

Delivering care, and training a sustainable multi-specialty and multi-professional workforce

Dermatology Outpatient Case Studies December 2019

Authors: Dr. Ruth Murphy, British Association of Dermatologists (President)

Nina Goad, British Association of Dermatologists

Matthew Gass, British Association of Dermatologists

Marilyn Benham, British Association of Dermatologists

Anna Tong, British Association of Dermatologists

Dr Tamara Griffiths, British Association of Dermatologists

Dr Mabs Chowdhury, British Association of Dermatologists

Dr Paula Beatty, Royal Hospital for Children, Glasgow

Dr David de Berker, Bristol Royal Infirmary

Dr Carolyn Charman, Royal Devon and Exeter Foundation Trust

Dr David Eedy, Craigavon Area Hospital, Belfast

Dr Walayat Hussain, Leeds Teaching Hospitals NHS Trust

Dr Stephen Keohane, Portsmouth Hospitals NHS Trust

Dr Tom Millard, Gloucestershire Royal Hospitals NHSFT

Dr George Millington, Norfolk and Norwich University Foundation Hospitals

Dr Colin Morton, Stirling Community Hospital, Stirling, and Queen Elizabeth University Hospital, Glasgow

Dr Richard Motley, University Hospital of Wales

Dr John Newsham, Stepping Hill Hospital, Stockport

Dr Jane Ravenscroft, Nottingham University Teaching Hospitals

Dr Kathryn Thomas, York Hospital Trust

Dr Lucy Thomas, Chelsea & Westminster Hospital NHS Foundation Trust

Dr Maulina Sharma, University Hospitals of Derby and Burton NHS Foundation Trust

Dr Bernadette de Silva, Luton and Dunstable University Hospital NHSFT

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Overview of case studies

Dermatology services see and treat more outpatients than any other physician-based specialty, with similar or fewer numbers of specialists. They provide care for adults and children. They are responsible for the delivery of the highest number of suspected cancer targets, a constant challenge as the incidence of skin cancers continues to increase.

As part of the British Association of Dermatologists' audit of dermatology outpatient service performance against national standards¹, respondents were given the opportunity to share any improvements they had made to help meet these standards or improve service and training in general.

This audit has shown that, in general, dermatology services are delivering value, working in consultant-led multi-professional teams and harnessing new technologies to reduce unnecessary referrals to secondary care. The referrals and patient complexity increase year-on-year and are currently met by a critical mass of consultants who innovate and lead multi-professional teams.

In the pages that follow, some of these service and training improvements are described in the innovators' own voices.

The case studies are presented in three broad categories:

1. Technology to enhance service delivery
2. Developing sustainable and integrated teaching models
3. Developing consultant-led multi-professional and multi-specialty teams

In each case study the author describes the drivers for change, the barriers they faced and the impact this has had on patient care. The clear themes which emerge serve as models for how to inspire and encourage healthcare professionals to take ownership and implement changes for the mutual benefit of staff and patients alike.

Ruth Murphy
President of the British Association of Dermatologists

¹ Dermatology Outpatient Services: Delivering care and training a sustainable multi-specialty and multi-professional workforce. An audit of UK Dermatology Outpatient Departments against the 16 principles of the Royal College of Physicians' report Outpatients: The future - adding value through sustainability. British Association of Dermatologists, December 2019.

Section 1

Using Technology to Enhance Service Delivery

Teledermatology 1: Leeds Teaching Hospitals NHS Trust;
Dr Walayat Hussain,

Leeds teledermatology skin cancer initiative to assess all
two-week-wait (2ww) referrals

The information below, published by CQC on the innovative use of technology², summarises what we have done:

What is the aim of the service?

It is a means by which GPs can send images of suspicious lesions to consultants, resulting in a speedier diagnosis, and resulting in many patients being able to be discharged without attending hospital.

The project is part of the Leeds Cancer Programme which sees Macmillan Cancer Support, Leeds Teaching Hospitals NHS Trust and NHS Leeds CCG working together to transform cancer services across the city.

What were the main drivers for change?

- National shortage of consultants.
- Majority of lesions sent via 2ww pathway were benign.
- By tackling the 'benign' lesions referred, we hope to increase capacity across dermatology both for urgent and routine appointments.

The drivers for developing this system were a shortage of consultant dermatologists and an increase in the number of skin cancer referrals from GPs. Walayat Hussain, Consultant Dermatologist at Leeds Teaching Hospitals Trust, looked at the data about patients referred by GPs and subsequently discharged without any clinical intervention: this amounted to about one third of the referrals. This led to the thought that there should be a way of making a decision without the patient needing to visit hospital, with a possible solution offered by GPs sending images of suspicious lesions to the consultants.

A pilot study was carried out to test the hypothesis. GPs were provided with specialist magnifying devices which enabled them take images of the lesions using a smart phone or tablet. They sent images to Walayat (identified only by the NHS number) but also referred the patient through the normal pathway. Walayat compared his diagnosis based on the image with the outcome of the face-to-face consultation: in every case the diagnosis was the same.

The evidence led to national cancer transformation funding provided via the West Yorkshire and Harrogate Cancer Alliance. A steering group with representatives of every organisation on the pathway was established to progress and oversee the project.

All GP practices in Leeds are now using the imaging system, which works via the Consultant Connect App that they were already familiar with. Supporting material and videos were used to explain the system to GPs and to patients. The imaging process that needs to be done by the GP takes just 30 seconds, so does not adversely affect GP appointment times. After getting patient consent, the GP takes three images to send to the hospital.

What were the main barriers to change?

- Always encounter resistance with any new pathway or change to an established system
- GP engagement was crucial for this to work – establishing GP champions to promote the system to their colleagues was key
- Funding for dermatoscopes etc. was an issue, but funding was obtained via early cancer diagnosis grant from West Yorkshire and Harrogate Cancer Alliance.
- GDPR method of image transfer from primary to secondary care (easily overcome via use of Consultant Connect App).

What has been the impact of this service improvement project?

From project launch on 1st June 2018 to 30th September 2019, the outcomes have been positive, and the service continues to evolve with further refinement being made.

To date:

- Of the 12,294 skin referrals received by LTHT from across the city of Leeds during this period, 8,261 (67%) patients have been clinically assessed using teledermatology. This is now consistent month on month. Work is ongoing with primary care to further enhance this.
- All patient images are assessed by a Consultant Dermatologist within 48 hours of referral.
- Consultant time for this first intervention is decreased through clinical assessment of images as this intervention takes between 30 seconds to 2 minutes (av. 75 seconds) as opposed to a face-to-face clinic appointment of 12 minutes.
- There is an increasing proportion of patients discharged following image clinical assessment. The confidence of the team is increasing as consultants become more experienced. At the outset, the rate of discharge back to the GP on image assessment was 9.5%, which has increased to 33% in September 2019, meeting the original business case assumption.

YouTube videos we created:

<https://youtu.be/WDPtNQGviPc> - Admin process guide (EMIS)

<https://youtu.be/GyZYkwfCYX4> - Admin process guide (S1)

<https://youtu.be/WX-jEM-X6SM> - GP Practice Staff

https://youtu.be/PluF_WC2j8Y - Patient information

² Care Quality Commission, July 2019, available at: <https://www.cqc.org.uk/publications/themes-care/teledermatology>

What is the aim of the service?

We have developed a teledermatology (TD) service in Brighton for rapid access for lesions. This service is for any non-2ww lesions, e.g. a lesion not suspected of being a malignant melanoma or squamous cell cancer.

Patients referred via this rapid access pathway are added to our computer system/electronic patient record. Our administrative team assesses if the patient will be suitable for TD.

If they are, the patient will be sent an appointment for medical photography, they will then attend our medical photography studio and the photographs are uploaded to the trust image management software (WABA). The patients will then be booked into a virtual TD clinic on the system. In this clinic, we triage the patients based on the GP referral and the photographs.

Patients will either be discharged with a standard letter, brought back to clinic if further assessment is needed or triaged to a treatment slot such as day-case surgery, biopsy or photodynamic therapy. Standard (pre-written) letters are sent to the patient for each of these outcomes.

In Brighton we work as a team running the teledermatology service.

Our lead consultant supervises up to four registrars, GP trainees or nurses. In this context the supervision of three others has been found to be the optimum number. In a teledermatology clinic it is possible to see twice the number of patients compared to a face-to-face consultation, but many will still need to come to clinic as well and each referral generates a significant administrative workload.

What were the main drivers for change?

The main driver for developing this service was to cope with the high volume of patients being referred with a lesion.

What were the main barriers to change?

Resources – staffing (funding for a medical photographer) and space to perform all the minor procedures generated (new booked treatment room lists had to be set up and this limited the same treatment room being used for same-day see-and-treat from regular clinics.)

Technology – loading the photographs onto our WABA system for photo storage. We use medical photographers so we get high quality clinical and dermoscopic images. The medical photography protocol though is very thorough and throughput is consequently slow, which means they need multiple clinics to get through our numbers, and that limits the use of the studio for other things. Making patients travel to a hospital site for photographs is less convenient for patients. We would like to explore other ways of taking high quality photographs using different mobile technology.

What has been the impact of this service improvement?

Analysis of the management outcomes (December 2017-18) shows that 46% of patients were discharged back to their GP, 37% attended our department for a surgical procedure directly without need for a face-to-face assessment. Only 9% needed to be seen in clinic to clarify the diagnosis.

Patient satisfaction:

BAD teledermatology recommend an annual audit of patient satisfaction. We found 96% of patients felt reassured about the lesion and felt it was assessed and dealt with appropriately. Data collected included: demographic details, photograph quality, quality of the referral, diagnosis and management outcome.

892 patients had their photographs reviewed. The average age was 57.7 years. 44% were males.

In over 80% of patients both the macroscopic and dermoscopic photographs taken by our medical photographers were good. Reasons for a poor photograph included flash artefact and too much pressure obscuring vessels. Initially we had problems with the wrong lesion being photographed by our photographers, this was because they were asking the patient which was the lesion of concern rather than looking at the referral letter. This has now been rectified as our medical photographers have access to our system and can look at the online referral. In our previous pilot when we had GPs taking photographs in clinics only 30% of photos were deemed acceptable, so this is a dramatic improvement.

Clinical information provided in the referral from the General Practitioner was good in 53% and poor in 12%.

60% of referrals were thought to be benign, 21% were thought to be malignant and in 19% we were unable to establish from the photographs.

The four most common diagnoses were basal cell carcinoma, actinic keratosis, seborrheic keratosis and benign nevi, diagnosed in 17%, 16%, 15% and 11% of patients respectively.

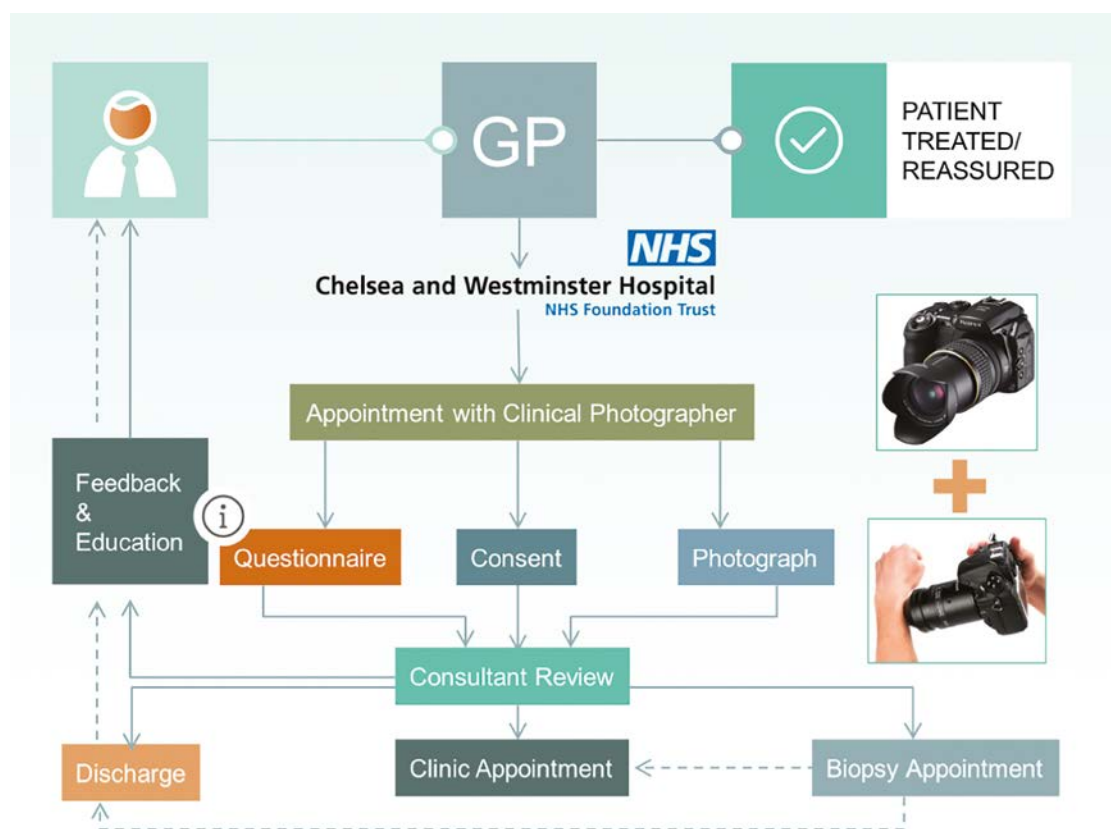
2% of patients had a squamous cell carcinoma and three patients were diagnosed with a malignant melanoma.

Our medical photographers photographed incidental lesions in 13% of patients. 18% of these were malignant, including one malignant melanoma.

Urgent skin cancer teledermatology service

What is the aim of the service?

At Chelsea and Westminster, we established a teledermatology service which utilises medical photographers based within the hospital to manage most urgent 2-week-wait skin cancer referrals (see pathway below). In order to process these referrals, we have developed bespoke documentation including patient information leaflets, patient questionnaires to capture pertinent information in the history, risk factors and information required for surgical planning, along with consent. We have a standardised photo-triage assessment form and standardised letter templates to reduce the administrative burden and speed up communication of outcomes to patients and GPs, something which will become increasingly important with the imminent faster diagnostic standard implementation.



What were the main drivers for change?

National standards for suspected melanoma and squamous cell carcinoma mandate that 93% of patients must be seen face-to-face by the secondary care dermatology team within two weeks of referral, and 85% must receive definitive treatment within 62 days. In addition to potentially negatively impacting patient care, trusts receive financial penalties if these targets are not consistently met and as such this is an important performance indicator which receives high levels of scrutiny at executive level. In addition, new faster diagnostic service standards which are currently being piloted, will place an even greater pressure on departments to provide quicker definitive diagnoses for patients on this pathway.

Urgent skin cancer referrals continue to rise across the UK and yet the pick-up rate is consistently low at around 6% at our trust, a figure which is all the more significant when you consider that dermatology receives the largest volume of

cancer referrals and accounts for 21% of cancers referred across all specialties.

At the same time, general dermatology referrals are becoming increasingly complex and there is an increasing number of specialist medications available for both cancer and inflammatory dermatoses requiring longer term follow-up. This is on a background of increasing financial pressures and workforce issues such that supply is simply not keeping up with demand. As such we have already seen many trusts breaching their targets and in some cases dermatology departments closing altogether or commissioning work to private providers.

What were the main barriers to change?

- Time (adequate job planning)
- Managerial support
- Staffing:
 - Willing clinicians who are confident with new way of working and variance in performance
 - Availability of trained medical photographers
- Cultural change, i.e. not performing full skin checks
- CCG funding (same tariff as for face-to-face) agreement re. 'stopping the clock'
- Requires regular audit, review and to establish teaching for trainees

What has been the impact of this service improvement project?

Key outcome data (based on 3,000 patients over 2 years):

- 10% reduction in non-attendance (indicating good patient acceptability)
- Processing of cases by consultants takes 9-10 minutes
- Quality of information and images is good in >98% of cases
- A third of patients can be immediately discharged without a face-to-face clinician appointment
- 15% reduction in the number of biopsies requested (overall 25% have a biopsy procedure)
- Increased pick-up rate of SCC and melanoma despite fewer biopsies
- No adverse events detected to date
- In the top 10 performing NHS trusts – 99.5% compliant with 2ww targets (NHS England data July 2019)
- >80% of patients would recommend the service to friends and family
- Generates additional capacity and favourable financial profile
- Must be adequately job planned to ensure safe and effective service
- Recognition of clinician performance variability (discharge rates can vary from 10-40% between clinicians)
- Useful training opportunity for trainees (now part of formal curriculum)

References

- C. Edwards and C. Macedo. A pilot study to investigate the potential for teledermatology triage of 2-week-wait new skin cancer referrals at Chelsea and Westminster Hospital. *BJD British Association of Dermatologists* (2017) 177 (Suppl. 1), pp 185–189
- L. Thomas, A. King, C. Fuller and C. Macedo. The facts, figures and tribulations of a new teledermatology service: an update on the pilot study presented at the 97th British Association of Dermatologists annual meeting. *BJD British Association of Dermatologists* (2018) 179 (Suppl. 1), pp183–186

- J. Ng, L. Florence and L. Fearfield. Teledermatology follow-up for lesion monitoring: an audit regarding suitability and application in the clinic setting. *BJD British Association of Dermatologists* (2019) 181 (Suppl. S1), pp168–176
- P. Nicholson, C. Macedo, C. Fuller and L. Thomas. Patient satisfaction with a new skin cancer teledermatology service. *BJD British Association of Dermatologists* (2019) 181 (Suppl. S1), pp168–176

Teledermatology 4: Welsh Institute of Dermatology, University Hospital of Wales; Dr Richard Motley

Making teledermatology the mandatory referral route for all dermatology referrals

What is the aim of the service?

In 2005 we introduced a voluntary ‘advice and guidance’ teledermatology service using secure email (carried on the Digital All Wales Network) for 12 pilot GP practices who were given digital cameras purchased by a donation from a pharmaceutical company.

This was a popular development and in its second year we received an unsolicited donation of £50k from the Welsh Health Agency ‘Informing Healthcare’ which enabled us to purchase cameras for all GP practices in Cardiff and the Vale, and to pay for a computer server and one-year salary of a medical photographer to support roll-out of the service to any GP practice that expressed an interest in using it. In 2011 we received an NHS Wales award for innovation in healthcare. In August 2016 we made teledermatology the mandatory route for all referrals to our department.

What were the main drivers for change?

The initial drivers for this development were the desire and willingness to provide prompt and better dermatological advice to GPs. This was enabled by the development of inexpensive digital cameras. After 10 years the ‘advice and guidance’ teledermatology service was being used by 66% of GP practices and about 60% of referrals were managed without consultation in secondary care. The volume of referrals increased to over 7,000 per year and the additional administration associated with this email system required a lot of administrative staffing (for monitoring referrals and replies, archiving records, and placing patients on waiting lists). It was also apparent that the quality of referrals through teledermatology was superior to conventional referrals, many of which were thought inappropriate. After discussion with the Local Medical Committee on several occasions, the proposal was made to make teledermatology the default route of access to dermatology care in Cardiff and to use the newly introduced All Wales Gateway – an electronic platform that integrates patient records in primary and secondary care and facilitates electronic referral.

What were the main barriers to change?

There were three distinct barriers to introducing teledermatology for all dermatology referrals.

1. There was a body of GPs who had not engaged with the ‘advice and guidance’ teledermatology service and were reluctant to do so, but the majority of GP practices had already engaged with the service and the Local Medical Committee supported our proposal to make teledermatology the default route of referral from primary care.
2. The next barrier was initial resistance to enabling photographs to be submitted through the electronic referrals system.
3. The final barrier was to get all the dermatology consultants to agree to review

teledermatology referrals. The clinical director decided that as reading referral letters was a routine part of every consultant's job plan, this time would now be spent reviewing teledermatology. Consultants agreed to undertake differing amounts of teledermatology and this was accounted for in job plans, additional remuneration and time-off *in lieu*.

What has been the impact of this service improvement project?

Since August 2016, all our dermatology referrals from primary care have been through the teledermatology service. We receive around 17,500 teledermatology referrals per year and about 6,500 are returned with advice, the remainder are offered appointments in clinic.

The GPs select the priority of the teledermatology referral, but this is modified by the consultant after review.

- Over 50% of the GP Urgent Suspected Cancer (USC) referrals (equivalent to the two-week- wait in England) are returned directly with advice and without an appointment.
- 45% of malignant melanomas were referred with a routine priority – and escalated to USC after review by a consultant.
- There is still wide variation in the acceptance of referrals for face-to-face consultation between consultants, with some consultants accepting 95% of teledermatology referrals and others as few as 55%. This seems to reflect a desire or perceived need to see the patient in a face-to-face consultation, rather than any lack of (tele)diagnostic confidence.
- A definitive diagnosis can be made in the majority (>95%) of teledermatology referrals.
- We have introduced teledermatology teaching and calibration sessions using multiple computer screens and also used this to teach dermatology specialty registrars and undergraduate students.

Other comments:

The teledermatology service could be developed further.

We plan to use the diagnostic information from the teledermatology referral to optimise clinic appointments, to guide service developments and to inform educational needs. We also plan to use archive of teledermatology material for teaching GPs, dermatology trainees and undergraduates and for research and epidemiology studies.

Digital health innovation leading to a bespoke teledermatology service, facilitating a successful offsite move of our dermatology department.

What is the aim of the service?

The service aim was the implementation of cutting-edge digitisation to promote innovative workflow patterns in dermatology, customising an NHS G-Cloud digital platform enabling inpatient and outpatient (2-week-wait clinics) to:

- streamline skin procedures
- improve admission and ward round planning
- digitise handover, and educate users and referrers (GPs) via digitised feedback
- adhere to the UK teledermatology standards as published by the British Association of Dermatologists
- comply with the general data protection regulation (GDPR).

What were the main drives for change?

We were faced with the following problems:

- the need to move into the community due to lack of space for expansion of the dermatology service on the acute site
- the need to manage ward patients while offsite
- the increasing workload particularly with 2ww referrals
- the struggle to recruit enough substantive dermatology consultants

Our local data show a steady yearly increase in 2ww referrals, and in our department the number of 2ww referral clinics tripled in the last eight years. This situation has effects on the organisation (due to the financial implications of paying agency staff), the patients (due to lack of continuity of care), and the permanent staff (who had to deal with the extra workload generated from initiative clinics).

What were the main barriers to change?

Overcoming some resistance from staff to an offsite location was the main barrier. But careful planning, regular project and team meetings and providing evidence of the potential benefits overcame this. Trust IT were not involved in the development of the digital teledermatology platform so we were able to progress and pilot this quickly with the support of our Board.

What has been the impact of this service improvement project?

Data from the 2ww teledermatology clinics showed the following:

- zero skin cancer breaches by automatic tracking of 2ww targets reducing human error
- 100% of patients were seen within an NHS substantive dermatology consultant run service
- automatically generated clinic letters from the digital platform in 100% of cases within 72 hours of patient attendance
- on average, less than 10 minutes to complete a consultant assessment
- 41.3% of cases were discharged following teledermatology assessment (31.6% in face-to-face clinic)
- 51.3% of referred cases were referred for skin surgery (with full skin check as indicated)

- positive feedback from patients
- reduced locum doctor expenditure (£40,000 during pilot period). Increased efficiency of the service enabled existing substantive members of staff to deal with all 2ww referrals
- concordance between clinical versus histopathological diagnosis was higher in the 2ww teledermatology clinic than the face-to-face clinic. Previous studies have shown that the reverse is usually true. We feel this validates the quality of the digital platform we have helped to develop.

The inpatient teledermatology service has shown the following:

- an expert dermatology assessment was available for 100% of ward patients within an average of 5.67 hours of the referral being made.
- extrapolating cost savings for Consultant time by utilising inpatient teledermatology, with our existing specialist nurse expertise, we saved £100,000.
- apart from reducing the cost of agency staff, we reduced cost by cutting back on unnecessary procedures and increasing the efficiency of the department

Education and feedback

- We have been able to deliver education on lesion diagnosis using anonymised macroscopic and dermoscopic images securely held with patients' consent, to upskill nursing members of our team
- We have maintained and improved the exposure of our speciality trainees to acute dermatology despite our offsite location and have been commended by our SAC for delivering this.

What is the aim of the service?

Since April 2016 we have introduced several teledermatology based innovations to our service. These include teledermatology triage for both 2ww and general referrals and also integration of eRS advice and guidance into the trust database system to allow a rapid advice service.

The triage service was set up in collaboration with the local CCGs. All GP practices were provided with dermoscopes and equipment to take photos (funded by a local cancer charity) and GPs were invited to attend training sessions on use of the equipment and how to take good images. After an introductory period, submission of images (distant to identify site, close up and dermoscopic) was mandated for all 2ww referrals and recommended for general referrals. To aid history taking a proforma was devised.

All referrals were reviewed by a consultant dermatologist with options to offer diagnosis and advice based on images or to arrange face-to-face appointment (either as 2ww or downgraded) in either dermatology or straight to a surgical clinic. Based on the improved image quality the 2ww clock can be stopped at the point of triage if a diagnosis is possible at this stage.

The teledermatology advice and guidance service has gradually increased in popularity with our GP colleagues. Referrals are made through eRS advice and guidance but then uploaded to our local core patient database which allows easy cross-referencing to previous letters, images and results and allows requests and responses to be accessed easily at a later date. Many GPs in our area now choose to send patients through initial advice and guidance prior to referral. Over 6000 cases of teledermatology advice and guidance were given by our department in 2018 (usually 120-150 a week).

What were the main drivers for change?

Like most departments, York has been understaffed for some time and at the point the services were set up we were carrying three whole time equivalent consultant vacancies. We also cover a large area extending to Bridlington and Scarborough on the East Coast. The hope was that diagnosing patients by teledermatology would reduce the number of patients needing to attend clinic for a face-to-face consultation. Whilst the 2ww conversion figures in York have always been comparable to national figures (10-12%) it was also hoped that this could be improved.

Local audits suggest that 60-70% of patients sent for an advice and guidance opinion (for all diagnoses) are able to be managed (at least initially) without a face-to-face consultation. Whilst our waiting lists are still longer than we would like we are able to offer patients (and GPs) some treatment options until they are seen.

What were the main barriers to change?

The innovations have been well supported by the CCG and the local GPs and we have been fortunate that much of the cost of the equipment needed to take good images was covered by a local cancer charity. Even so more cameras / dermatoscopes are probably needed than have been available. As we have relied on local GPs and their teams to take the photos rather than using professional photographers, images have been variable in quality which has necessitated seeing some patients face-to-face as a diagnosis was not possible due to picture quality; however with experience this is becoming less of an issue.

The uptake of the electronic advice and guidance was far in excess of what was expected. This has meant that the time required from secondary care to do this work was more than had been allocated initially although numbers have now stabilised and job planning allows time for the current numbers. As managing patients electronically is new to most of us there has been understandable anxiety regarding making diagnoses electronically although as images have improved so has clinical confidence.

What has been the impact of this service improvement project?

The combination of the above innovations means that the majority of our secondary care referrals have been looked at remotely prior to being seen in clinic. This enables us to offer preliminary treatments for patients pending review in clinic but also to track changes in skin lesions / rashes, due to the ability to compare photos taken at referral with the appearance when seen in clinic. It is now rare that patients are referred without images.

Prior to the introduction of 2ww triage, department audits all gave conversion rate figures of 10-12%. Since this service has been introduced conversion rates have been between 15.5% and 17%. Around 10% of 2ww referrals are diagnosed without a clinic appointment. Whilst this is relatively low many patients are now initially sent via the advice and guidance service and therefore 2ww has been recommended for many by our team. Many patients therefore do not reach the point of referral.

We plan to integrate the arms of our teledermatology service more fully so that all patients are initially sent via the advice and guidance route which would then allow more appropriate direct booking for an appointment, investigations or treatment if required.

Teledermatology using e-RS Advice and Guidance

What is the aim of the service?

- The department has been providing an Advice and Guidance (A&G) teledermatology service since 2011 using e-RS (previously Choose and Book). The service receives ~150 A&G requests a month, and has now received over 9000 A&G requests since implementation
- Five Consultants provide the teledermatology service; each is allocated one day a week and 1.25 PAs in job plan and all reporting Consultants have been allocated a Trust laptop to allow remote access
- A&G requests are responded to within 2 working days (most within 24 hours)
- The teledermatology service accepts Advice and Guidance requests for all skin conditions in adults and children with the exception of pigmented lesions / 2ww requests
- The majority of A&G requests relate to inflammatory skin disease and precancerous skin lesions
- The teledermatology service has been successfully used to triage patients with basal cell carcinomas directly to surgical lists, accounting for approximately 10% of A&G requests
- With the introduction of Referral Assessment Services (RAS) in e-RS patients, suspected skin cancer patients will be triaged through the RAS pathway rather than through A&G
- A&G provides an image bank of teledermatology cases for educational teaching sessions with GPs and SpRs

What were the main drivers for change?

- The teledermatology project was initiated in 2001 with a commercial platform as part of the NHS 'Action on Dermatology' programme, designed to improve access and quality of care for patients with skin disease, with the Royal Devon and Exeter Hospital being chosen as one of 15 pilot sites
- The current teledermatology service replaced the commercial platform in 2011
- The pilot demonstrated that A&G allowed patients rapid access to Consultant advice and reduced unnecessary face-to-face appointments, with excellent GP feedback and effective GP education, leading to improved patient care in the community
- Wider roll-out of A&G across other specialities (including cardiology, neurology, endocrinology and gynaecology) formed a key work stream for the Trust in April 2018/19 following the national CQUIN for A&G

What were the main barriers to change?

- Very few
- To encourage GP engagement the CCG allocated a Senior Information Analyst from an existing primary care commissioning role to visit local GP practices who required additional support to start using the Advice and Guidance Facility of e-RS (this support is now available via the A&G national toolkit <https://digital.nhs.uk/services/e-referral-service/document-library/advice-and-guidance-toolkit>).
- GP practices vary in A&G usage depending on ease of access to photography equipment, and enthusiasm for digital technology.

- Access to a clinical image transfer app for smartphone photography would increase GP uptake by allowing GPs to use personal mobile phone cameras safely and securely
- Consultants vary in the quality of advice they give and how many cases they decide need referral, although regular internal audit improves standardisation

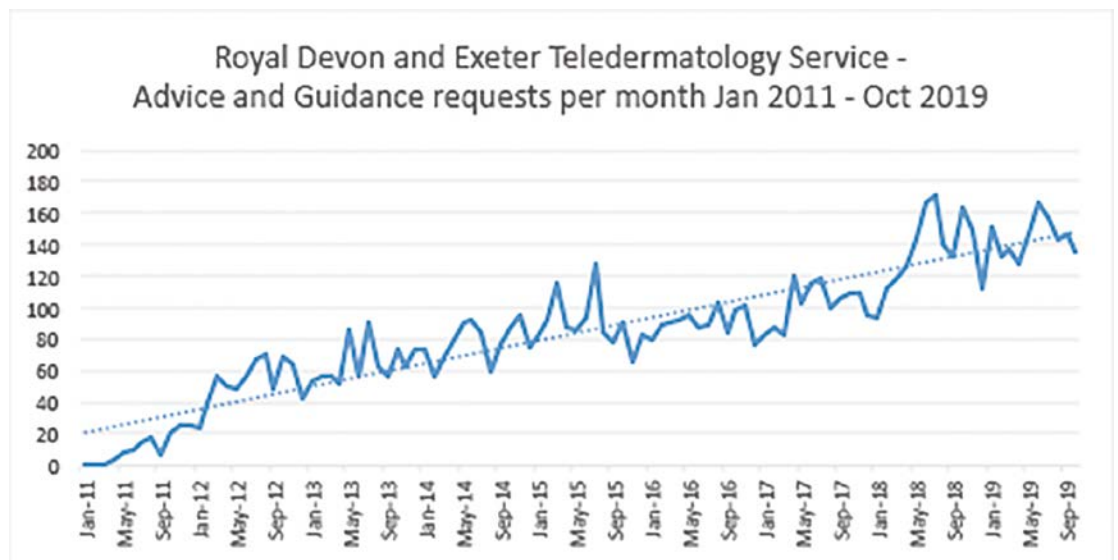
What has been the impact of this service improvement?

- November 2018-19: Total e-RS A&G cases: 1668
- The Trust / CCG collect monthly data on:
 - the number of teledermatology A&G requests
 - the number of patients seen in the dermatology department for a face-to-face consultation within 6 months of their A&G
- < 20% of A&G requests result in the patient being referred for a face-to-face clinic review within 6 months of their A&G
- A&G teledermatology has:
 - reduced unnecessary hospital outpatient referrals
 - helped to ensure that patients requiring face-to-face appointments are seen in the right place at the right time by the right person.
 - improved communication and education between Consultants and GPs, strengthening the primary / secondary care interface
- GP feedback on the service has been excellent

e-RS Advice and Guidance:

Last 12 months: Nov 2018 to Nov 2019 = 1668 e-RS teledermatology A&G requests.

The graph below shows the ongoing rise in A&G requests since the teledermatology service was set up.



Advice and Guidance using different platforms: Gloucestershire Royal Hospitals NHSFT; Dr Tom Millard

Advice and Guidance provided via e-RS and via a commercial platform purchased by our CCG

What were the main drivers for change?

- Imbalance between demand and capacity
- Too many inappropriate skin cancer referrals
- Complex inflammatory skin disease referrals waiting many months
- GP colleagues needing advice in a timely manner for their patients

What were the main barriers to change?

- Very few
- Job planning: all dermatologists in our team have one hour per week for A&G work
- Individuals vary in how much A&G they can do in that hour, and also vary in the quality of advice they give and how many cases they decide need referral
- We are therefore planning to re-do the job planning to increase job planning time for those dermatologists that want to expand this work (and vice-versa)
- GHNHSFT is currently on a block contract, so we do not, yet, get income from this activity

What has been the impact of this service improvement project?

Nov 2018 to October 2019, Total e-RS A&G cases: 4358

Breakdown of e-RS outcome:

- Advice only – 2275 (52%)
- Advice, but refer if no better – 724 (17%)
- Refer – 992 (23%)
- Insufficient information – 367 (8%)

In other words, we have potentially prevented referral in up to 52% of e-RS cases.

Commercial platform (CP) Advice and Guidance, Started 20th September 2019, Total CP A&G cases to date: 209

Breakdown of CP outcome:

- Advice only – 91 (44%)
- Advice, but refer if no better – 41 (20%)
- Refer (2ww) – 33 (16%)
- Refer (urgent) – 14 (7%)
- Refer (routine) – 17 (8%)
- Additional images needed – 9 (4%)

Comparison of e-RS and CP

- CP is much simpler to use, and formats the advice into a neat pdf document (with the images) for the GP/ hospital record.
- CP has a data tab, showing each user a breakdown of their cases, outcomes and how they compare to colleagues.
- CP can also be used via the App as well as a desktop PC.
- CP can be used easily from home.

For information for BAD support for teledermatology services, including a list of available commercial platforms, please visit: <http://www.bad.org.uk/healthcare-professionals/teledermatology>

Virtual patient consultation: Stirling Community Hospital, Stirling, and Queen Elizabeth University Hospital, Glasgow; Dr Colin Morton

Asynchronous Virtual Review Consults

What is the aim of the service?

New type of virtual clinic (asynchronous via smart device or home computer) where return patients can submit a progress report (including photos of their condition) electronically for assessment by clinician/nurse specialist.

It is intended for suitable patients who require a return appointment but rather than conventional face-to-face appointment they receive an email appointment invitation to upload images and submit information about their progress and outstanding concerns via a purpose-built application.

They are given a four-day appointment window for upload, and nurse specialist/clinician responds, typically within one week. There is a facility for requesting additional information, but the system is not intended for use as an open channel, rather to function as an alternative for patients to requiring a return visit to hospital, saving them time and reducing carbon footprint. It is also intended as a method of improving efficiency of review of patients by the specialist team.

What were the main drivers for change?

Despite several cycles of redesign and extending team roles, there remains insufficient capacity in our service to cope with patient demand.

NHS Forth Valley and Greater Glasgow and Clyde Health Boards have worked with a small business Storm –ID, as part of a SBRI (Small Business Research Initiative) to develop a purpose built application, to integrate with NHS booking systems and electronic patient records, to achieve an efficient alternative to conventional face-to-face return consultations. The intention is that this virtual consultation will not only offer added convenience to patients, but also result in shorter consultations, allowing for increased service capacity within direct clinical care sessions.

What were the main barriers to change?

Key barriers were gaining support for the initial bid for funding with the ambition of an alternative to conventional clinics for return patients that would permit increased efficiency of secondary care services. Funding via the SBRI route permitted competitive applications from industry and pilot working initially with six companies and four health boards in Scotland. The asynchronous virtual return consult application was successfully developed, but required considerable advisory time from Drs Grant and Torley in Greater Glasgow and Clyde, Dr Morton NHS Forth Valley and our respective specialist nurses.

Integration of the application has proved the most challenging, requiring co-operation between e-health, IT and Information Governance and Innovation departments, with several meetings of a specially formed steering group including patient representatives.

Colleagues in NHS Highland and NHS Lothian also assisted in evaluation of another innovative approach to improve patient follow-up, but the development was discontinued. There was limited funding to the NHS for this

development meaning that much of the development time in the NHS was on a goodwill basis.

What has been the impact of this service improvement project?

This is a recent innovation. Over the course of six months across both health boards, a total of 55 patients registered to take part in the digital appointment system pilot. Of these patients, 43 completed a virtual consultation, nine did not 'attend', three appointments were cancelled and one did not require follow up. The vast majority of patients (96%) had inflammatory dermatoses, with psoriasis and eczema being most common. Following the initial round of virtual consultations, 41 patients required a further appointment with 26 patients offered a further virtual consultation. All non-attenders were offered subsequent face-to-face consultations.

Based on the confirmed login/out times recorded by the digital platform the median time taken for all healthcare professionals to complete a consultation was 5 minutes 28 seconds. Feedback was obtained from participating patients. Across both health boards, patient satisfaction was 84%. However only 18% of patients in one health board would prefer a virtual consultation, versus 87% of patients in the other health board. Reasons for this discrepancy are uncertain but may be related to differing patient groups, diagnoses and demographics. The total distance theoretically travelled for equivalent face-to-face consultations was 888km, resulting in a total car CO₂ emission saving of 107.6 kg CO₂.

The digital appointment system pilot has provided an alternative healthcare interface for dermatology patients with recognised improvements in efficiency, patient experience and environmental impact. Patients continue to be invited to use the asynchronous virtual appointment system to permit more detailed assessment of its place in our service.

Section 2

Developing sustainable and integrated teaching models

University Hospitals of Derby and Burton NHS Foundation Trust - Dermatology Service; Dr Maulina Sharma

New Teaching Fellow in dermatology post for undergraduate dermatology teaching and service improvement

To facilitate and enable dermatology teaching for most 4th year medical students at the University of Nottingham (UoN) School of Medicine, a new dermatology teaching fellow post was created at the Department of Dermatology, Derby. The post was created to help the Consultant teaching lead and consultant body in delivering the planned undergraduate curriculum in an organised and structured manner.

The teaching fellow is part of the dermatology workforce and team and contributes to the clinical service delivery. The weekly timetable includes supervised 2-week-wait clinics, a surgical list, general dermatology clinics as well as participating in on-calls for acute dermatology.

The teaching activities include conducting tutorials, practical skills, teaching clinics, participating in formative and summative assessments and providing feedback to medical students during their 2-week attachment in dermatology. The fellow is also an assessor for dermatology OSCEs at University of Nottingham end of year summative exams.

What were the main drivers for change?

In 2014 due to commissioning changes, the University of Nottingham School of Medicine requested nearby Derby Hospital and its dermatology department to take on the bulk of undergraduate teaching for dermatology. The student numbers increased significantly from 3-4 students to 16 students attending dermatology attachment per fortnight at Derby.

What were the main barriers to change?

None. We were very fortunate to have the Trust and the University support this post. A suitable candidate (post MRCP) with sufficient teaching and dermatology knowledge and skills is essential to ensure the smooth running of the teaching programme as well as service delivery.

What has been the impact of this improvement?

The ambitious task of delivering teaching for most of UoN Medical school students as well as skin cancer support and clinical activity led to the Trust awarding Dermatology the 'Best Team of the Year' award at Derby (2015).

The post has also been taken up as Out of Programme Experience (OOPE) by specialty trainees to develop teaching skills and educational research. The post provides an opportunity to attain a Master's in Medical Education (MMedSci) (part time) at University of Nottingham.

The post holder has helped showcase achievements in dermatology undergraduate medical education (UoN) at national dermatology conferences as well as international medical education conferences.

Anonymous student feedback recorded every fortnight (approx. 200 students per year) by the Trust and University regarding organisation, teaching and faculty

for dermatology medical student teaching has been consistently excellent over the past five years.

It allows specialty trainees to participate in the student teaching programme and enhance their teaching and medical education skills and still contribute to the secondary care service.

Norfolk and Norwich University Foundation Hospitals; Dr George Millington

Development of the nurse registrar role

This is a development of a specifically-designed Dermatology Nurse Registrar (NR) pilot programme, the first in the UK, carried out over a three-year training period. The NR is supervised by both a Nurse Consultant (NC) and Dermatology Consultants. The programme has been designed to provide a structured succession plan for the current NC in post and to build and retain our highly skilled nurses.

Whilst a NC is autonomous to a high degree, they still work under the supervision of Consultant Dermatologists and are usually restricted in their practice to a subspecialty; for example, skin cancer/skin surgery, medical dermatology, eczema and general paediatric dermatology, photodermatology or patch testing/cutaneous allergy. Succession planning provides a smooth transition and is considered crucial to reduce risk in clinical services by reducing disruption for patients and the clinical team. This is a potential model for dermatology and for other specialities to replicate and to consider a more structured pathway for NC roles that can be tailored to respond to the pressures of delivering high quality care in a challenging NHS. The role and concept were presented at the BDNG Annual Conference 2017 in Belfast and has been published in the BDNG Dermatological Nursing Journal. (Wingfield C, Davies K, Levell NJ, Skellet AM. Dermatology Nurse Consultant – succession planning: An introduction to the Nurse Registrar role. *Dermatological Nursing* 2018. **17(3)**:31-38)

What were the main drivers for change?

1. To retain and provide career progression for highly skilled Dermatology nurses.
2. The need to look at innovative measures to increase capacity to assist service provision whilst utilising the diversity of skills across the department.
3. Acknowledging the shortage of medical Dermatologists (of all grades) across the UK.
4. Succession planning of current NC.
5. Building a robust senior NC dermatology team.

What were the main barriers to change?

Initially the only barrier was funding and ensuring funds were in place for the transition to a higher nursing band at the end of the 3-year programme. This was resolved with a business case supported by our operations manager and service lead for the department.

What has been the impact of this improvement?

The role has been met with great support from our Consultant Dermatologists and has been recognised by GIRFT as a benchmark of innovation for nursing roles within the speciality of dermatology. We are assisting other departments across the UK by sharing documentation which can help and support business cases for similar roles. We now have two NRs, surgical and medical, and

both are completing master's degree programmes. The first NR will qualify in December 2020 and will be promoted to a NC post, providing all the agreed competencies have been met.

The success of the role has been measured by senior nurse audits to monitor patient experience, with 100% successful results. We have been able to assist in our capacity needs especially for our skin cancer patient pathway. New service development is also an outcome of this role with services being set up for systemic monitoring, a specific nurse-led clinic for lower leg conditions, and a nurse-led alopecia clinic. The NRS are also involved with research and audit as a recognised part of their role.

Bristol Royal Infirmary Dermatology Service; Dr David de Berker

Teaching teledermatology to dermatology specialty trainees

Teledermatology is becoming an extension of normal dermatology consultation and a means of reducing patient travel, waiting time and improving access to consultant expertise. It is included in the new training curriculum for trainees in dermatology in the UK. Formal teaching programmes are limited.

In our trust we undertake regular teaching with specialty trainees (StR) using teledermatology. Running the event as a computer lab learning exercise, each StR has a login to the live teledermatology platform. They then review the history and images and draft a response. The supervising consultant teaches on each case with involvement of others in the teaching group. They may modify or simply approve the draft report before it is sent to the GP.

In an additional element of the StR training module for teledermatology, the most senior StR in the team has an elective attachment to the teledermatology reporting team. This comprises five consultants, one of whom is designated the tutor. The StR drafts reports independently on live cases and records them in an offline setting. These in turn are reviewed by the tutor within 24 hours with feedback, revision and ultimately despatch to the GP. The offline set of consultations is kept as a record of the training activity for the StR in their training log.

For the formal and more broad element in the StR training we require them to attend the British Association of Dermatologists (BAD) Teledermatology session at the annual meeting of the British Association of Dermatologists and to attend the annual training day in teledermatology held at BAD House on one occasion.

What were the main drivers for change?

Evolution of teledermatology as an important limb of dermatology.

What were the main barriers to change?

Access to suitable IT platform and time for training.

What has been the impact of this improvement?

New consultants gaining CCT with expertise and confidence in the delivery of teledermatology such that they are now able to lead on local service development and contribute nationally

Portsmouth Dermatology Centre, Portsmouth Hospitals NHS Trust;
Dr Stephen Keohane

The creation of a Trust-funded post-CCT Fellowship in Mohs and Advanced Dermatology Surgery training

The creation of a Trust-funded post-CCT Fellowship post in Mohs and Advanced Dermatology Surgery training has supported the following:

1. The provision of a stream of high calibre candidates to train in not only Mohs surgery but all aspects of cutaneous oncology.
2. The post-CCT fellow contributes to the StR on call rota for acute general dermatology referrals (although this is not a mandatory requirement in this Trust).
3. The participation in urgent 2-week-wait skin cancer clinics and autonomous surgical lists which have a significant impact on achieving targets.
4. The fellow runs weekly educational sessions for the specialty trainees in dermatology surgery which has improved the quality of the procedures performed and also enhanced clinical governance.
5. The regular audit of skin cancer and skin surgery against published national standards
6. Provision of Advanced Dermatology and Mohs micrographic surgeons to other Trusts who invariably will have a leading role in running multidisciplinary skin cancer teams

What were the main drivers for change?

- The need to meet the increased demand for high quality assessment of 2ww patients
- The increased need to treat skin cancer locally as well as nationally
- Recognition that we needed to train more Mohs surgeons nationally and meet regional demand for Mohs surgery due to a very high incidence of skin cancer.

What were the main barriers to change?

- NHS management. Business cases would not have been so favourably received for this type of service development in the absence of an extremely well worked-out pilot scheme which was initiated by JRCPTB, which was then rolled out to a formal programme.

What has been the impact of this improvement?

- Universally well received. The fellowship post has had a significant impact on both the 2ww skin cancer targets as well as the 31- and 62-day cancer targets. Also, in the second half of the fellowship, the fellow runs an autonomous list which has a significant impact on our Mohs times.

Section 3

Developing consultant-led multi-professional and multi-specialty teams

Southern Trust based at Craigavon Area Hospital; Dr David Eedy

A multi-disciplinary project board with representatives from the Southern Trust, Primary Care and the Southern Health and Social Care Council – a decade of transformation

Dermatology services are provided at five sites within the Trust. Inpatient Services were provided from a 10-bed ward in Lurgan Hospital, which operates on a five-day week basis.

Day Case surgery is undertaken in one session per week in the Day Surgery Unit at Craigavon Area Hospital. The procedures undertaken in this session are complex in nature and include the removal of malignant skin lesions and extensive non-malignant lesions. Consultant-led Outpatient Clinics were previously provided at four hospital sites. Nurse led outpatient clinics were provided across four hospital sites. Tissue Viability Service, the team of dermatology nurses based in Lurgan Hospital, delivers a tissue viability service to inpatients in three sites. The arrangement of services did not facilitate the optimum use of available staff as there was no primary location from which services are delivered.

Six specialist nurses were trained and appointed to deliver monitoring of biologics, surgery and treat less severe skin disease.

- The ward was closed, and financial savings used to recruit two new consultant colleagues
- A hub unit was established to provide core treatments and teaching and training. This comprises eight consulting rooms, two theatres and ancillary equipment to include PDT, phototherapy, cosmetic cyanophage.
- Cancer Screening / Teledermatology
- Teledermatology clinics were set up in the peripheral units with nurses taking history, digital photographs and dermoscopy. This allowed about a third of patients to be referred to non-consultant clinics or back to the GP
- Common conditions were triaged to clinic sessions which will be run by Staff Grade/GPwER
- Reconfiguration of consultant-led clinics - only urgent patients and/or those with more complex conditions are now seen in consultant-led clinics
- After selection by consultants or senior medical staff, two nurse specialists screen patients for biologics, offer patient teaching sections and are responsible for the delivery of biologic in close coordination with pharmacy. Day-to-day running of biological therapy is largely managed by these specialist nurses
- Nurse specialist clinics (generally nurse prescribers) were set up where all acne, psoriasis, eczema, hyperhidrosis patients were seen and either treated without direct doctor input or worked up for systemic medications and then referred to specialist consultant clinics. Feedback on these clinics was particularly positive as patients could be seen quickly by a specialist nurse.
- Hyperhidrosis clinic was particularly popular with the patients and GPs. Four specialist nurses deliver acne, eczema, cancer support and coordination.
- Nurse led surgery was developed. Nurses now undertake much non-complex surgery but also more complex work such as wide excisions of melanoma after

margins have been marked up by senior doctors. Four specialist nurses deliver daily surgical excisional surgery

What were the main drivers for change?

The pressure on the service due to the cancer targets. Skin is the commonest group of cancers to be referred to secondary care. Data collected by the Northern Ireland Cancer Registry on the incidence of the three major cutaneous cancers consistently showed that the Southern Board area has a significantly higher incidence of skin cancer than any other part of the Province, and indeed one of the highest in the United Kingdom.

With the increased use of biologic therapies for the treatment of adults with severe plaque psoriasis, urticaria and atopic dermatitis, there was a necessity for further service delivery.

What were the main barriers to change?

- There were virtually no figures as comparators to other national departments
- Nurses required extra time in training to allow them to become nurse prescribers, undertake surgery etc.
- Protocols for all nurse led activity had to be written

What has been the impact of this improvement?

- Two-week targets always met in department
- High level of patient satisfaction
- Despite the highest rates of skin cancer in N Ireland, most cancer surgery performed by dermatology
- Probably the shortest waiting times for appointments in N Ireland
- Increased efficiency lead to some absorption of registrar and medical student teaching from Belfast

Royal Hospital for Children Glasgow; Dr Paula Beatty

Developing nurse-led clinics in the paediatric outpatient service

A number of nurse-led clinics were set up:

- Nurse-led eczema clinics (2 clinics per week) to see new eczema referrals. These run alongside consultant clinics. Clear vetting criteria for these (children over one year, no concern re. food allergy raised). Also clear guidance on when referral back to consultant/ shared care required (food allergy not mentioned in referral, severe, social issues etc.)
- All of our nurses are nurse prescribers and 2 have completed dermatology distance learning modules
- Established nurse return clinics (8-10 clinics per week for review of children with eczema and psoriasis). This has allowed us to reduce the new: return ratio in consultant clinics to 1:1.
- The establishment of a dermatology nurse specialist helpline provided to parents who can call for advice
- Telephone review clinic set up by dermatology nurses for patients who they identify as possibly not requiring review
- Nurse-led drug monitoring clinic (1 each week) for patients on systemic therapy e.g. immunosuppression, isotretinoin and propranolol. This has also improved our new-to-return ratio. Proforma for data collection and dose escalation of propranolol according to weight. Runs alongside consultant clinic for advice if required

- Acute slot at end of nurse return clinic left free in case of ward referrals for eczema (other referrals seen by doctors)
- Nurse biopsy list for small lesions on body and diagnostic biopsies which also support haematology and oncology service need. Nurses help in clinics seeing patients alongside consultant when we have sufficient nursing staff
- Increased number of referrals sent back to GPs with advice including all eczema not treated according to NICE guidance/ Scottish referral pathways (www.dermatology.nhs.scot) before referral
- We also send back acute urticaria and have our own referral pathway for that which I developed with the allergy team.

What were the main drivers for change?

- Increasing referrals from Greater Glasgow and Clyde GPs
- Increasing tertiary referrals as local DGHs become short staffed
- Increased referrals from our paediatricians who have no exposure to dermatology during training
- Reduced staffing in our own department and difficulty recruiting to specialty doctor posts or finding candidates with suitable experience
- Increased complexity of referrals
- Increased demand for inpatient reviews. Paediatric IP in surrounding hospitals closed so RHC busier and age range increased so huge uplift in admissions
- Increased demand for urgent biopsies from other specialties
- The intermittent supply of dermatology trainees because of maternity leave, out of programme experience etc. has meant that we can have months with no trainee so need to rely on our permanent nursing staff more

What were the main barriers to change?

- Availability of outpatient accommodation to run the clinics
- Maintaining sufficient staffing
- Having sufficient administrative time for service development, e.g. writing protocols so that paediatricians can follow treatment pathways before referral.

What has been the impact of this improvement?

- In 2006 (nurse return clinics only) the new: return ratio was 1:2
- In 2015 (some nurse-led eczema and the nurse return clinics were running) we saw 1934 new referrals despite 50% reduction (1.6 WTE to 0.7 WTE) in specialty doctors
- In 2018-19 we had 2862 referrals (secondary and large proportion tertiary). We sent 499 back and accepted the rest. All nurse-led clinics running. Managed to keep waiting list at 12 weeks despite staffing now down to 0.5 WTE Specialty Doctor
- We currently have approximately 2 WTE consultants and 2.3 WTE Band 6 nurses. New to return ratio in consultant clinics now 1: 0.89

Development of Cellulitis and Lymphoedema nurse led clinic

We started the lower limb cellulitis clinic around 12 years ago, to reduce the burden of cellulitis referrals to the NNUH Acute Medical Unit (AMU), Monday to Friday, office hours. Prior to this (and still at the weekends) dermatologists were being called to see patients with suspected cellulitis, initially treated with inappropriate antibiotics.

Usually, there was a non-infective final diagnosis, often varicose eczema. There have been changes over the last few years with the introduction of ambulatory care (AEC) services. This initially involved administering daily IVs for cellulitis patients to avoid the need for admission. However, the introduction of the Medical Dermatology Nurse Registrar (NR), will now work with AEC and review these patients on the AMU as well as in the cellulitis clinic in dermatology. This will aim to work with the patients and aim to prevent further episodes, providing prevention advice. Additionally, any patients not responding to antibiotic treatment will be reviewed by the dermatology nurse registrar to assess differential diagnosis. Patients will be reviewed back in the cellulitis clinic where appropriate.

The lymphoedema service has evolved to include skin cancer pathway management for patients who have had radical lymphadenectomy, limb infusions; this includes assessing the patient prior to surgery to record a baseline limb volume so early signs of lymphoedema can be picked up post-operatively and managed. We have progressively trained a cohort of nurses with lymphoedema qualifications to mostly run this clinic as a nurse-led unit within the dermatology department. The rationale for this service is that lymphoedema services in our region are sparse and mainly geared to breast cancer patients; melanoma patients were only included when the lymphoedema was more advanced. Additionally, patients can be referred from our Dermatology General Clinics and from the cellulitis clinic with other secondary causes of lymphoedema for management. Cellulitis itself is an important cause of secondary lymphoedema (and vice-versa) and so the two services are very much intertwined.

What were the main drivers for change?

1. Patients being wrongly treated with inappropriate antibiotics
2. Not having adequate lymphoedema services

What were the main barriers to change?

Negotiating for rooms within the department

What has been the impact of this improvement?

- Patients being appropriately treated for cellulitis and given ongoing advice, not just treating the cellulitis. Patients are also given prevention advice
- Lymphoedema - Skin cancer pathway has improved patient care, being able to see patients pre-op and monitoring the development and giving early intervention where required

Stepping Hill Hospital Stockport; Dr John Newsham

Service transformation

This service is a satellite service of The Dermatology Centre at Salford Royal Foundation Trust (SRFT), Manchester. The service has been delivered by the SRFT team since early 2014, with initial partnership work with Stockport NHS Foundation Trust and subsequently fully commissioned by Stockport CCG in 2015 to deliver dermatology services for Stockport residents and the surrounding area, including some Derbyshire residents. Currently, services for patients are delivered across three sites with the majority of patients being seen at the Stepping Hill Hospital site in a secondary care setting. The service has grown year-on-year both in staffing and outpatient activity, delivering an average of around 26,000 patient contacts per year.

In the last five years the service has undergone a great deal of change. We have expanded our nursing team and supported nursing staff development. This has included training an additional nurse in performing minor operative procedures, supporting two nurses through their non-medical prescribing course, mentoring our skin cancer specialist nurse in expanding her role to include follow-up of skin cancer patients (backed up by appropriate university modules) and appointing a nurse to run drug monitoring clinics three times per week, all easing pressure on clinician led services. We have also trained two nurses in the administration of axillary botulinum toxin for hyperhidrosis. Additional nurses have been trained in delivering phototherapy, improving the resilience of this important element of the service. We have also supported three Band 2 healthcare assistants in progressing to Band 3 level roles as theatre assistants for minor operative procedures.

We have built and pride ourselves on a robust skin cancer MDT with support and involvement from colleagues in Ear, Nose and Throat surgery, Oculoplastics and Maxillofacial surgery, helping us provide local care for patients. We were commended by the Trust at the staff awards in 2015 on our efforts, winning the award for 'Improving Patient Safety'.

We have expanded our medical team over the past five years. We currently have six Consultant Dermatologists, three GP with Extended Roles (GPwERs) and a specialty doctor whom we have trained in-house. We have helped support two locum doctors in applying for CCT through the CESR route. As a team we deliver a broad range of general dermatology services and support a busy skin cancer service. We have all enthusiastically engaged with local GPs and established a free-of-charge, twice annual GP educational event attended by almost 100 GPs, GP trainees and practice nurses from Greater Manchester and beyond. We have also delivered teaching for local GPs through the CCG-organised GP 'Masterclass' events and one of our enthusiastic GPwERs has successfully delivered training to Stockport GPs in the use of a dermatoscope.

We have worked on a long running teledermatology project with colleagues in the CCG and have now fully established a teledermatology advice and guidance service using a mobile phone-based system which uses App and QR code technology to upload patient photographs to the system without storing the images on the device. We have now seen over 1200 patients using the system and have had positive feedback from GPs, consultants and patients.

In late 2017 we were approached by the CCG to collaborate with them and NHS England on the Elective Care Transformation Project with the aim of implementing rapid improvements in just 100 days. We successfully expanded our then teledermatology pilot by 100%, implemented a one-stop two-week

wait service with same day surgery (including gold standard two-stage consent) for patients attending skin cancer clinics and established a process utilising the teledermatology application to facilitate direct to theatre listing for patients referred to ENT surgery. A key success was reducing our waiting time to theatre from 15 days to just two days.

We have established clear pathways to ensure patients in Stockport now have access to biologics with initial screening appointments at Salford Royal but continued long-term follow-up locally. We have clinic slots for telephone consultations to reduce face-to-face appointments in appropriate cases. We have undertaken a number of important audits, established robust governance procedures and encouraged reporting of incidents to drive improvements and maintain and improve patient safety.

What were the main drivers for change?

Historically, dermatology services in Stockport, prior to our acquisition of the service, had largely been delivered by a locum medical workforce and a small and dedicated team of nursing and administrative staff. The constraints resulting from a lack of a substantive medical team had meant limited development, for example in nurse-led services and roles, and there was no access to biologics for patients being seen in the previous service.

The main drivers for change were to improve care for patients and deliver services in a more efficient way for all.

What were the main barriers to change?

Apart from financing nursing and support staff expansion and space constraints, there were surprisingly few barriers to change. We have the benefit of an engaged management team, enthusiastic staff at all levels and have built an excellent working relationship with surgical, rheumatology and paediatric colleagues and the CCG; running with new ideas and embracing innovative ways of working.

What has been the impact of this improvement?

We have demonstrated through audit good adherence to national skin cancer targets. As with services across the country, skin cancer referrals continue to grow. Reduction in overall theatre waiting times through the establishment of one-stop clinics from 15 to two days following our efforts during the 100 days project was a key success. We have shared our knowledge and experience with the team at Salford Royal and, having worked on the process mapping, the model has now been replicated successfully there too.

We have received excellent feedback from patients, GPs and consultants on the teledermatology system and even produced a video as part of the 100 days project including an interview with a patient who had benefitted from the system. Prior to the teledermatology work we had no means of providing advice and guidance to GPs and now we have the ability to influence patient care remotely whilst reducing the need for onward secondary care referrals.

We have received consistently excellent feedback on our GP education events and numbers attending continue to grow. As far as we are aware, the meeting is the largest of this kind in the region. We have covered numerous topics relevant to the management of skin disease in general practice and have received consistent feedback from GPs, GP trainees and practice nurses that they have grown in confidence in managing skin conditions as a result of these meetings.

Perhaps our biggest success has been developing the right culture, one that is supportive, inclusive and with team spirit at its heart. Our service continues

to evolve and, as with all dermatology services, we continue to face challenges in capacity and demand. Nonetheless our team continues to approach these demands with strategy and enthusiasm.

Nottingham University Teaching Hospitals; Dr Jane Ravenscroft Redesign of a paediatric dermatology service

The aim of this improvement was the rebuilding of paediatric dermatology at Nottingham University Hospitals (NUH) through integration of paediatric dermatology into paediatrics, within the division of Family Health.

This was achieved through the following steps:

a) We undertook a review of the components of the paediatric dermatology service, which comprised:

- Outpatient attendances >5000 per year (>2500 'specialised')
- Dermatology in-patients and consultations for paediatric in-patients >500/year
- 24-hour on-call service for GPs, wards and emergency department
- Laser service
- Patch testing >100/year
- Light therapy >50/year
- Day treatments
- Minor skin procedures in outpatients and general anaesthetic theatre lists
- Combined clinics with rheumatology
- Research – recruitment of >100 patients/year
- Teaching/ training undergraduates and eight specialist registrars
- Working with our patients on our 'Nottingham Support Group for Carers of Children with Eczema' website (<http://www.nottinghameczema.org.uk>)

The remaining workforce comprised

- One consultant (0.85 WTE) and one academic (0.2 WTE)
- One nurse consultant (who subsequently resigned)
- Three specialist nurses and two health care assistants
- Two research nurses

b) We brought paediatricians and paediatric dermatologists together to come up with innovative solutions.

Nottingham Children's hospital agreed to take over responsibility for paediatric dermatology with the following immediate actions:

- Identification of two paediatricians to see specified dermatology patients (eczema, haemangiomas and acne) under supervision.
- Appointing a clinical fellow in paediatric dermatology, and facilitating one Derby dermatology registrar to attend Nottingham two days per week
- Creation of referral pathways for acute paediatric dermatology patients from wards, ED or GPs - via 'hot week' paediatric consultant, generic 'paediatric dermatology' email and a weekly 'rapid access clinic'
- Limiting referrals from surrounding areas to 'specialised' dermatology only
- Joint working with paediatric plastic surgeons for minor ops and lasers

- Paediatric dermatology administrative team to manage pathways

Following successful implementation of the above:

- We appointed two new consultant posts:
- Consultant paediatrician with expertise in dermatology, 2016
- Consultant dermatologist, 2017
- All three paediatricians undertaking special interest (SPIN) modules in dermatology
- New combined clinics for propranolol, genetics, complex eczema/allergy and a vascular anomalies MDT
- Referral guidance for GPs detailing treatment options, clinical guidelines and investigations to be carried out prior to referral
- Upskilling of nurses in prescribing and monitoring for chronic disease including acne, eczema and psoriasis
- Upskilling healthcare assistants for patch tests and blood tests
- Promotion of recruitment into NIHR research studies

What were the main drivers for change?

The decision to award the contract for adult dermatology services in Nottingham to Circle in 2013 led to the *“near collapse of acute and paediatric dermatology services”*. An independent review of Nottingham Dermatology Services in June 2015 called it *“an unmitigated disaster”* and stated that *“paediatric dermatology services (for which Nottingham is one of the few tertiary centres) are also under immediate threat”*.

By August 2015, there remained one consultant dermatologist and a part time academic at Nottingham University Hospitals to provide a paediatric dermatology service for a population of almost one million that had previously been supported by 11 consultants and eight specialist registrars providing 24-hour on-call and tertiary expertise in all aspects of paediatric dermatology.

Paediatric dermatology was part of adult medicine services, under the ‘cancer and associated specialties’ directorate. With loss of trainees and little prospect of recruiting consultants into a fragmented service during a national workforce crisis, the service appeared unsustainable.

Nottingham Children’s Hospital at NUH is a tertiary centre for many paediatric specialties including oncology, rheumatology, intensive and neonatal care, burns and plastics and nephrology. The specialised status for these was also under threat without dermatology input.

What were the main barriers to change?

In August 2015, morale was extremely low and staff were looking elsewhere. There was no prospect of recreating the same service due to lack of dermatologists and trainees.

Setting up a new clinical fellow post (pre-specialist training) and asking paediatricians to train up in dermatology was not supported by some dermatologists in the country. Supervising three paediatricians, one clinical fellow and one registrar with little dermatology experience, by 1.05 WTE of consultant workforce was a challenge. Training in recognising and treating skin lesions was particularly difficult, but this has been helped by utilising dermoscopy courses and adult skin cancer clinics.

What has been the impact of this improvement?

- Our project has achieved a stable and sustainable paediatric dermatology service for Nottingham Children's Hospital, providing the full complement of secondary and tertiary care through a team of dermatologists, paediatricians, plastic surgeons, nurses, research and administrative staff.
- Morale has greatly improved due to a sense of working in a team.
- All targets have been met and waiting times have been reduced (polling time currently <21 days)
- Recruitment to NIHR CRN research studies has increased
- Datix figures record "no complaints" since 2015

Additional benefits:

- Upskilling of paediatricians in dermatology leading to enhanced acute care of children with skin problems
- Upskilling of consultant dermatologists, registrars and clinical fellow in paediatrics leading to a more holistic approach, including management of co-morbidities, and psychosocial assessment for teenagers
- Extended nursing roles
- Improvement in patient pathway through 'best person first time', one-stop clinics, direct booking to paediatric plastic surgery, MDT for vascular anomalies
- Sharing best practice from Nottingham Children's Hospital e.g. Systemic drug databases
- Dissemination of knowledge and interest in dermatology to wider paediatric community. Five paediatric trainees in Nottingham have expressed an interest in dermatology SPIN module in 2017/18
- Collaborative clinical research leading to presentations at national meetings
- Integrated model has been expanded to include paediatric allergy within the children's hospital
- Cost savings:
 - i. The cost of a paediatrician and a paediatric dermatologist is equivalent. The tariff for a paediatrician seeing a patient is higher than for a dermatologist (£220 v £133), but paediatricians do fewer clinics due to on-call commitments. Income generated from the clinics alone covers the cost of the medical and non-medical staff and the non-pay costs for the service
 - ii. There has been a significant improvement in the paediatric dermatology finances since this model was initiated due to a streamlining of services and investigations (Dec 17, £218,015 underspend against budget £555,505).
- Feedback from co-founder of the 'Nottingham Support Group for Carers of Children with Eczema' Amanda Roberts: "This is a paediatric service which has always embraced innovation and collaboration to ensure high service delivery for their patients and their carers. In recent years this has been particularly challenging in view of the 'conscious uncoupling' of adult dermatology."

