Development of a district-wide teledermatology service

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Demand for dermatology services is increasing, resulting in changes in service provision and the role of nurses. Technological advances have led to the development of telemedicine. This article describes how four primary care trusts and the dermatology department at Queen’s Medical Centre developed a district-wide teledermatology service. The service was led by nurses and a GP with a special interest in dermatology.

Demand for dermatology services is increasing, which in turn has led to an increase in waiting times for dermatology outpatient appointments (Modernisation Agency, 2003). This concern has been highlighted within *The NHS Plan: A Plan for Investment. A Plan for Reform.* London: DoH.

Skin conditions are extremely common, affecting large numbers of people and accounting for 15 per cent of consultations with GPs in the UK (Gilmore et al, 1998). Few are life-threatening, yet they often cause higher morbidity than other more serious medical conditions. In addition to physical symptoms such as itching and pain, psychological factors play a major part in a society where blemish-free skin is portrayed as the desirable norm. The result of this moderate morbidity and high prevalence makes skin disease a major public health problem (Williams, 1997).

Skin disease accounts for some 60,000 hospital inpatient episodes, 600,000 dermatology referrals from GPs to secondary care services, and over two million outpatient appointments each year (Modernisation Agency, 2003). This has created long waiting times for patients needing a specialist opinion.

Dermatology nurses play a major role in helping patients to cope with the physical, psychological, and social effects of skin disease. Over the last decade a significant impact by reducing waiting lists, delivering modern, patient-centred services in enhanced and accessible surroundings, working across traditional boundaries, and undertaking a wider range of clinical skills.

**Background**

Skin disease accounts are extremely common, affecting large numbers of people and accounting for 15 per cent of consultations with GPs in the UK (Gilmore et al, 1998). Few are life-threatening, yet they often cause higher morbidity than other more serious medical conditions. In addition to physical symptoms such as itching and pain, psychological factors play a major part in a society where blemish-free skin is portrayed as the desirable norm. The result of this moderate morbidity and high prevalence makes skin disease a major public health problem (Williams, 1997).

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Dermatology nurses play a major role in helping patients to cope with the physical, psychological, and social effects of skin disease. Over the last decade a significant impact by reducing waiting lists, delivering modern, patient-centred services in enhanced and accessible surroundings, working across traditional boundaries, and undertaking a wider range of clinical skills.
greater emphasis has been placed on expanding nursing roles. Nurses are using additional knowledge and skills in order to provide better treatment and care to patients with skin disease. Much of this care is nurse led.

Key policy documents have also highlighted the importance of nurses taking on new roles and responsibilities. Making a Difference (DoH, 1999) makes reference to many nurse-led initiatives within the NHS and more recently The NHS Plan (DoH, 2000) has placed even greater emphasis on nursing and the importance of nursing roles. Nurses are seen as being crucial in the development of primary care dermatology services and chronic disease management.

**Telemedicine**

In addition to changes in service provision and the role of nurses, technological advances have resulted in the development of telemedicine. Telemedicine has been termed ‘medicine at a distance’ and is used to describe the application of telecommunications to the practice of medicine (Taylor, 1998). It is the combination of computer and communication technology with medical expertise that allows health care professionals to exchange clinical information (Sibson et al, 1999).

Dermatology is widely regarded as suitable for the application of telemedicine (teledermatology) because it relies to a large extent on visual information for diagnosis. Teledermatology promises to be an alternative means of delivering health care, diminishing inequalities in the provision of an overstretched health service, and improving access to dermatological care, especially in remote areas (Eedy and Wootton, 2001; Williams et al, 2001; Mallett, 2000). There are two types of telemedicine activity (Loane et al, 2000):

- **Real-time (RT) telemedicine** is a dynamic interactive process that requires the presence of all parties at the same time. For example, the patient and GP may be located at one site while the specialist is at another site linked by a telecommunications network;
- **Pre-recorded or store-and-forward (S&F) telemedicine** does not require simultaneous presence. For example, in S&F still images of the patient and the appropriate medical history can be relayed to a specialist by e-mail or post and viewed at an appropriate time (Figs 1 and 2).

**The Nottingham model**

Proposals were put forward by four individual primary care trusts (PCTs) for a community-based dermatology service that would be centred on teledermatology with supporting clinics led by nurses and GPs with a special interest in dermatology. To this end the four PCTs and the dermatology department at Queen’s Medical Centre developed a district-wide, nurse-led teledermatology service, employing a GP with a special interest in dermatology at one of the PCTs.

**Aims and objectives**

The aim of the new teledermatology service was to provide effective and efficient diagnosis, treatment, and management of dermatological conditions in primary care. This would give patients quicker and easier access to a professional with dermatological expertise. The main objectives of the service were:

- To diagnose, treat, and manage patients in a primary care setting;
- To achieve a reduction in patient waiting times;
- To improve patient access;
- To improve GP satisfaction with the service;

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**REFERENCES**


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To ensure a consistent approach to dermatology referrals across the district using mutually agreed guidelines;

- To increase the dermatological skills of health professionals by providing advice to all referring GPs and other health professionals on the future management of the patient and the management of similar conditions in other patients;

- To manage demand more effectively by reviewing referral patterns.

The service was coordinated and integrated across the district to ensure an equitable, accessible service for the population of Nottingham. The team has also been able to ensure a consistent service in each PCT. A specialist dermatology nurse or GP with a special interest in dermatology has taken responsibility for each individual PCT and the referral guidelines, treatment protocols, and referral pathways into secondary care are utilised throughout the district.

The structure of the service

The dermatology service is structured around the following personnel:

- A team of three dermatology nurses based at Queen’s Medical Centre who hold dermatology clinics in the community. These nurses have been involved in the development of the service, clinical guidelines and pathways into secondary care, while retaining responsibility for their own PCTs;

- A GP who has undertaken additional specialist training in dermatology, who provides a service for patients in Rushcliffe PCT only;

- A consultant in dermatology based at Queen’s Medical Centre who has taken the medical lead and provides clinical support for the service;

- A nurse consultant who has taken the nursing lead for the nursing service.

Patients who fulfil the referral criteria are seen in the community clinics, assessed, and provided with a comprehensive management plan (Box 1). If there is diagnostic doubt or if advice is needed regarding treatment plans, patients are referred to secondary care via teledermatology to the consultant dermatologist. Pathways of care have been incorporated into the project to ensure a smooth, appropriate journey for dermatology patients between primary and secondary care (Box 2).

Evaluation

The service was run as a pilot for one year and has continued following its success. During this time there has been a reduction in the number of patients on the waiting list (Fig 3), although this cannot be attributed solely to the dermatology service. Other issues have had an impact, including waiting list initiatives, the appointment of a new consultant dermatologist, partial booking, and the decision between the trust and primary care to stop

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### BOX 1. REFERRAL CRITERIA

The service is for ambulant patients who are able to get unaided onto an examination couch.

**Referrals are accepted by the nurse-led clinics for:**

- Advice and management of chronic conditions such as eczema, psoriasis, and acne;

- Inflammatory rashes requiring further management in secondary care;

- Further management and possibility of further specialist intervention in secondary care.

**GP referral criteria (Rushcliffe patients only):**

- Lesions not appropriate for two-week skin cancer wait referral;

- Other inflammatory dermatosis that requires further management;

- Patients who may need further specialist intervention in secondary care.

**The service is not for:**

- Suspected cancer or cancer two-week wait;

- Cosmetic lesions or cosmetic surgery;

- Patients with leg ulcers, varicose eczema, contact dermatitis or vulval dermatosis.

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### BOX 2. THE PATIENT JOURNEY

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benign referrals, such as non-cancerous or cosmetic lesions. However, 18 months into the project the number of patients waiting more than 13 weeks for an appointment is very low - only four patients in October 2003 had more than a 13-week wait. This sustained drop in waiting times for outpatient appointments is likely to be at least in part due to 100 patients being seen in the community each month rather than at the hospital.

Patients and GPs have responded positively to the service. During a three-month period all patients were given a questionnaire at their first appointment. A total of 178 questionnaires were returned and analysed by the clinical audit team in primary care in addition to feedback from local GPs.

The clinical audit showed that:

- 94 per cent of patient appointments were made at a time to suit the patient;
- 93 per cent of patients found it easy to make their first appointment;
- 98 per cent agreed that they had enough time to discuss their condition;
- 90 per cent of patients were involved in decisions about their treatment;
- 97 per cent of GPs were aware of the nurse-led service;
- 91 per cent of GPs thought that the time it took for the patient to be seen was ‘good’ or ‘very good’;
- 89 per cent of GPs thought that the management of patients was ‘very good’ or ‘good’;
- Over 90 per cent of GPs thought that the service provided by the GP with a special interest was ‘very good’ or ‘good’ and the referral process and management of patients was ‘very good’ or ‘good’.

**Summary**

Overall feedback from patients and GPs has been extremely positive. Since the service started, 1,699 dermatology patients have been seen, which is equivalent to a consultant’s new patient workload. With less than one-third of patients having to visit the hospital, the hospital-based dermatology team has been able to concentrate on more appropriate referrals.

We have achieved our original aims and objectives by initiating a district-wide dermatological service in primary care, which is supported by teledermatology. Secondary care services and experienced nurses are used more appropriately, ensuring that patients are seen quickly and receive a programme of care appropriate to individual need. As a team, however, we acknowledge that teledermatology should not be seen in isolation as the quick solution to increased demand and long waiting lists. This was also a concern highlighted by Mallett (2003), who found that the majority of patients still had to be seen in secondary care.

Teledermatology is viewed as an integral part of the service but not the overriding focus of the clinics. It is seen as an adjunct to the service, supporting clinical decisions in relation to diagnostics and clinical management and an interprofessional contribution to care.

Technological advances in society and medicine have brought tremendous improvements and convenience but also a degree of depersonalisation (Gibbs, 2000). Technology in health care is now commonplace and is seen very much as an essential component of clinical practice (Chambers, 2002). With the practice of medicine being a normal part of most human societies, it is not surprising that health care professionals are finding that the nature of their work is changing as a result of technological advances. However, care must be taken to ensure that any advances, such as teledermatology, which are increasingly ‘scientific’ and ‘efficient’, do not stifle patient care.

Clinical practice in dermatology requires pastoral as well as technical skills – art as well as science. It is this blend and balance of art and science in medicine that is so vulnerable in the current social climate. It needs to be preserved, nurtured and developed (Gibbs, 2000).

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**REFERENCES**

