life, but do not necessarily shorten the lifetime.

The problem wounds are commonly taken to include venous and arterial leg ulcers, diabetic foot ulcers and pressure sores. In addition, certain forms of surgical wounds often develop into problem wounds, as is also the case with many types of wound resulting from immune system disorders and other types of wounds.

No accurate figures exist for the number of problem wounds. Wounds are only occasionally registered as an independent diagnosis. As a rule, patients with wounds are solely registered under the diagnosis for the underlying disease, i.e. without the wound diagnosis.

It is believed that around 40-50,000 patients are treated for problem wounds annually in Denmark, corresponding to around 1% of the population. As wounds are not registered, though, the figure remains supposition.

At present there are two major wound centres in Denmark, the University Centre for Wound Healing, Odense University Hospital and the Copenhagen Wound Healing Centre, Bispebjerg Hospital. In addition, minor wound management teams exist in several of the Danish counties.

Project design

This Health Technology Assessment (HTA) on wound management examines the organizational issues. The relative efficacy of the various wound healing technologies and products is relatively

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well documented. The primary challenge is therefore related to the management of problem wounds and how best to organize wound management such that the known technologies are implemented at the right time and in the most appropriate manner.

One means of focusing attention on wound management is by introducing a wound management team, as was done at Storstrøm County Hospital Nykøbing F. As the existing documentation for the effect of introducing a wound management team in a Danish organizational context similar to that in Storstrøm County Hospital Nykøbing F. was inadequate, and as information was wanted on the advantages and disadvantages of such an organizational change, steps were taken to design and obtain resources for a classical evaluation of the effect of introducing a wound team at Storstrøm County Hospital Nykøbing F.

When assessing the impact of this organizational change on the health of the patients, it was concluded that it was not practically and ethically possible to carry out a traditional clinical randomized study at Storstrøm County Hospital Nykøbing F. as the hospital is too small to implement educational and organizational changes in one department without this also having an effect on other departments. Similarly, it would be ethically difficult to justify that patients possibly located in the same ward would receive two different treatments.

Based on the knowledge ascertained through a previous HTA that the systematics of the wound management service at the hospital was suboptimal it was decided to focus the present HTA on internal conditions within the hospital, with the primary sector – despite the important role it plays – being omitted due to shortage of resources and time.

It is thus recommended that future studies should be designed in such a way as to be able to better document the effects of preventative measures and better take into account any changes in the referral pattern.

Main conclusions

Based on a health technology assessment the main conclusions regarding the four aspects are:

Technology

Wounds and wound types are described together with wound care products and procedures.

Only a few fixed procedures exist for surgical revision and the use of wound care products, although long experience exists with the use of the products.

The present project utilizes an experienced-based combination of modern and traditional wound care products and procedures.

Patient

- Patients treated via the wound team experienced that there was someone who was able to make an immediate decision based on the findings.
- Patients treated via the wound team experienced less pain in connection with dressing change than patients treated prior to introduction of the wound team.
- Patients treated via the wound team were better informed than patients treated prior to introduction of the wound team.

Organization

Through its function the wound team has upgraded the organization's knowledge about wounds and wound management such that the project has been able to record a difference between wound care administered via and without the wound team.

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The results can be summarized as follows:

- Improved wound healing measured as a greater reduction in the patients' wound area[4]
- Greater number of patients with complete healing[5]
- Uniform, systematic use of modern wound care products.[6]

Economy

Even though it is not possible to carry out a clear overall health economic analysis, it is considered highly probable that the wound team comprises an appropriate use of resources.

Conclusions

It is concluded that through the provision of a structured, systematic wound management service for patients with problem wounds, the present project has shown that the manner in which wound management is organized is an important determinant of outcome.

This conclusion provides grounds for suggesting wound care via wound teams as an appropriate means of organizing the wound management service for patients with problem wounds.

To what extent and how wound teams should be organized at the individual hospital or county level largely depends on how the individual hospital owners have organized their hospital sector in this time of considerable restructuring.

Background for the project

In the second half of 1998, a HTA was carried out of the wound care and management service for patients with slowly healing and chronic wounds at Storstrøm County Hospital Nykøbing F. The project was part of a project on the application of the HTA concept at the central hospital level. This resulted in the report "MTV – Hvordan kan Centralsygehuset i Nykøbing F. (produkt)udvikle pleje- og behandlingstilbuddet til patienter med langsomt helende og kroniske sår" (HTA – How can Nykøbing F. Central Hospital develop its wound care and management service for patients with slowly-healing and chronic wounds?).

The report concerning the first part of the HTA work recommended the establishment of a preliminary wound team.

This project work was part of a larger project "Health Technology Assessment at the county and hospital levels" involving Viborg County, Aarhus Municipal Hospital and Nykøbing F. Central Hospital (renamed Storstrøm County Hospital Nykøbing F. on 1 January 2003).

In order to pursue the HTA work and carry it out in an HTA setting, the hospital administration, upon the recommendation of the Planning and Development Department, decided to apply for funding from the Danish Institute of Health Technology Assessment (since renamed Danish Centre for Evaluation and Health Technology Assessment). One of the preconditions for obtaining support from the HTA Institute was that Storstrøm County Hospital Nykøbing F. contacted relevant external partners with a view to investigating the possibility that the project could serve as the foundation for national guidelines in the area.

In this connection, contact was made to the Copenhagen Wound Healing Centre, Bispebjerg Hospital, which agreed to cooperate on the project.

4 P=0.08.
5 P=0.04.
6 P=0.03.

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The first report identified several problem areas with the current practice. The main problems were that registration of the patients in the patient administration system was inadequate. The management of wound patients was an area that did not appear to be as interesting as other specialities at the hospital. Cooperation and coordination both internally within the hospital and with the primary sector could be improved. Last but not least, the impression gained was that wound management was not carried out in a systematic manner and that the quality of treatment thus varied.

Timetable and action plan

The project period ran from April 2000 to October 2003. The project wound team was employed from 1 October 2000 to 1 June 2003, with the trial period for the preliminary wound team running from 1 November 2002 to 1 March 2003.

Purpose

Based on the knowledge that the systematics of wound management service at the hospital was inappropriate it was decided to focus the present HTA on internal conditions within the hospital, with the primary sector – despite the important role it plays – being omitted due to shortage of resources and time.

In view of the first part of the HTA work in 1998, the present project studied the introduction of a wound management service organized around a wound team and performed a health technology assessment of this alternative organization compared with wound management organized in the traditional manner.

The purpose of the project and issue examined are thus virtually the same as in the first part of the HTA work, namely:

"*How can Storstrøm County Hospital Nykøbing F. – in cooperation with the Copenhagen Wound Healing Centre – develop its management service for patients with problem wounds?*"

Conclusions regarding the four aspects of the HTA

Technological aspects of wound management
Wounds and wound types are described together with wound care products and procedures.

Only a few fixed procedures exist for surgical revision and the use of wound care products, although long experience exists with the use of the products.

The present project utilizes an experienced-based combination of modern and traditional wound care products and procedures.

The organizational aspects
By providing structured, systematic wound management to patients with problem wounds and by upgrading the organization's knowledge about wounds and wound care the wound team has shown through the project that it is possible to record a difference between Model A (wound management without the wound team) and Model B (wound management by the wound team).

The results can be summarized as follows:

- Improved wound healing measured as a greater reduction in the patients' wound area

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- Greater number of patients with complete healing
- Uniform systematic use of modern wound care products.

The special expertise of the wound team together with the enhanced level of knowledge within the organization is considered to represent a considerable side benefit that can help achieve and maintain results in the long term.

The results of focus group interviews with the personnel also support the results in that data from this part of the study clearly indicate that changes have taken place within the procedural, structural and cultural aspects of the study.

Through the application of a structured, systematic wound management service the present project has thus shown that the manner in which wound management service for patients with problem wounds is organized is an important determinant of outcome.

The patient aspect

Some of the patients in the intervention group had previously been in contact with the health care system in connection with treatment of a wound and had thus also experienced being treated without the involvement of a wound team. These patients were thus able to give their impression of how they experienced the difference between treatment with and without the involvement of a wound team.

Patients treated by the wound team felt a sense of security in having contact with one or two specific care workers who participated in the whole course of treatment.

The involvement of the wound team provided the patients with a sense of belonging – the wound team knew their treatment history.

Patients treated according to Model B (wound management by the wound team) experienced that there was someone who was able to make an immediate decision based on the findings.

Patients treated according to Model B (wound management by the wound team) experienced less pain in connection with dressing change than patients treated according to Model A (prior to introduction of the wound team).

Patients treated according to Model B (wound management by the wound team) were better informed than patients treated according to Model A (prior to introduction of the wound team).

Health economic analysis

The introduction of a wound team at Storstrøm County Hospital Nykøbing F. seems to have immediately resulted in improved wound healing and a greater reduction in wound area in patients over a 12-week period. At the same time, though, the average hospitalization period is longer in patients cared for during the period in which the wound team was active.

The costs connected with wound management are just under DKK 1,300 more per patient after introduction of the wound team, corresponding to a cost per wound-free day of DKK 248 or approx. DKK 14,200 per extra healed wound during the project period.

The cost increase is predominantly attributable to increased personnel consumption during the first six weeks of the observation period. This cost increase is partly counterbalanced by reduced consumption of various wound care products (especially standard products) and personnel during the last six weeks of the observation period. The increased costs are not correspondingly counterbalanced by a reduction in the hospitalization period, however.

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The main cost savings associated with the improved wound healing can be expected to lie outside the hospital sector, for example in the primary sector, where resources might possibly be saved in that the patients are discharged with smaller, better healing wounds. As the project design excluded data collection in the primary sector, it is not possible to document this hypothesis.

Due to the problems related to the relatively small size of the data material, lack of data and unforeseen methodological problems that arose during the project it is not possible to unambiguously assess whether from the health economic point of view the wound team comprises an appropriate use of resources since strictly speaking, it is not possible to conclude from the present data material whether the wound team has any preventative effect or whether the costs related to the wound team actually entail a saving or an additional cost. In principle, moreover, the lack of comparability between the intervention group and the control group precludes assessment of whether wound care by a wound team entails better healing as it cannot be excluded that some patients with large sores may have healed easily since size is not an unambiguous indicator of how difficult the healing process will be. Conversely, it is highly probable that the patients in the intervention group had more difficult wounds than the patients in the control group. Wound healing was nevertheless significantly better in the intervention group, and the costs were only moderately higher even though the costs in the primary sector are not included, and the possible preventative effect of the wound team is completely ignored. Even though a clear overall health economic analysis cannot be made, it is believed to be highly probable that the wound team comprises an appropriate use of resources.

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