

# Dermatology Improvement Collaborative - Phase 2 2022-2023

A collaborative programme delivered by the Health Innovation Network South London and supported by the Industry Dermatology Initiative (IDI).

This report has been sponsored by the following companies: AbbVie, Almirall, LEO Pharma, Eli Lilly and Company, Novartis, Pfizer, and UCB. They have provided funding for the project, but the design, scope and execution of the project has been delivered solely by the Health Innovation Network South London without influence from them.

August 2023

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# 2. Executive summary

## Context

The Dermatology Improvement Collaborative was a bespoke programme designed and delivered by the Health Innovation Network (HIN) and supported by the Industry Dermatology Initiative (IDI) in 2020/2021. Through this collaborative process the HIN supported dermatology services in South East London Integrated Care System (ICS), South West London ICS and Surrey Heartlands ICS, to design and pilot several service improvement initiatives. These involved both primary and secondary care, and used technology and innovation to streamline the patient pathway and ensure patients are seen in the right clinic the first time.

Service disruptions due to the Covid-19 pandemic have significantly impacted delivery of the projects within the original timescales. As a result, the Health Innovation Network was commissioned for a second phase of the Dermatology Improvement Collaborative, funded through IDI members, to evaluate the achieved impact of these programmes and provide insights into the implementation of innovative digital solutions within dermatology services.

Each ICS has taken a localised approach to designing the right teledermatology model for their services, through a number of different improvement initiatives, which are listed below.

### South West London ICS Programme

- Project 1: Introduction of image capture devices/ dermatoscopes in primary care
- Project 2: Patient and primary care engagement and education
- Project 3: Launch of teledermatology on the Patient Portal

### Surrey Heartlands ICS Programme

A new teledermatology pathway introducing digital imaging into primary care via two different models:

- a Referral Support Service to triage routine skin conditions using smartphone images;
- a community-based Photohub, to triage suspected skin cancer referrals using dermoscopic images.

### South East London ICS Programme

- Project 1: Support prior to referral through Advice and Guidance requests accompanied by digital images
- Project 2: A new teledermatology pathway at ICS level, utilising Medical Photography

The primary aims of the report were to collate the impact findings from all three programmes and determine the impact of the projects on:

- Improving access for routine referrals

- Streamlining referrals triage pathways
- Waiting times for dermatology services

## Key findings

### South West London ICS

#### Project 1: Introduction of image capture devices/dermatoscopes in primary care

Forty GP practices were involved in the pilot using dermatoscopes, and 27 of them provided data for this evaluation.

- The time taken in primary care was around double that of a standard ten-minute appointment. Despite the increased time taken, the majority of GPs said they would like the pathway to continue long term.
- The time taken in secondary care dermatology to triage the requests was 70% less than the 15-minute standard for two-week wait dermatology consultations.
- 25% of patients were referred back to primary care.
- 33% resulted in a further referral to a skin cancer screening clinic.

#### Project 2: Patient and primary care engagement and education

The project resulted in the development of four educational videos to support patient and GP education of the treatment and management of skin conditions for psoriasis, eczema, skin cancer and “how to take a good quality photo”. The videos are publicly available via the ICS website and are being used as adjunct to consultations.

### Surrey Heartlands ICS

Over 7,500 referrals were assessed through the new pathway over the course of the pilot.

- 12% of routine referrals were returned to primary care.
- The Photohub identified 41% of skin cancer referrals were benign.
- At least **246**, and up to **751** routine outpatient appointments could be saved by the RSS each year.
- 477 outpatient appointments could be saved each year by a Photohub.

### South East London ICS

#### Project 1: Support prior to referral through Advice and Guidance requests accompanied by digital images

Over 10,600 advice and guidance requests accompanied by digital images were received across the ICS, from December 2021 to March 2023.

- 63% of requests led to secondary care referral being avoided.

#### Project 2: A new teledermatology pathway at ICS level, utilising Medical Photography

223 routine referrals were assessed through the new teledermatology pathway between August and January 2022.

- 63% of referrals were returned back to primary care.

- Mean referral to assessment time was 2.7 weeks at January 2023, compared to 22.6 weeks median waiting time for a routine face-to-face appointment.

Each project has demonstrated positive impacts on the intended improvement aims, such as reduced need for secondary care appointments, reduced appointment time in secondary care, improving access to routine referrals and streamlining referral triage pathways.

The data collected through surveys and interviews revealed generally positive staff and patient experiences of the teledermatology projects, with good support for recommending the services and for the pathways' continuation.

# 3. Background

## National Context

In 2021-22 there were close to three million dermatology outpatient appointments in England, making it the eighth-largest speciality in terms of volume (HES). Dermatology services are facing significant challenges, with over 362,000 patients on waiting lists for dermatology services in England, and 57.5 % waiting over 18 weeks for treatment in March 2023.<sup>1</sup>

The 2021-2 report for dermatology acknowledges the significant impact of workforce shortages and increased demand on the efficiency, quality of care, and patient safety in dermatology services nationally. The case for change in delivery of dermatology outpatient services was already clear. In response to these national challenges, the report emphasises the potential of digital technology to revolutionise dermatology services by reducing the number of in-person hospital visits, and the importance of developing regional strategic plans for sustainable partnerships between local providers.<sup>2</sup>

The 'NHS England and NHS Improvement 2020 Teledermatology Roadmap'<sup>3</sup> has provided guidance and resources to promote the adoption and utilisation of digital technology and innovation within dermatology services. The publication outlines recommendations for the implementation and optimisation of teledermatology models into existing services, to help manage demand and existing backlogs. In addition, NHS England has produced the Dermatology Digital Playbook<sup>4</sup>, a comprehensive resource that offers case studies demonstrating different approaches to embedding digital solutions in dermatology services. This playbook serves as a practical guide for healthcare professionals looking to implement digital innovations in their practice.

The improvement programmes detailed in this report, delivered as part of the Dermatology Improvement Collaborative, align with these national policy recommendations. The programmes are directly relevant to four out of the five steps to deliver teledermatology triage outlined in the Teledermatology Roadmap:

- Include images with dermatology referrals and advice and guidance requests to enable consultant triage, ensuring face-to-face attendances only when necessary.
- Triage both suspected cancer and routine referrals using teledermatology.
- Record teledermatology activity accurately to reflect the type of clinical contact taking place, demonstrate the benefits and support sustainable funding models.
- Maintain teledermatology pathways through continuous training across professional groups and care settings.

The Roadmap also notes two key principles for delivery: that patients are kept informed directly about the care pathway they are on, their diagnosis and treatment plan; and that "teledermatology workflows should not add burden to primary or secondary care." These principles have been at the core of the service improvement programmes delivered through the Collaborative and detailed in this report.

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<sup>1</sup> NHS England, Monthly RTT data collection

<sup>2</sup> Levell, Nick. *Dermatology GIRFT Programme National Specialty Report*. August 2021. P. 5.

<sup>3</sup> NHS England. *A teledermatology roadmap*. September 2021. P. 2.

<sup>4</sup> <https://transform.england.nhs.uk/key-tools-and-info/digital-playbooks/dermatology-digital-playbook/>

# The Dermatology Improvement Collaborative

## Phase 1

The Association of the British Pharmaceutical Industry (ABPI) Improvement Dermatology Initiative (IDI) commissioned the HIN in 2020 to deliver a quality improvement programme to build upon the recommendations in the report 'Making real our shared vision for the NHS: optimising the treatment and care of people with long-term skin conditions in England' produced by this group in 2018. This report sought to address the challenges within NHS care for people with inflammatory skin conditions and particularly long-term skin conditions, including the burden of skin disease, improving the patient pathway including access to secondary care, the 'diagnostic bottleneck' and the management of skin conditions, and highlight practical solutions.

The Dermatology Improvement Collaborative was a bespoke programme designed and delivered by the HIN and supported by the Industry Dermatology Initiative (IDI) in 2020/2021. The programme was fully funded by the IDI but the design, scope and delivery were undertaken by the HIN. The IDI is a cross-industry collaboration to improve dermatology care and includes and is funded by the following member companies: Pfizer, Eli Lilly and Company, Abbvie, Ammirall, Novartis, LEO Pharma UK, and UCB.

Through this collaborative the HIN supported dermatology services in South East London ICS, South West London ICS and Surrey Heartlands ICS, to deliver service improvements using technology and innovation to streamline the patient pathway in the outpatient context, adapted to the specific needs and challenges of the participant organisations.

The first part of the programme was designed around a series of workshops, to provide NHS trusts with a quality improvement framework to improve their dermatology service, with additional coaching/project management support via the HIN project team. The workshops provided examples and case studies from other teledermatology transformation projects, and information on quality improvement methodology. This provided the programme teams with an opportunity to explore a wide variety of potential service transformation solutions, including numerous pathway re-designs and digital innovations, and make an informed decision on the initiatives to pilot in order to progress into the design and planning stage.

As with many transformation projects across the NHS, the Covid-19 pandemic introduced several unforeseen challenges which severely impacted the delivery of the Dermatology Improvement Collaborative programmes in the original timeframe, such as limited staff capacity to plan and implement solutions, extensive referral and waiting list backlogs, and redeployment of staff, both clinical and operational, to other areas of the hospital.

While the Collaborative made great progress in launching transformation initiatives which showed promise of a significant positive impact on dermatology services, many of the projects were still at a very early stage or not yet started. Therefore, a full evaluation of their impact in relation to the intended objectives has not been completed at the time of report publication.

The final report was published in September 2021<sup>5</sup>, detailing the project delivery, a detailed assessment of the potential digital solutions and pathway transformations that were explored, and showcasing seven case studies of the proposed workstreams from South West London ICS (Kingston, Croydon, St George's and Epsom & St Helier), South East London ICS (Guy's and St Thomas', Kings College Hospital and Lewisham & Greenwich) and Surrey Heartlands ICS (Ashford & St Peters' NHS Foundation Trust).

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<sup>5</sup><https://healthinnovationnetwork.com/resources/dermatology-improvement-collaborative-2020-21/>



## Phase 2

The Health Innovation Network was commissioned for a second phase of the Dermatology Improvement Collaborative, funded through the IDI members. The purpose of this was to measure the impact of the dermatology service improvement programmes in the three participating ICSs, and produce a second report detailing the key findings, insights, and recommendations for implementation of teledermatology transformation into clinical pathways.

Following the exploratory work undertaken in phase 1, each ICS has taken forward for implementation the following teledermatology improvement projects:

### *South West London ICS Programme*

The programme was designed around three delivery phases:

- **Project 1: Introduction of image capture devices/dermatoscopes in primary care**

This project was delivered through a pilot involving the use of smart phones and dermatoscopes for image capture within a primary care setting. Using high quality images to accompany referrals and Advice and Guidance (A&G) requests into secondary care dermatology in order to support efficient triaging and a potential reduction in the number of face-to-face consultations required.

- **Project 2: Patient and primary care engagement and education**

The aim of this project was to support the early detection and treatment of inflammatory and long-term skin conditions, whilst increasing both GP and patient confidence in the management of common skin conditions in primary rather than secondary care.

- **Project 3: Launch of teledermatology on the Patient Portal**

The Patient Portal was already being delivered to all specialities via a broader Outpatient Transformation Programme, and the project aim was to set out how services can best utilise the functionality allowing the upload of images and assessment forms for teledermatology.

### *Surrey Heartlands ICS Programme*

A new teledermatology pathway introducing digital imaging into primary care via two different models, for the routine and suspected cancer subsets of referrals:

- a referral support service to triage routine skin conditions using smartphone images; and,
- a community-based Photohub, to triage suspected skin cancer referrals using dermoscopic images.

### *South East London ICS Programme*

- **Project 1: Support prior to referral through Advice and Guidance requests accompanied by digital images**

The use of the Photo SAF functionality of Consultant Connect, that allows GPs to take a photo of a patient's skin condition to accompany Advice and Guidance requests sent to secondary care was promoted to GPs and PCNs within south east London (SEL). Increased uptake frees up capacity so more complex patients who require secondary care services can do so in a timely manner.

- **Project 2: A new teledermatology pathway at ICS level utilising Medical Photography**

A new teledermatology pathway was piloted, involving a referral assessment service for

community dermatology to triage all routine referrals from primary care. Those suitable for the teledermatology pathway are booked into medical photography appointments. The images are bundled with a referral and a patient questionnaire and sent for virtual review in dedicated teledermatology clinics. The aim was to improve provision, equity to access and performance of local dermatology services by reducing waiting times and unnecessary face-to-face attendances.

## Evaluation purpose and approach

The purpose of evaluating service improvement projects was to produce case studies for other NHS dermatology services to learn from, support other services adopting quality improvement methodologies, improve patient pathways, and reduce waiting times for patients accessing dermatology care.

The primary aims of the evaluation were to determine the impact of the projects on:

1. Waiting times for dermatology services
2. Streamlining referrals triage pathways
3. Improving access for routine referrals

The evaluation also aimed to determine what impact the workstreams/projects had on pathway reach and engagement, patient and clinician experience, and primary, and secondary care.

The evaluation used a mixed-methods approach using routinely collected data from ICBs, surveys and stakeholder interviews. The specific data collection methods and data sources vary across each individual project and are outlined below:

### *South West London ICS Programme*

The evaluation of the project was undertaken by the HIN. Data was available for six months at a series of 40 practices across south west London. Qualitative feedback was collected via patient experience surveys, primary care surveys, secondary care surveys, and outpatient activity data over the pilot period which was provided by the South West London ICS.

The 'Patient and primary care engagement and education' project was evaluated through semi-structured interviews with relevant staff members.

### *South East London ICS Programme*

The evaluation of the project 1 (Support prior to referral through Advice and Guidance requests accompanied by digital images) was undertaken by the HIN, using data provided by the South East London ICS and semi-structured interviews with relevant stakeholders.

The second project (A new teledermatology pathway at ICS level utilising Medical Photography) was evaluated by the HIN together with the South East London ICS project team, who collated the data on referral numbers, diagnoses and waiting times for the new teledermatology pathway. Qualitative feedback was collected by the HIN through semi-structured interviews with relevant stakeholders.

### *Surrey Heartlands ICS Teledermatology Programme*

A mixed methods evaluation study of the new teledermatology pathway was undertaken by Unity Insights, using outcome data from the Photohub collected over a nearly four-month period, and triage data from the Referral Support Service, for 13 months.

This report showcases the impact achieved and aims to facilitate the dissemination of best practices, enabling other dermatology services to benefit from the experiences and lessons learned through teledermatology service transformation.

# 4. South West London ICS Programme

## Introduction

During phase 1 of the Dermatology Improvement Collaborative, the SWL Teledermatology programme received transformation funding from NHSX to support with their service improvement initiatives. Across south west London (SWL) acute trusts in March 2022, there were 9,527 patients on a waiting list for dermatology services. Twenty-five % of patients had exceeded 18 weeks waiting time (Referral to Treatment performance marker), and 8% had exceeded 26 weeks waiting time. Dermatology services were experiencing the significant challenges of increasing inefficiencies in referral pathways due to the lack of digital images alongside referrals and Advice and Guidance requests, and appointment cancellations.

The SWL Clinical Dermatology Network and teledermatology project team set out to deliver three improvement projects as part of the NHSX bid:

- Project 1: Introduction of image capture devices/ dermatoscopes in primary care
- Project 2: Patient and primary care engagement and education
- Project 3: Launch of teledermatology on the Patient Portal

Each project, alongside the key findings and impact where available, are presented in separate sections below.

## Project 1: Introduction of image capture devices/dermatoscopes in primary care

The NHSX funding included a three-month pilot involving the purchase of smart phones and dermatoscopes for image capture within a primary care setting. The images can then be sent to secondary care electronically via Advice and Guidance/Kinesis or uploaded to the e-Referral Service to accompany the referral. The accompaniment of an image with referrals can support efficient triaging of patients, and a potential reduction in the number of face-to-face consultations as A&G increases.

Each PCN across SWL received at least one device to provide coverage for their local area and set up a "hub" practice where relevant patients could be booked into an appointment at the hub site and have the images taken. Both pathways required all patients to attend a primary care site for image capture.

The pilot ran from March to August 2022. A total of 44 dermatoscopes and 36 smart phones were distributed across SWL PCNs for use during the pilot.

The evaluation was undertaken in two parts: through a commissioned evaluation for SW London ICS by the HIN, to assess the impact of their image capture pilot within primary care, and a further analysis of outpatient data provided by SW London ICB, in order to understand whether the teledermatology pilot had an impact on overall outpatient dermatology service activity.

The goal was to assess the following themes:

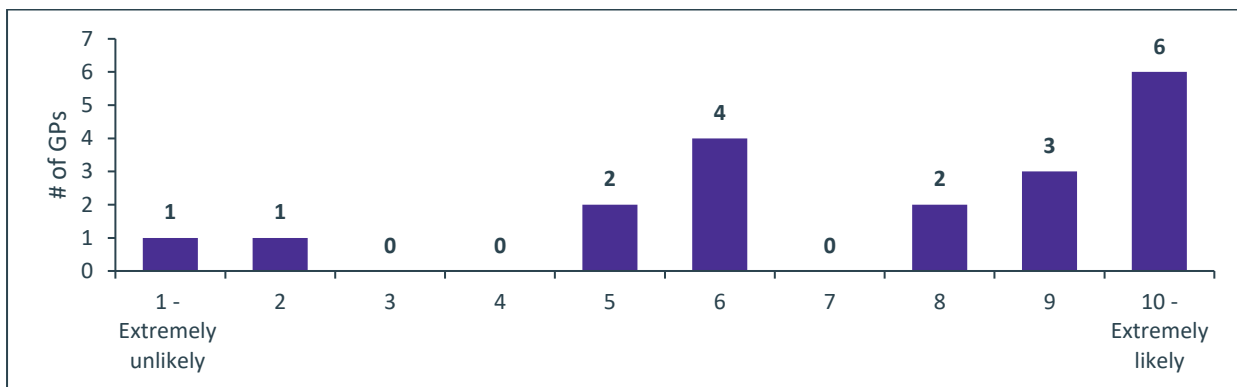
- Impact on primary care, in terms of staff experience, consultation time impact, and ways of working.
- Impact on secondary care, in terms of workload, image quality, advice and guidance, referral numbers.
- Patient experience.

Twenty-seven GPs, from twenty two practices responded to a survey about their experience of the teledermoscopy pathway, representing 55% of practices involved in the pilot. Fifteen patients on the teledermoscopy pathway responded to the patient experience survey. Three of the four acute hospitals involved in the pilot provided data on the patients they received dermoscopic images for.

### GP satisfaction

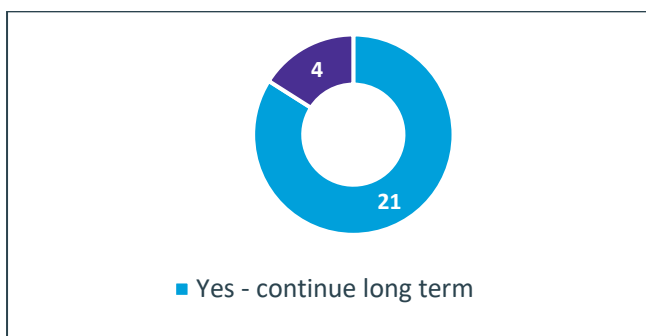
GPs were asked how likely they would be to recommend the pathway to a colleague or friend on a scale of 1 (extremely unlikely) to 10 (extremely likely). Scores between 0-6 are classified as 'detractors' and are GPs who are dissatisfied with the service. Scores of 7 or 8 are considered 'passives' and scores of 9 or 10 are known as 'promoters' who are likely to provide positive word-of-mouth advertising for the service. A Net Promoter Score (NPS) of **52** was calculated for the pilot by subtracting the percentage of responses which were detractors from the percentage of promoters. An NPS over 50 is considered very good and service users are likely to recommend the service to a friend. The full distribution of responses can be seen in Figure 1.

**Figure 1. How likely GPs were to recommend the pathway to a colleague or friend**



The majority of GPs said they would like the pathway to continue long term (21 out of 25) (Figure 2).

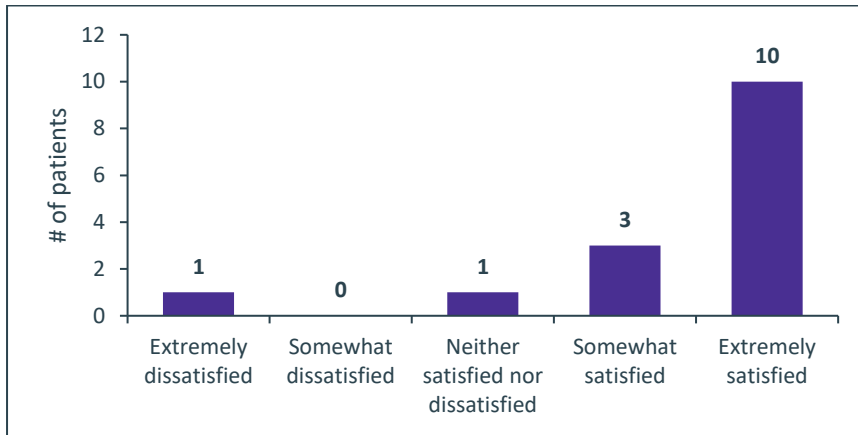
**Figure 2. Whether GPs would like the pathway to continue long-term**



### Patient satisfaction

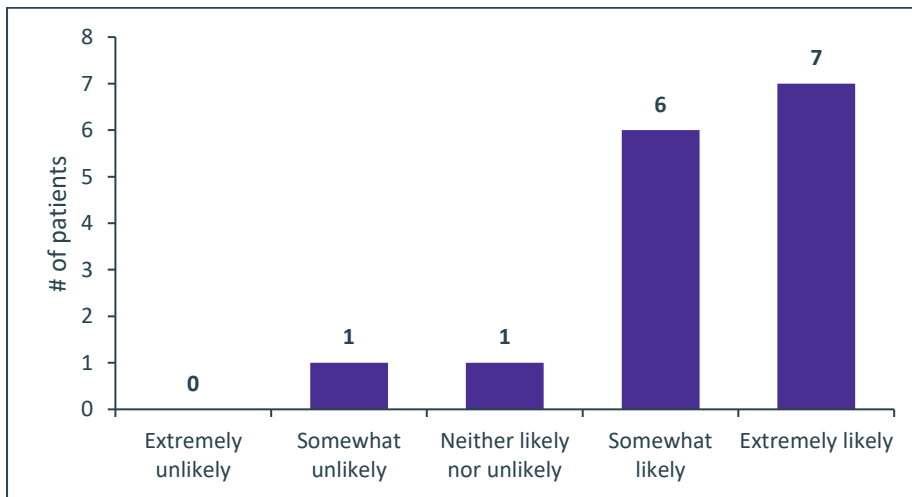
Almost all patients were either somewhat or extremely satisfied with their appointments (13 out of 15 patients) (Figure 3).

**Figure 3. How satisfied patients were with their appointments**



Almost all patients would be somewhat or extremely likely to recommend the dermatoscope process to a friend or colleague (13 out of 15 patients) (Figure 4).

**Figure 4. How likely patients were to recommend the service to a friend or colleague**



### ***What patients found useful***

Patients highlighted several useful aspects about the service:

- Quick and expert opinion
- Convenient, reassuring and proactive
- Detailed explanation of the process and next steps

### ***Patient suggestions for improvement***

Patients suggested several improvements to the service:

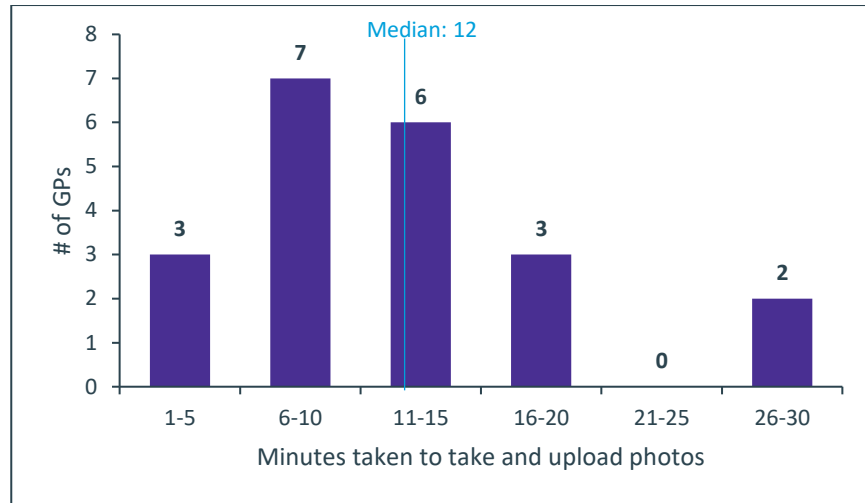
- More written information, e.g. FAQ booklet
- Viewing the dermatoscope image before it is sent
- Face-to-face appointment once results were received

Impact on primary and secondary resources

The median time for GPs to take and uploads images was 12 minutes. Just under half of GPs said it took 10 minutes or less to take and upload images (10 out of 21 GPs) (Figure 5). The standard time for a primary care consultation is 10 minutes.

**Figure 5. How long it took GPs to take and upload imaging (per patient)**

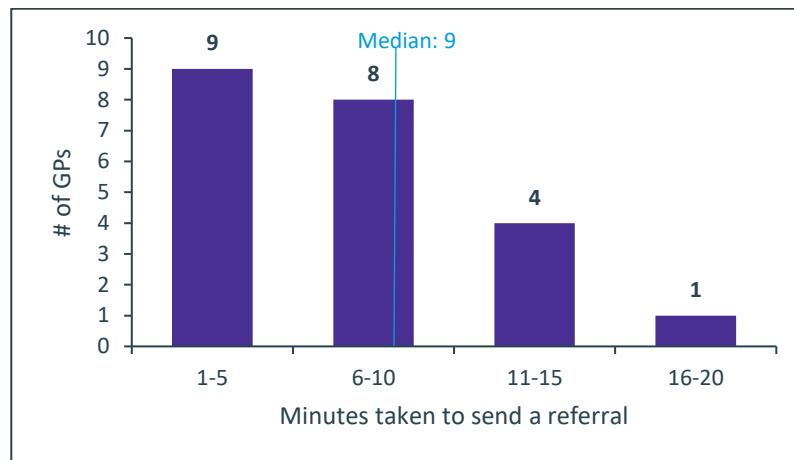
**Time for GPs to take and uploads images:**  
12 minutes (median)



The median time for GPs to refer to secondary care was 9 minutes. The majority of respondents said it took 10 minutes or less to complete the referral (17 out of 22 GPs) (Figure 6). The standard time for a primary care consultation, typically including referral, is 10 minutes.

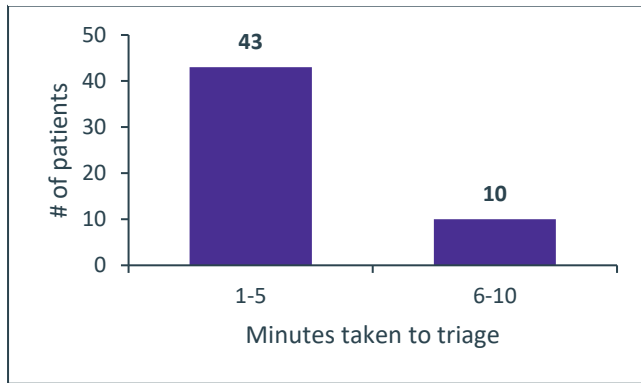
**Figure 6. How long it took GPs to process each referral (per patient)**

**Time for GPs to refer to secondary care:**  
9 minutes (median)



The majority of the photos in secondary care were triaged in 5 minutes or less (43 out of 53 responses), with an average time of 4.4 minutes (figure 7). The standard time for a two-week wait dermatology appointment is 15 minutes.

**Figure 7. How long it took secondary care dermatology clinicians to triage each request for Advice and Guidance**



**Triage time for secondary care clinicians:**  
4.4 minutes (average)

### **Impact on primary care time**

GPs commented on various factors which might have impacted the time taken during the dermoscopic process:

- Uploading and transferring images.
- Large files, poor Wi-Fi and slow system operation.
- Difficulties taking high quality photos.
- Getting used to the technology.
- Charging and connecting the smartphone.

### **Efficiency potential for primary care**

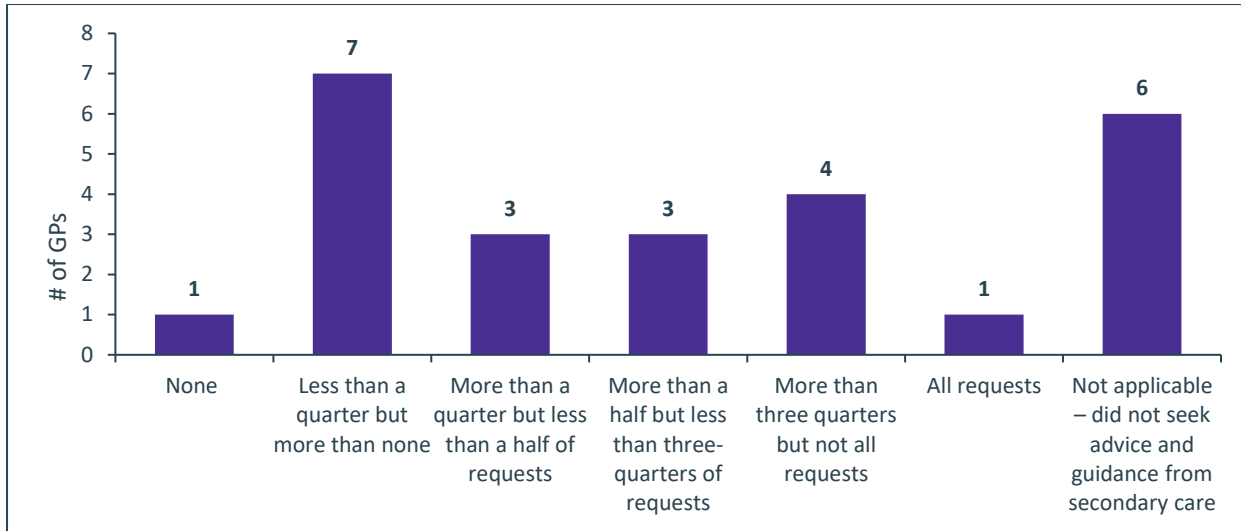
GPs suggested several improvements to make the process more time efficient:

- Streamlining the photo upload process.
- Training and practice with the technology.
- Combined dermatoscope and smartphone device.



Of the 19 GPs that gave views on the proportion of Advice and Guidance requests that led to a referral to secondary care, 11 said that less than half of those requests resulted in a referral to secondary care (Figure 8). Eight GPs said that more than half of the requests resulted in a referral. A further six GPs said they did not seek Advice and Guidance from secondary care.

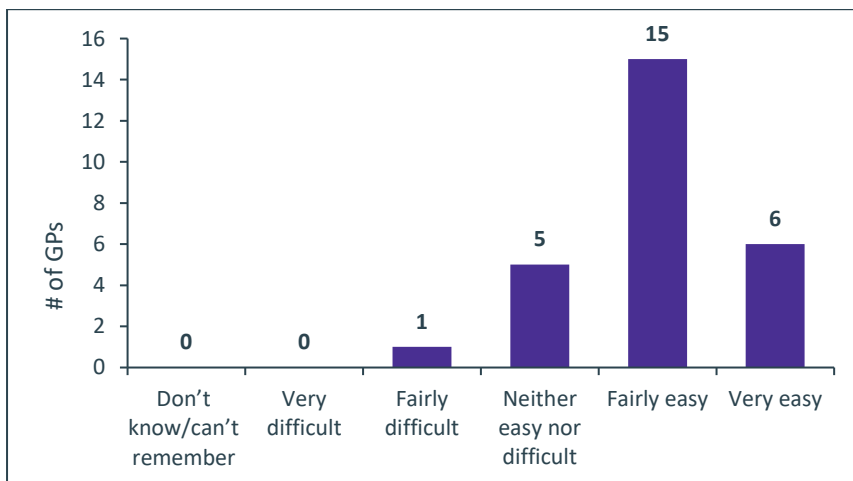
**Figure 8. The proportion of requests for advice and guidance that resulted in referrals to secondary care**



### Perception of equipment

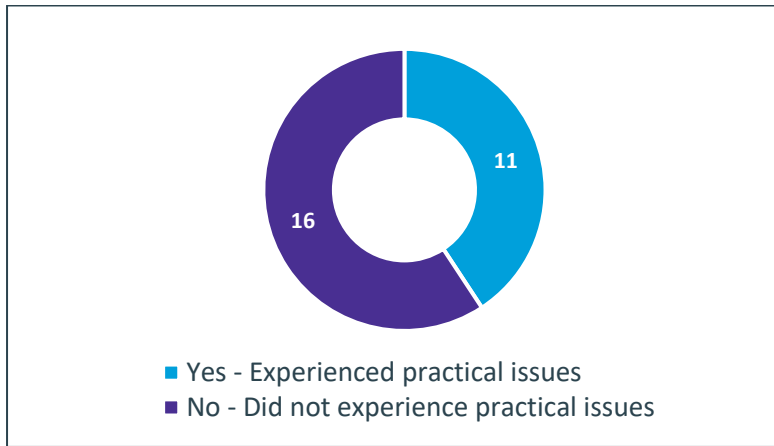
The majority of GPs found the dermatoscope either fairly or very easy to use (21 out of 27 GPs) (Figure 9).

**Figure 9. How easy GPs found the dermatoscope to use**



Just over half of GPs (16 out of 27 GPs) said they did not encounter practical issues when using the dermatoscope (Figure 10).

**Figure 10. Did GPs encounter practical issues with the dermatoscope**



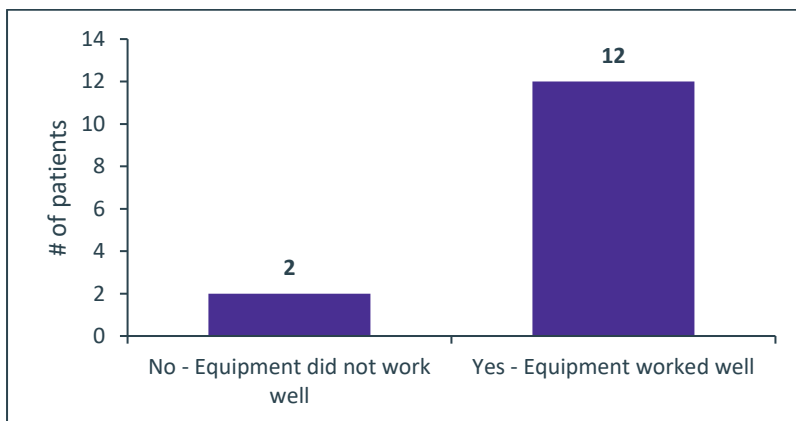
***Practical issues raised by GPs***

GPs commented on several practical issues when using the dermatoscope:

- Fiddly attachment between smartphone and dermatoscope
- Difficult to take clear photos
- Issues downloading images from the phone

Almost all patients felt that the equipment worked well during their appointment (12 out of 14 respondents) (Figure 11). The two patients who said the equipment did not work well provided the following reasons: one said there was a “foggy lens”, and another said the GP had to use the patient’s mobile phone as the GP’s was not working.

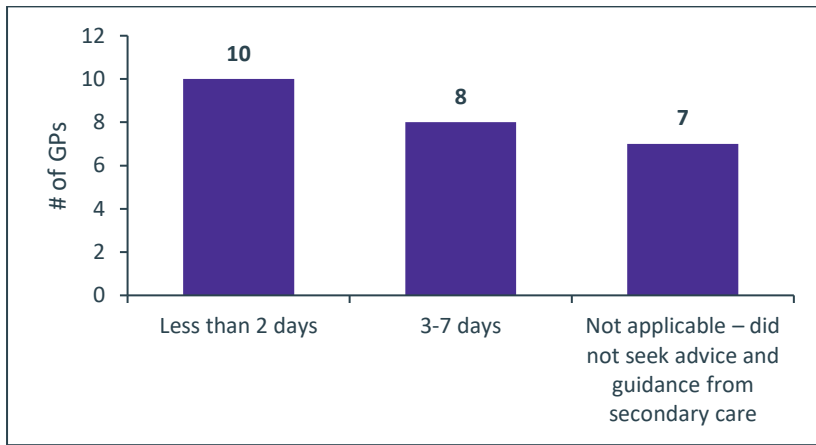
**Figure 11. How well the equipment worked according to patients**



### Advice and Guidance responsiveness

Of the GPs who sent requests for Advice and Guidance to secondary care, just over half said that it took less than twodays to receive a reply from secondary care (10 out of 18 GPs) (Figure 12).

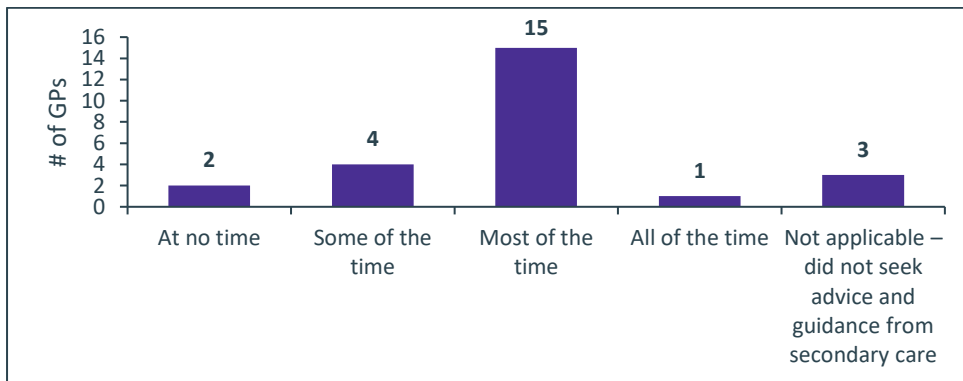
**Figure 12. The average time it took GPs to receive a response from secondary care**



### Image quality

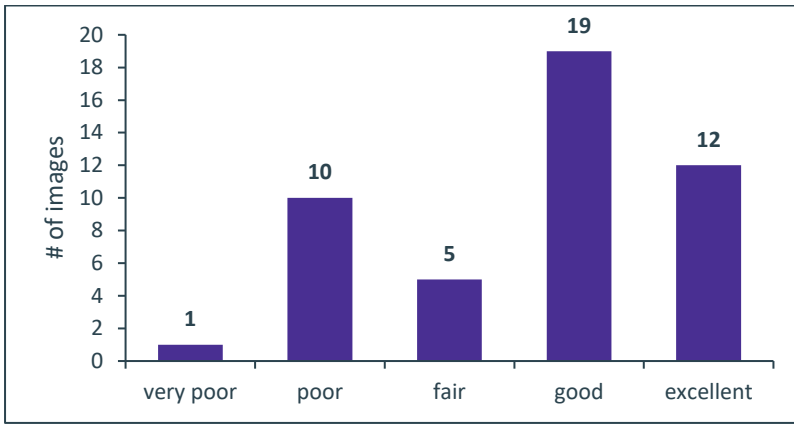
Around three quarters of GPs felt that the images were of good enough quality to send to secondary care most or all of the time (16 out of 22 GPs) (Figure 13). Two GPs felt that 'at no time' were the images good enough quality.

**Figure 13. How often GPs felt images were of good enough quality to send to secondary care**



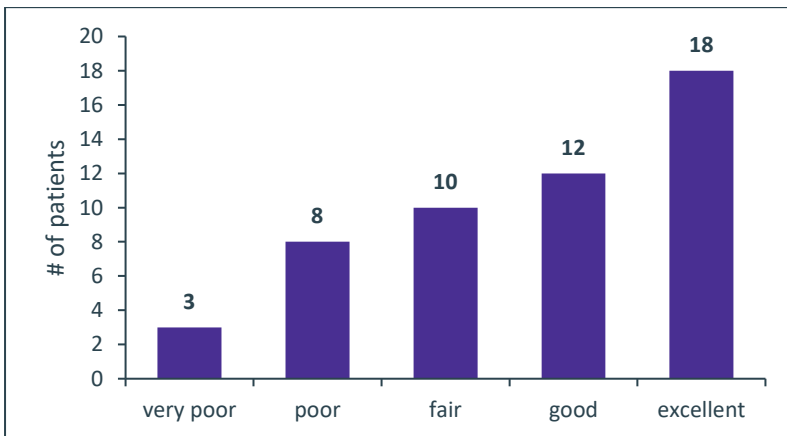
Around three quarters of the clinical photos taken with the smartphone were good to excellent quality according to the secondary care dermatology clinicians involved (31 out of 47 clinical photos) (Figure 14). Eleven of 47 clinical photos were of very poor or poor quality.

**Figure 14. Quality of smartphone clinical photo according to secondary clinician**



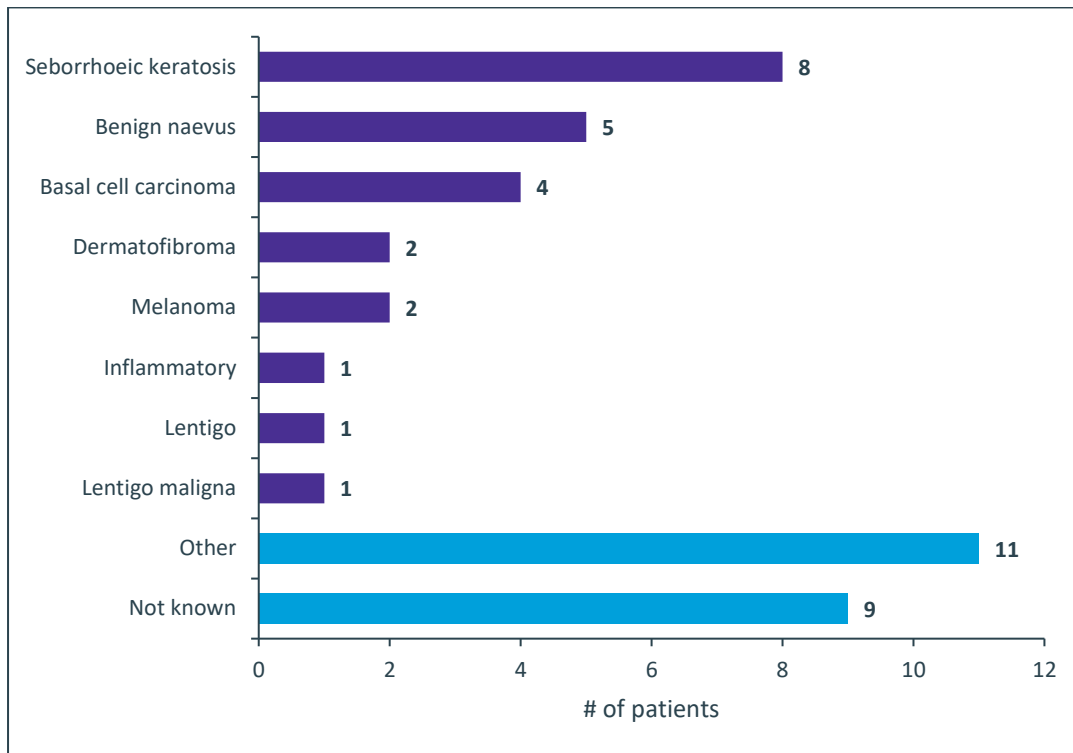
Over half of the photos taken with the dermatoscope were good to excellent quality, according to the secondary care dermatology clinicians (30 out of 51 dermoscopic photos) (Figure 15). Eleven dermoscopic photos were of very poor or poor quality.

**Figure 15. Quality of dermoscopic photos according to secondary care dermatology clinicians**



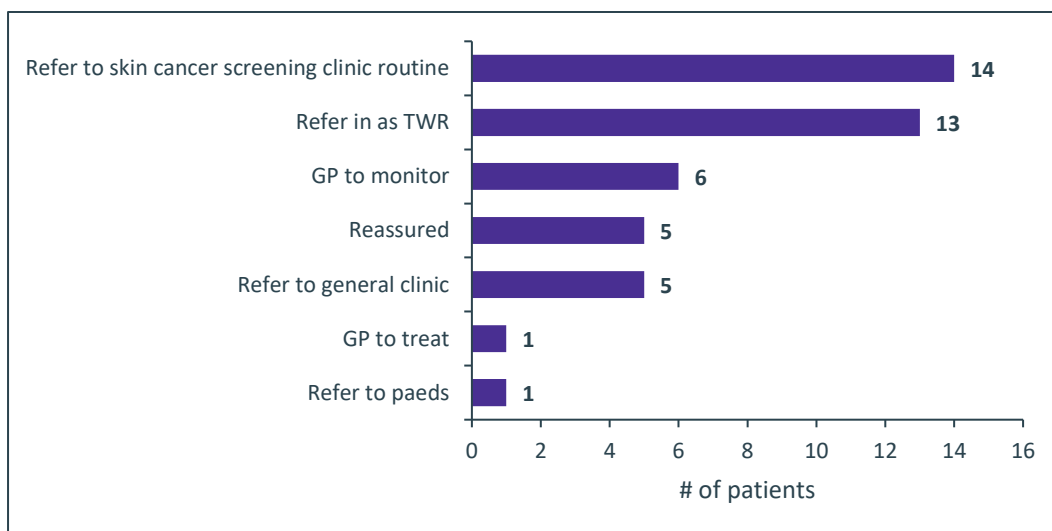
The most common diagnosis within secondary care was Seborrhoeic Keratosis (eight patient referrals), followed by Benign Naevus (five patient referrals), and Basal cell carcinoma (four patient referrals) (Figure 16). There were eleven “other” diagnoses, and nine diagnoses were recorded as not known. Other responses included vitiligo, viral wart, haemangioma, cystic lesion and lichenoid keratoses.

**Figure 16. Diagnoses made by secondary care dermatology clinicians**



One fourth of the patients were able to be referred back to primary care which included GP to monitor, GP to treat, or reassured (12 out of 45 responses). Around one third (14 out of 45) of requests for Advice and Guidance to secondary care resulted in a further referral to a skin cancer screening clinic. The next most prevalent outcome was a two-week referral (13 patients), followed by GP to monitor (six patients), refer to general clinic (five patients), and provide reassurance to the patient (five patients).

**Figure 17. Outcome of requests for Advice and Guidance to secondary care**

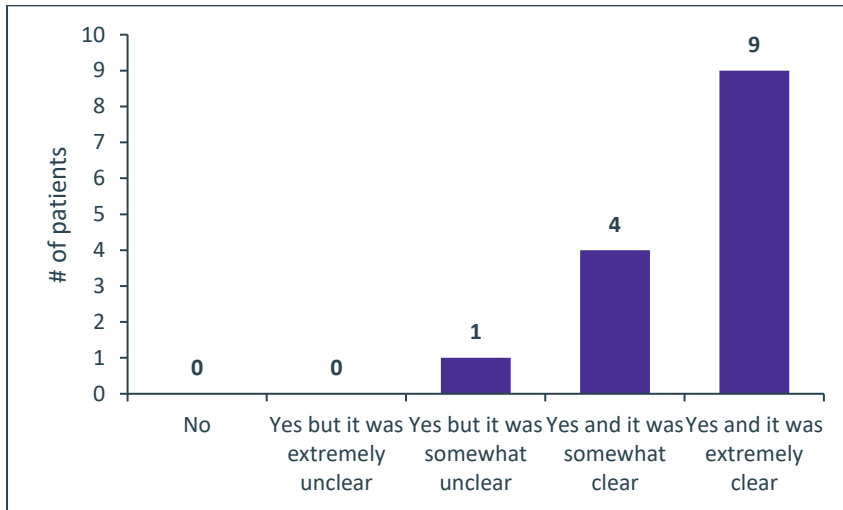


The majority of GPs felt that the pilot had helped to improve their digital skills, with some highlighting that it had improved their confidence with the dermatoscope. Only one clinician said they did not learn any new digital skills.

### Patient information

All patients said they were given information to understand the new skin imaging service. Almost all patients said that the information given to them was either somewhat or extremely clear (13 out of 14 patients).

**Figure 18. Patient responses about whether they were given information about the service**



### Demographic characteristics of patients

Demographic details of patients that participated in the pilot were obtained from an EMIS (GP patient record system) extraction. According to the data from EMIS, 129 patients went through the teledermoscopy pathway from 15 GP surgeries.

The ages of patients involved in the pilot varied. The largest age group of patients was 55-64 year olds (24% of patients), followed by 65-74 year olds (17% of patients) and 35-44 year olds (17% of patients).

Almost two thirds of the patients who were part of the teledermoscopy pathway were female (63% of patients).

The majority of patients who were part of the teledermoscopy pathway were from a White ethnic background (91% of patients). There were 9% of patients from a Global Majority ethnic background.

## Impact on dermatology outpatient services across South West London ICS

In order to understand whether there had been any impact, outpatient activity data was looked at collectively for a group of 29 practices that had been involved in the teledermatology pilot, compared to a group of 138 practices that had not been involved in the pilot.

The below analysis looks at the volumes of referrals, outpatient appointments and advice and guidance requests delivered by south west London outpatient departments to patients from the 29 pilot practices, compared to patients from the practices that did not take part in the dermatoscope trial. It also compares activity undertaken during the pilot period (March – August 2022) to a pre-pilot period: March – August 2019. The pre-pilot period was chosen to be 2019 to mitigate against the impact of Covid-19 on outpatient appointment activity. However, it should be noted that there have been lots of changes to the way outpatient departments operate since Covid-19 and a move towards remote appointments so this may impact on the activity.

In order to allow meaningful comparisons between the pilot and control practices as well as the pilot and pre-pilot time periods, all analysis is based on the activity rates per 10,000 adults registered at these GP practices as of March 2022 (for the pilot period) and March 2019 (for the pre-pilot period).

### Referrals

The number of referrals received from the 29 pilot practices (136) was slightly higher than the number of referrals received from the 'control' practices (132), with higher numbers of two week wait (suspected cancer pathway performance metric) and urgent referrals, and lower routine referral numbers. Table 1 shows a breakdown of the number of referrals received per 10,000 adults, by referral type.

**Table 1. Number of referrals to dermatology outpatients per 10,000 adults (Mar - Aug 2022)**

	Pilot	Control
No of practices	29	138
Total referrals	136	132
Routine	55	59
2WW	61	57
Urgent	14	12
Unknown	6	5

The total number of referrals to dermatology outpatient departments across south west London increased between 2019 and 2022, with an eight % increase in referrals, shown in table 2. This increase was the same for the practices involved in the pilot as well as those that were not.

**Table 2. Number of referrals to dermatology outpatients in 2022 compared to 2019**

	Total	
	Pilot	Control
Mar-Aug 2022	3739	13245
Mar-Aug 2019	3478	12294
Variance	261	951
% Variance	8%	8%

## Outpatient appointments

There was a slightly higher rate of outpatient appointments amongst patients from practices included in the teledermatology pilot compared to those from practices where they were not trialling dermatoscopes, with 321 outpatient appointments per 10,000 adults in pilot practices, compared to 305 from practices not involved in the pilot, as shown in table 3.

**Table 3. No of dermatology outpatient appointments per 10,000 adults (Mar-Aug 2022)**

	Pilot	Control
No of practices	29	138
Total	321	305
Routine	160	161
Two week wait	131	113
Urgent	29	30

When comparing the rates of outpatient appointments in March – August 2022 with a matched time period prior to the pilot (March – August 2019), there was an overall reduction in outpatient appointments, with a 10% reduction in appointments from pilot practices, and an 8% reduction in appointments from control practices. Table 4 shows the number of secondary care appointments, by appointment type, for patients registered with pilot and control practices.

While the trends were similar, the differences between pilot and non-pilot practices might suggest a decrease in the number of routine appointments required, and an increase in the number of 2WW referrals, indicating dermatoscopic images are contributing to avoiding unnecessary routine referrals, as well as picking up on suspected cancer ones and directing them to the correct pathway.

**Table 4. No. of dermatology appointments in 2022 compared to 2019**

	Total		Routine		Two week wait		Urgent	
	Pilot	Control	Pilot	Control	Pilot	Control	Pilot	Control
Mar-Aug 2022	321	305	160	161	131	113	29	30
Mar-Aug 2019	355	331	217	204	107	95	31	31
Variance	-34	-25	-57	-43	24	18	-1	-1
% Variance	-10%	-8%	-26%	-21%	22%	19%	-4%	-3%

## Key Findings

The above analysis provides findings from a small-scale evaluation of two dermatology pathways piloted in 44 GP practices across SWL between March and August 2022. Given the small size of the data sets obtained during the pilot, the results of this evaluation can only be taken as early indications.

### Staff and patient satisfaction

Despite the limitations of the data provided, the feedback both from GPs and patients was mostly positive, with good support for recommending the service and support from GPs for the pathways' continuation. Further to this the technology was, on the whole, viewed as being relatively straightforward to use with most GPs and secondary care dermatology clinicians happy with the quality of the images produced.



### **Impact on primary care**

The time it took clinicians to take and upload images on the dermoscopy pathway slightly exceeded the standard time for a GP appointment. A number of issues were identified with the technology that potentially slowed the processes down. By addressing these issues, streamlining the process and developing GP digital literacy, the time taken to upload and refer patients on this pathway would likely reduce as the pathways become embedded and optimised.

### **Impact on secondary care**

The average time taken by secondary care to review images and provide Advice and Guidance was significantly less than that of a standard appointment, indicating a potential efficiency in the use of dermatology staff time.

Of the 45 patients on the dermoscopy pathway where Advice and Guidance was sought, just over a quarter were referred back to their GP and did not require a secondary care appointment. The majority of patients were referred onto secondary care dermatology services, including about 30% who were prioritised for a two-week referral. This may indicate that patients were seen in the appropriate clinic more quickly.

### **Impact on dermatology outpatient services across South West London ICS**

Overall, the differences in outpatient activity for patients from the practices involved in the pilot and those not in the pilot are very small and could be due to various factors such as changes in referral practices and clinic provision, making it challenging to draw meaningful conclusions on the overall impact of the dermatoscopes pilot. Early data appears to suggest that dermatoscopic images are contributing to avoiding unnecessary routine referrals, as well as picking up on suspected cancer ones and directing them to the correct pathway quicker.

## **Project 2: Patient and primary care engagement and education**

The aim of the project was to improve knowledge and education of skin conditions amongst patients and GPs by taking high quality pictures of affected areas.. In the longer term, this would support the early detection and treatment of inflammatory and long-term skin conditions; whilst increasing both GP and patient confidence in the management of common skin conditions in primary rather than secondary care.

To achieve these aims, engagement was undertaken with a mixed patient population consisting of new patients and those from the existing caseload, with a mixture of skin conditions (covering inflammatory conditions and rashes), ethnicities and ages. Six videos were subsequently developed to support patient and GP education on paediatric eczema, psoriasis, skin cancer, skin examination, lymph node examination, and sun protection. They were filmed in four community languages, by clinicians speaking those languages, and translated into British Sign Language (BSL) to address any potential health inequalities.

These educational videos included a variety of healthcare professionals and are now in the public realm via the South West London ICS website<sup>6</sup>, where one of the videos reached over 1,800 views. They are being used as an adjunct to consultations and links are included in patient letters.

This workstream provides a wider and quicker access to care for patients by sharing the videos with a wider community of people, with instant access via the internet. The videos are an immediate source of education about common skin conditions, how to treat them and how to take a good quality photo to enable a more efficient referral process.

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<sup>6</sup> <https://www.southwestlondonics.org.uk/our-work/dermatology/>

While it was not impossible to quantify at the time of the analysis, the expected impact is that secondary care referrals are more appropriate, GPs are able to make quicker decisions and ensure that patients are seen in the most suitable place. Over time, the aim is that these educational videos will help to reduce the number of face-to-face appointments and therefore manage the demand more efficiently, with patients first seen and treated in primary care and if required, subsequently treated in secondary care.

Qualitative feedback from clinicians involved in the project is presented in the Stakeholder interviews section below.

## Project 3: Launch of teledermatology on the Patient Portal

The aim of the project was to formulate how teledermatology services would utilise the incoming Patient Portal platform, that was a key deliverable as part of the SWL Outpatient Transformation Programme. The Patient Portal (the Zesty platform) allows patients to upload images and complete inflammatory condition assessment forms. These forms feed information directly into the individual electronic patient record as Zesty has the appropriate integration with the Cerner system.

The Teledermatology Project team have created the patient questionnaires for the Zesty platform, however, at the time of conducting this evaluation, this initiative had not yet been implemented. The wider Outpatients Transformation Project faced significant delays due to IT challenges. Although these challenges have since been overcome and the Patient Portal is now live, the platform is being implemented in one specialty at a time, and the specific timescales for the dermatology service set-up were not yet known.

## Stakeholder interviews

The key themes regarding the SWL ICS programme, identified from interviews with three stakeholders involved in the delivery of the project, are outlined below.

### Project 1: Introduction of image capture devices/dermatoscopes in primary care

#### *Primary care engagement and incentives*

Staff highlighted the issues around increased workload for GPs needing to be addressed, and the need for better engagement with GP practices in order to increase uptake. The team are considering a new incentive model for GPs, whereby a financial incentive is provided for pathway completion following the outcome from secondary care, rather than for taking the image as it was done in the pilot.

Engagement from GPs and funding for the project were emphasised as crucial factors in the decision to implement the dermatoscope pathway permanently.

#### *Positive impact on secondary care and patient experience*

The positive impacts of the project, in terms of increasing capacity in secondary care and improved patient experience by reducing the waiting time and the number of appointments required, were highlighted by participants.

### Project 2: Patient and primary care engagement and education

#### *Representation of SW London diverse population*

The clinicians acknowledged the diverse population in SWL and emphasised the importance of

ensuring the videos are accessible and relevant to all patients, which they did by providing videos in different languages. They ensured that the videos were delivered by clinicians who spoke those languages, making them more accessible and relevant to patients from various backgrounds.

Feedback highlighted the positive response to the videos' representation of diverse skin types and conditions. The initiative aimed to empower patients and parents by providing information on treatments and lifestyle habits that could impact skin conditions.

### *Popularity and usage*

The clinicians reported that one of the patient education videos gained significant popularity, with 1,800 views on YouTube. This indicated that the videos were well-received and resonated with patients. They served as a valuable resource to support patient education.

Clinicians stated that as well as being sent out to patients as a URL, the videos were also used as adjuncts to consultations, highlighting that they were very well received by parents and families in paediatric dermatology.

The videos were not limited to use in secondary care; they were also used in primary care settings. Primary care providers, including GPs and skin cancer nurses, are signposting patients to specific videos related to their diagnosis. The videos were viewed as valuable resources for patients, parents, and healthcare professionals across different healthcare sectors.

### *Challenges and opportunities*

The project team expressed a desire to include QR codes in hospital letters to allow patients and parents easy access to the videos. However, technical complexities and associated expenses posed challenges, preventing the implementation of this within the project's scope. Nonetheless, the team recognised the potential of incorporating QR codes in the future to provide convenient access for patients.

## Overall Teledermatology programme

### *Collaborative approach across the ICS*

Stakeholders expressed overwhelmingly positive feedback about the collaborative approach adopted for project delivery, cited as a significant factor in driving innovation, fostering cross-functional understanding, and achieving outcomes that benefited patients and healthcare providers alike. The engagement across primary and secondary healthcare sectors was lauded for its ability to bring together a wide range of perspectives and expertise.

One key example of how the network's collaborative approach can be harnessed to enhance patient care was the successful organisation of clinician training between trusts.

### *Challenges and learnings*

The interviews revealed challenges around staffing resources and high staff turnover, particularly in terms of project management and IT infrastructure, which led to significant delays in the delivery of the projects, particularly for the Patient Portal project. Despite the enthusiasm and contributions from clinicians, these challenges underscored the need for dedicated project management support and adequate IT infrastructure to ensure timely and successful project completion. The lack of allocated time for improvement projects in clinician's job plans was cited as another barrier.

### *Further developments within Teledermatology at SWL ICS*

Stakeholders provided insights into an ongoing pilot based on a nurse-led Medical Photography model and subsequent triage by Consultant Dermatologists. Staff emphasised the need for a workforce piece, due to concerns around the availability of medical photography staff required for a scale up of this model. A proposal was made for a tailored training program for healthcare assistants to take medical photographs.. The necessity of a well-structured workforce plan was cited as vital for the successful implementation of such projects.

## Conclusion

The stakeholders' reflections on their experiences painted an overall positive picture of the collaborative approach to project delivery, and the positive impact of the videos as educational resources for patients, parents, and healthcare professionals. Further efforts to address the increased workload for GPs required to capture images of the lesions, and increase engagement and uptake, were identified as areas for improvement.

Despite the challenges encountered, stakeholders acknowledged the potential of this approach to drive meaningful change in patient care in dermatology services. The insights gathered from these interviews will be pivotal in refining strategies for future tele dermatology projects.

# 5. Surrey Heartlands ICS Programme

## Introduction

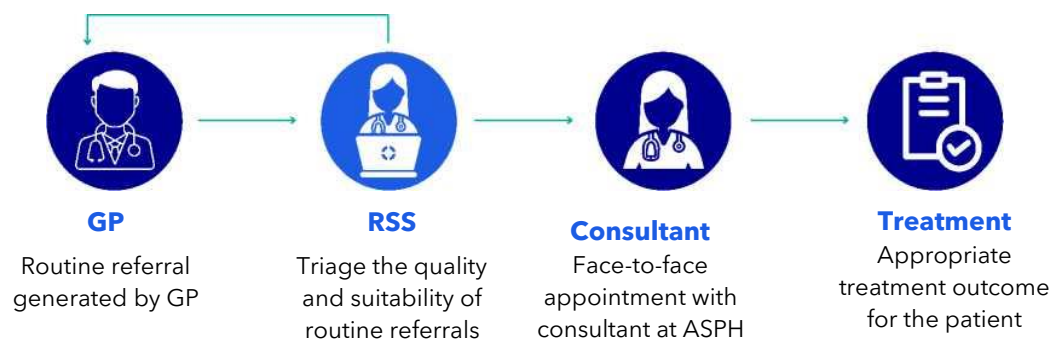
With our partner Kent, Surrey and Sussex AHSN we supported Surrey Heartlands ICS and Ashford & St Peters' NHS Foundation Trust (ASPH) to implement a new model of dermatology care utilising teledermatology solutions for patients in North-West Surrey (NWS) Alliance. The programme sought to implement a large-scale reconfiguration of their dermatology service in response to increasing service size and developing system priorities.

The aims were to improve the process and management of dermatology referrals received into secondary care from primary care through introducing digital imaging into primary care, for two subsets of dermatology referrals. These were:

1. **Referral Support Services (RSS)** to virtually triage routine and urgent non-cancer referrals. GPs with Extended Roles (GPwERs) who were recruited to triage the referrals received using smartphone images where possible. They would select the most appropriate clinic/pathway, with the administrative team booking the patient's clinic appointment or return the referral back to the GP with advice and guidance (Figure 19). The RSS is in operation across all of NWS for non-cancer dermatology referrals to secondary care.

### Figure 19. RSS Pathway

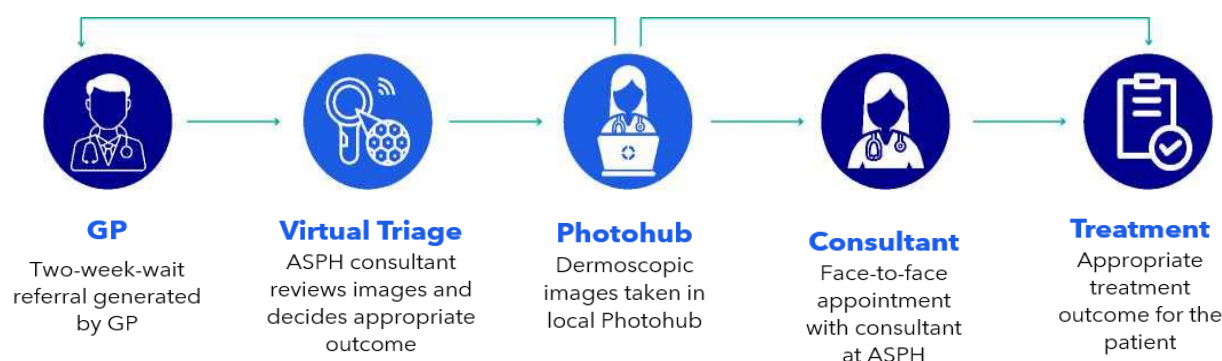
Teledermatology in North-West Surrey Impact Summary, by Unity Insights. Reproduced with permission.



2. **A community-based Photohub** was established to provide a first patient appointment for 2WW referrals for suspicion of skin cancer from GPs, serving a subset of GP practices in North West Surrey. At this appointment, the patient has a photo taken of their lesion(s) with a dermatoscope and relevant medical information is recorded. Dermatologists at Ashford & St Peters' triage each case and book the patient into the right clinical pathway or return the referral to primary care with advice and guidance provided (Figure 20).

## Figure 20. Photohub pathway

Teledermatology in North-West Surrey Impact Summary, by Unity Insights. Reproduced with permission.



An initial pilot has been completed in NWS Alliance, and a mixed methods evaluation study was undertaken by Unity Insights and published in September 2022<sup>7</sup>. They analysed the impact on the teledermatology pathway assessing more than 7,500 referrals received across NWS ICP, and the key findings are detailed below.

## Key Findings

### Impact of Referral Support Service (RSS) on the routine pathway

7,119 referrals were triaged through RSS by GPwERs, over a 13-month period starting in 2021. Analysis of triage outcomes provided the following performance metrics:

- 12.32% of routine referrals were returned to primary care (n = 877). The most common reasons were: the patient had been provided with a treatment plan (n = 231), incorrect referral practices (n = 277), and referral not meeting the threshold (n = 119).
- Less than one % of referrals were upgraded to a high priority, and only one referral was upgraded to 2WW.
- 9% of referrals (n = 632) could not be assessed as they were missing an image and were therefore referred on for an outpatient appointment.
- 78% of referrals were accepted onto their original pathway.
- The proportion of referrals that avoided secondary care routine appointments could range between 4.05% (n = 288) and 12.32 % (n = 877) (it was not possible to determine how many patients were re-referred from the available data).

### Impact of the Photohub on the 2WW pathway

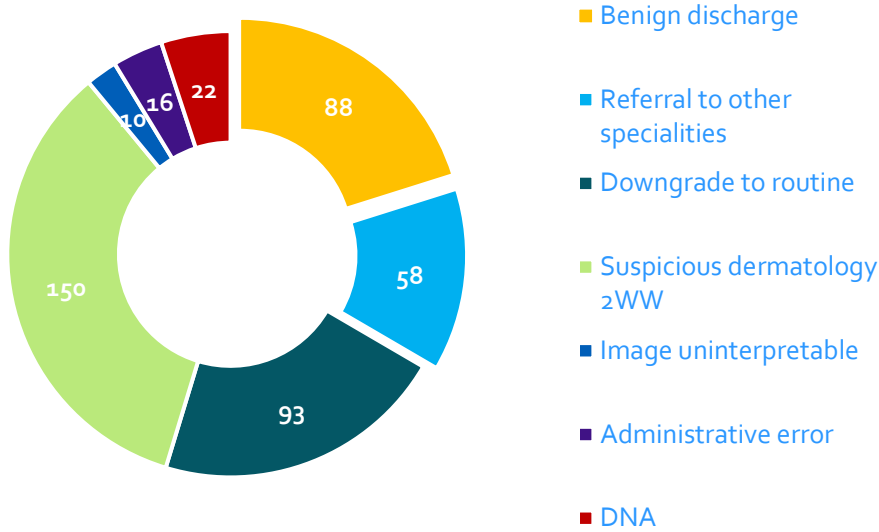
Over a period of four months from March 2021, the Photohub offered 504 appointments, out of which 437 were booked by GPs (87% use of capacity).

Analysis of appointment outcome data displayed in Figure 20, revealed the following:

- 41% of referrals were removed from the 2WW pathway after virtual triage as the dermatologist was able to identify the lesion(s) as non-cancerous with patients either being discharged back to primary care or transferred onto a non-cancer pathway.
- 33% of all referrals (n = 146) avoided a consultant outpatient appointment, as following the dermatologist's assessment of the lesion images, they were either directly referred to the appropriate service (n = 58) or discharged back to primary care (n=88).
- 477 outpatient appointments could be saved each year by a Photohub.

<sup>7</sup> <https://unityinsights.co.uk/our-insights/dermatology-pathway-transformation/>

**Figure 20. Volume of Photohub referrals by outcome.** The raised categories represent cases where a consultant-led outpatient appointment has been avoided.  
Dermatology pathway transformation, Unity Insights. Reproduced with permission.



## Conclusion

The teledermatology pathway in NWS aims to ensure patients are seen in the right clinic first time, enabling better use of secondary care resources. This approach required collaboration between GP practices and ASPH, across different patient populations, facilitated by systems and technologies new to NWS.

The RSS was able to return 12% of referrals to primary care, saving patients unnecessary appointments, and directing those patients to more appropriate treatment. While most of the RSS referrals triaged proceeded to secondary care (87.7%), the high volume of routine referrals assessed meant those that were redirected had a meaningful impact on the system.

The Photohub was able to appropriately redirect a greater proportion of its referrals to lower priority pathways (41.4% removed from the 2WW pathway) as compared to the RSS, while serving a smaller population.

# 6. South East London ICS Programme

## Introduction

Across the three trusts in South East London (SEL) ICS, dermatology services at Guy's and St Thomas' NHS Foundation Trust (GSTT), King's College Hospital NHS Foundation Trust (KCH), and Lewisham and Greenwich Trust (LGT) who operate five acute centres, received an average total of 6,750 referrals per month in 2019/20.

In July 2022 across the three trusts, there were 9,621 patients on a waiting list for dermatology services. Of these patients 26% had exceeded 18 weeks waiting time (Referral to Treatment performance marker), 8% had exceeded 35 weeks waiting time, and less than 1% (65 patients) were waiting over 52 weeks for treatment.<sup>8</sup> SEL ICS has identified that transformative solutions were needed to initiatives to improve provision, equity to access and performance of local dermatology services.

Their referral audits have consistently demonstrated that up to 25% of referrals from primary care could be managed in primary care if effective advice and guidance services were available. Equally, around 33% of referrals that do require secondary care level attention are booked into a sub-optimal clinic or would benefit from diagnostics and medical photography prior to an outpatient appointment.

Audits were undertaken within SEL ICS to understand the potential impact of implementing a teledermatology pathway. The audits found that:

- Of those on a routine pathway, 35% of patients met the inclusion/exclusion criteria for teledermatology. Of those suitable for teledermatology, 55% of patients could be discharged to primary care with advice and guidance following the medical photography appointment and consultant review.
- Of those on a cancer pathway, 38% met the inclusion/exclusion criteria for teledermatology. Of those suitable for teledermatology, 59% of patients could be discharged to primary care with advice and guidance following the medical photography appointment and consultant review.

The SEL Dermatology Network was established prior to the Dermatology Improvement Collaborative, bringing together dermatology providers to work together to find collaborative solutions to challenges faced by the sector. The Network brought together SEL ICB and the three acute trusts who deliver dermatology care across five centres. The Network has subsequently expanded to include community partners who deliver intermediate care across the six SEL boroughs.

In February 2021, the SEL Network Board received transformation funding from NHSX to roll out their teledermatology programme. A number of different pathway redesign proposals and initiatives were explored collaboratively by the board, and a decision was made to pilot two projects, using the NHSX funding for the pathway transformation in the second project:

- Project 1: Support prior to referral through Advice and Guidance requests accompanied by digital images.
- Project 2: A new teledermatology pathway at ICS level, utilising Medical Photography.

The interventions, alongside the key findings and impact are presented below.

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<sup>8</sup> NHS England: monthly RTT data collection



# Project 1: Support prior to referral through Advice and Guidance requests accompanied by digital images

An advice and guidance service allows GPs to seek advice from a dermatologist prior to or instead of referral, enabling a patient's care to be managed in the most appropriate setting with the necessary specialist advice, ultimately releasing capacity in acute services for the complex patients that require secondary care.

The SEL Dermatology Network agreed that the advice and guidance is most valuable when images of the relevant skin conditions are available. Therefore, use of the Photo SAF functionality of the telemedicine platform Consultant Connect, which allows a GP to take a photo of a patient's skin condition to attach to the advice and guidance request, had proved popular and valuable for both primary and secondary care.

The PhotoSAF functionality in Consultant Connect had been available to two of the boroughs since 2018, and was expanded to all other SEL boroughs from December 2020. The use of this functionality prior to any dermatology referral was widely promoted to GPs and primary care networks. Encouraging uptake was expected to free up capacity for more complex patients that require secondary care services to access them in a timely manner.

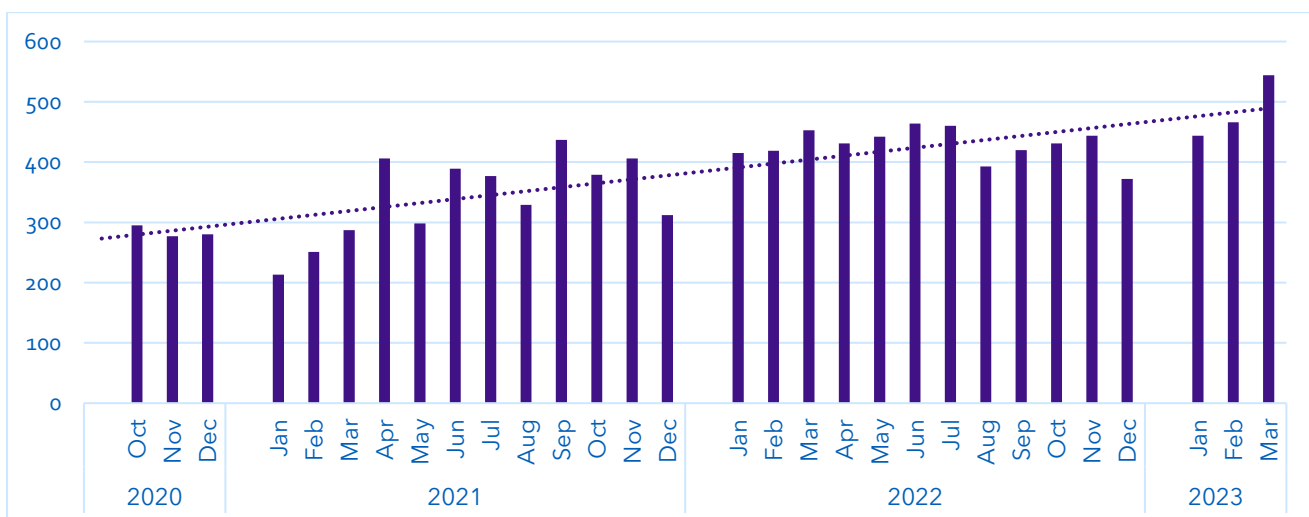
## Key Findings

The impact of this project was initially evaluated in the Phase 1 report, with data from March 2019 to May 2021 showing an 80% increase in the number of requests from 58 to 298 per month, and the outcomes from the requests showing referral avoidance volumes above 64%.

In order to show the continued impact to date, additional data was obtained from SEL ICS on the number of requests and referral avoidance volumes. As shown in Figure 21, since the expansion of the PhotoSAF functionality across the ICS in December 2020, the yearly number of Advice and Guidance requests accompanied by a photo increased by 63% in 2021, and by 106% in 2022, compared to 2020. In the first three months of 2023, the number of requests continues to rise, showing an average 26% increase compared to the same months in 2022.

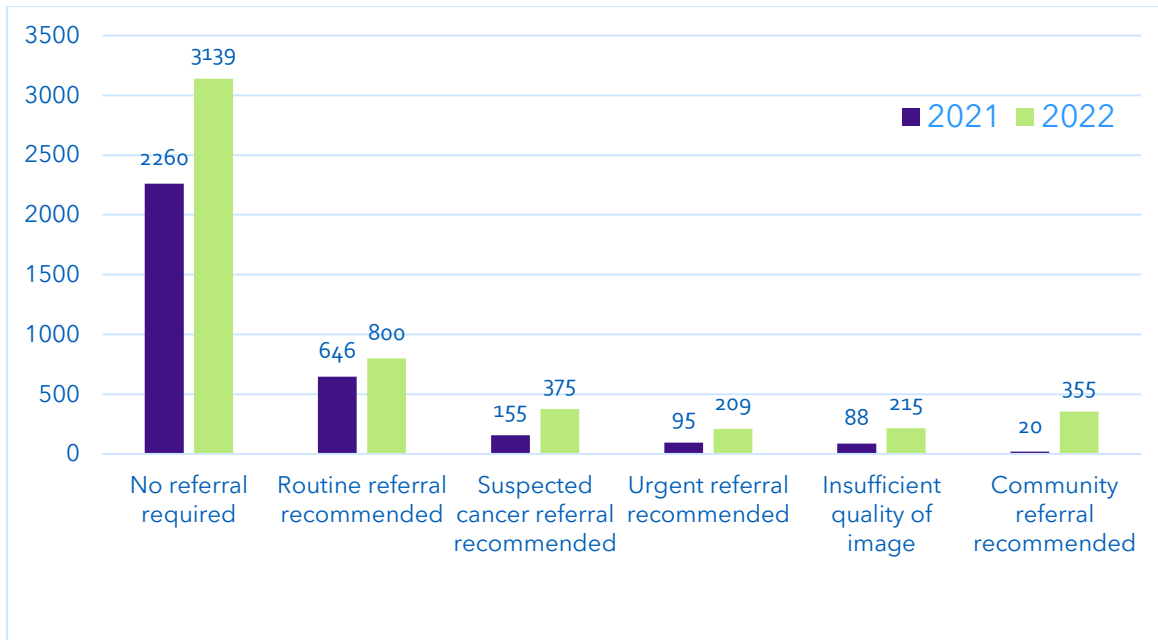
Whilst there has been an overall increase in demand for dermatology services over this period, this data shows a large increase in the uptake of the use of digital images to accompany Advice and Guidance requests from primary care.

**Figure 21. Number of teledermatology Advice and Guidance requests received**



The outcomes of the requests following review by a Consultant Dermatologist in 2021 and 2022 are shown in Figure 22. The data shows referral avoidance volumes of 69% of the total number of Advice & Guidance requests received in 2021, and 62% in 2022, indicating that the requests alongside the photos of the lesions provide sufficient information to enable a clinical assessment. Comparatively, the proportion of requests for which a referral to dermatology services is recommended by the Consultant Dermatologist was 28% in 2021, and 34% in 2022. The number of requests that were accompanied by poor quality images was 4% or below across the time period analysed.

**Figure 22. Teledermatology Advice and Guidance requests outcomes**



## Project 2: A new teledermatology pathway at ICS level, utilising Medical Photography

SEL took a network approach to designing and implementing a new teledermatology model to ensure that all pathways, once agreed and finalised, would be standard and consistent within the ICS geographical area. The ICS hoped that by adopting a network approach to these pathways it would reduce unwarranted variation and unequal access to treatment. Adopting a network approach would also help address gaps that exist within the dermatology workforce, maximising clinical triage and upskilling workforce training via combined learning.

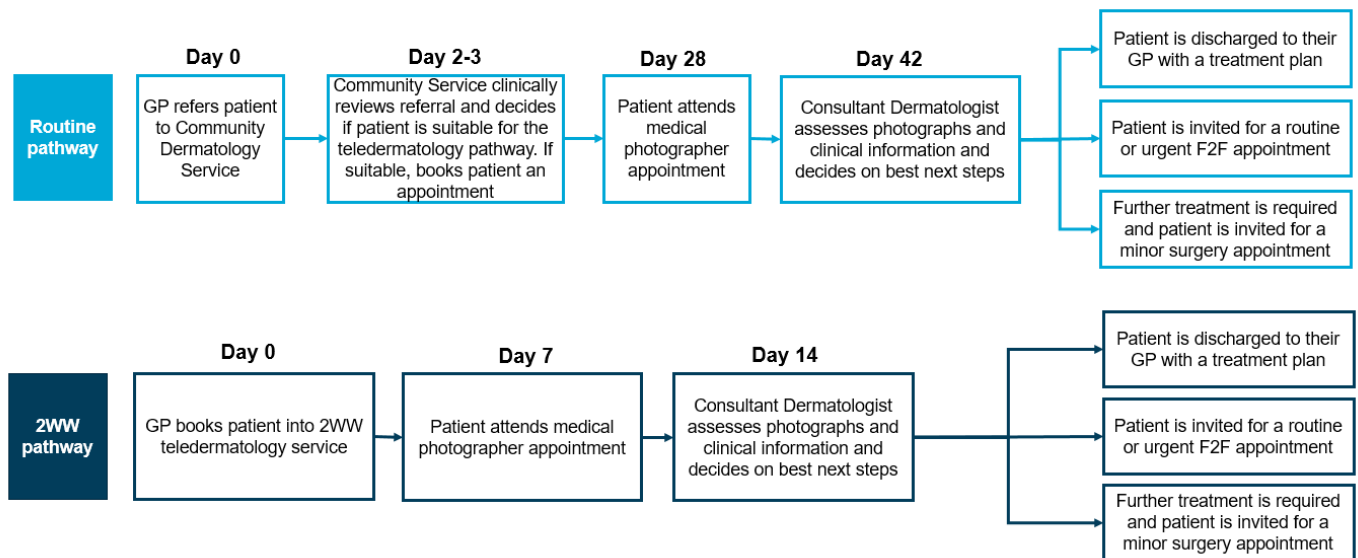
Following research into different teledermatology models, the SEL Dermatology Network agreed on a Medical Photography model. For routine referrals the single-point-of-access is maintained, whereby referrals are received by the Community Dermatology Services on eRS using a Referral Assessment Service for triage, and if suitable booked into a medical photography appointment for the preferred site detailed by the patient. For 2WW referrals the GP directly books a medical photography appointment to prevent delay (Figure 23).

In this model the Medical Photography Department (MPD) capture anatomical, macroscopic and dermatoscopic images of the lesions for review. Images are bundled with a referral and a patient questionnaire and presented to the Dermatologist in dedicated teledermatology clinics. The model allows virtual clinical review of the referral documentation, patient questionnaire and images by the Dermatologist, enabling a clinical assessment with the following outcomes:

1. Follow-up routine/urgent face-to-face appointment
2. Follow-up surgical appointment

- Discharged to the care of their GP.

**Figure 23. Teledermatology routine and 2-Week-Wait pathways in SEL ICS**



The pathway was anticipated to have several benefits, including:

- Reduction in unnecessary face-to-face clinic attendances in secondary care, decreasing system pressures and releasing face-to-face clinic capacity for the patients requiring it.
- Reduction in waiting times for both assessment and treatment when required.
- Improvement in patient experience and staff satisfaction.

A market assessment was undertaken to procure and purchase the right technology for managing the teledermatology pathway end-to-end. Medical photographers, administrators and clinicians at all secondary care sites who need access to the platform have been trained through webinars, drop-in sessions and face-to-face meetings. Training has taken 10-30 minutes and a standard operating procedure has been produced.

The routine teledermatology pathway launched in August 2022 at LGT and GSTT, and September 2022 at KCH. Medical photography appointments are currently being provided at all five acute hospital sites, with plans to expand to community sites and community diagnostic centres. An initial pilot between August and December 2022 has been completed and the results are analysed and evaluated below, with reference to the expected benefits.

The evaluation used a mixed methods approach, data on the teledermatology pathway was obtained from SEL ICS, and from stakeholder interviews.

Following the success of the routine pathway pilot, the 2WW Teledermatology pathway was launched in May 2023, however the data was not available for analysis in this report.

## Key Findings

The SEL Teledermatology Working Group led by SEL ICS has undertaken analysis of referral data collected between August and December 2022. The initial data demonstrates a positive impact on the intended objectives, as detailed below.

Total number of referrals triaged through the teledermatology pathway was 223, of which 150 (67%) have had their pathway completed at the time of analysis (Table 5). The analysis below compares the teledermatology pathway to the standard routine face-to-face dermatology pathway. There was large

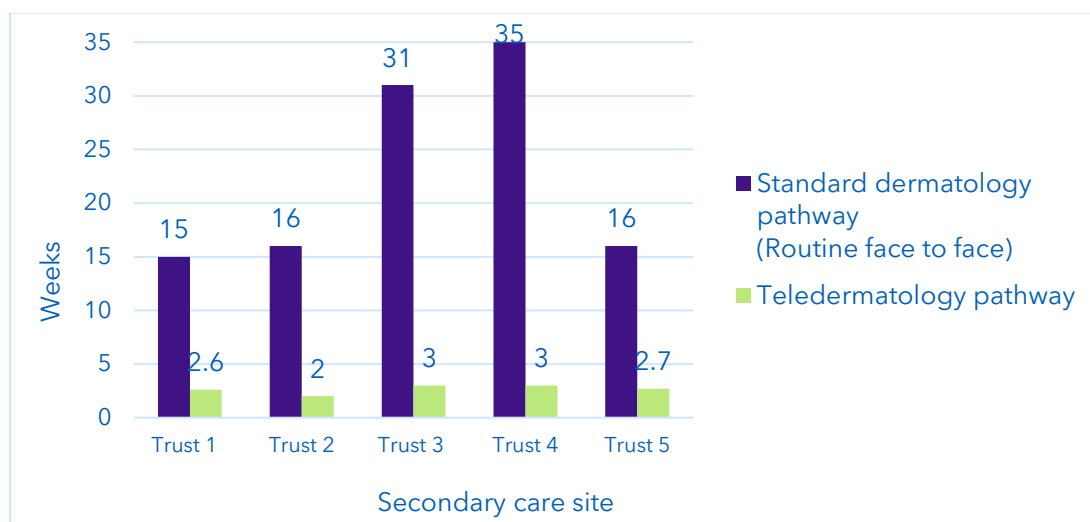
variation in the size of the data between trusts; therefore, both overall and individual data for each trust was examined, in order to understand if there were any outliers warranting further inquiry. The variability between sites was influenced by factors such as local referral patterns, patient demographics, and variations in the implementation and utilisation of teledermatology services.

In January 2023, the mean referral to virtual assessment waiting time was 2.7 weeks for the teledermatology pathway (Table 5), compared to 22.6 weeks median waiting time for a routine face-to-face appointment (Figure 25).

**Table 5. Teledermatology pathway - referral numbers and waiting times**

	Referrals received	Virtual reviews completed	Mean waiting time (weeks)
Trust 1	96	72	2.6
Trust 2	60	47	2
Trust 3	37	21	3
Trust 4	18	7	2.7
Trust 5	12	3	3
<b>Total</b>	<b>223</b>	<b>150</b>	<b>2.7 (avg.)</b>

**Figure 24. Waiting times in January 2023**



The outcomes following the virtual review on the teledermatology pathway for each trust (Table 6) show that 63% of referrals were discharged to a GP, 23% required face-to-face clinic review, and 15% required surgical intervention.

**Table 6. Outcomes following Teledermatology virtual review**

Outcome
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	Virtual reviews completed	Discharge to GP	Face to face clinic	Surgical intervention
Trust 1	72	55	9	8
Trust 2	47	25	17	5
Trust 3	21	10	2	9
Trust 4	7	3	4	0
Trust 5	3	1	2	0
<b>Total</b>	150	94	34	22
<b>% of total</b>		<b>63%</b>	<b>23%</b>	<b>15%</b>

While the number of referrals was small, the impact of the teledermatology pathway on overall outpatient activity and waiting times in secondary care dermatology services could not be assessed. However, this early data suggests that the proposed teledermatology model provides adequate information to enable an out of clinic assessment by the consultant, with the potential to reduce waiting times for diagnosis and treatment, and streamline the pathway by enabling referrals to proceed straight to surgical intervention where deemed appropriate.

To obtain more reliable and meaningful conclusions, further analysis and data collection from a larger sample size or a more standardised implementation of teledermatology services across multiple sites would be necessary.

### Stakeholder interviews

Three semi-structured interviews were carried out with key staff members (clinical and non-clinical) involved in the delivery of the programme, in order to generate insights and recommendations into the SEL Dermatology Network approach to the programme, the new teledermatology pathway and digital platform, and the challenges and impact associated with these initiatives. The following themes were identified:

#### *Network approach*

The interviews revealed overwhelmingly positive feedback about the adoption of a network approach that SEL has taken for improving the dermatology pathway, participants highlighting the value of sharing experiences, knowledge, and best practices within the network. The exchange of ideas allowed clinicians to learn from each other's successes and challenges, facilitating the identification of effective strategies for quality improvement in dermatology services across the ICS.

#### *Teledermatology platform*

Participants reported that the new technology platform for reviewing referrals alongside the medical photographs is clinically safe and fit for purpose. The high-quality images and the functionality of the platform were particularly praised despite some difficulties with hospital IT infrastructure.

Participants identified several challenges related to the functionality of the platform and the time taken to optimise it by making necessary changes and technical modifications, particularly in terms of making it user-friendly and ensuring easy access to all the information required for clinicians to conduct a quick virtual review of referrals. Staff highlighted the importance of having a clear and well-designed interface that allows for easy navigation and quick access to relevant information.

#### *Impact of the teledermatology pathway*

The impact on the service was felt to be positive in terms of patient experience by providing a referral outcome quicker without the need for a face-to-face appointment, and reducing waiting times for face-

to-face appointments and surgical procedures. Clinicians estimated the time taken to review a teledermatology referral to be half of that required for a face-to-face appointment. By releasing clinical capacity for patients who genuinely require a consultation, waiting times for both outpatient appointments and surgical procedures can be reduced.

### *Learnings*

Staff highlighted the instrumental role played by a dedicated project manager who was not involved in operational management of clinical services in the successful implementation of the new pathway, as it enabled adequate project planning, monitoring progress, coordinating stakeholders, and addressing any challenges that arose. Similarly, having a dedicated clinician leading on the platform implementation and testing was crucial in ensuring its functionality is intuitive and efficient.

## Conclusion

The SEL ICS Teledermatology Programme successfully implemented two pilot projects utilising forward-looking teledermatology solutions to the challenges of rising demand and limited workforce. This approach required collaboration across the ICS through the Dermatology Network, and across different patient populations, and was facilitated by systems and technologies new to SEL.

The first project, 'Support prior to referral through Advice and Guidance requests accompanied by digital images', demonstrated strong engagement with GPs, as evidenced by the number of Advice and Guidance requests with photographs of the lesion attached via the PhotoSAF functionality, doubling over two years. The majority of requests (over 60%) did not require a secondary care referral, while those remaining were redirected to the appropriate pathway. By redirecting unnecessary referrals, consultant-led outpatient appointments were avoided.

The second project, 'A new teledermatology pathway at ICS level, utilising Medical Photography', has demonstrated positive perceptions amongst staff involved in the project delivery, particularly on collaborative working through the network approach, and clinician time savings for teledermatology appointments.

The initial data analysis has shown promising results for the new pathway to reduced waiting times, with the mean waiting time for a teledermatology assessment being 2.7 weeks compared to 22 weeks for a routine face-to-face appointment over the pilot period, and for streamlining the referral pathway, with 63% of teledermatology referrals being discharged to GP.

The number of referrals triaged through the local Community Dermatology Services into the teledermatology pathway was not sufficient to allow an evaluation of impact in term of overall referral volumes and waiting times for dermatology services across the ICS. The implementation of the pathway to the higher volume suspected cancer referrals is currently underway, and it holds the potential for significant future cost savings and increased efficiency in appointment use.

Staff feedback revealed an overall positive picture of the collaborative approach to project delivery and acknowledged the positive impact of the projects on quality of care and staff and patient experience. Despite the challenges encountered, stakeholders highlighted the potential of this initiative, when scaled, to drive meaningful change in patient care in dermatology services.

# 7. Key findings and recommendations

## Key findings

The report has found positive evidence for each of the teledermatology models implemented through the programme.

### ***Reduced need for secondary care appointments***

Where teledermatology was used as part of an advice and guidance request, there was evidence that a large proportion of patients could be discharged or managed in primary care, thereby reducing the need for secondary care appointments.

Where primary care referrals were accompanied by images of the lesion, there was evidence of reduced need for a face-to-face appointment in secondary care, and reduced waiting times for diagnosis and/or treatment.

### ***Reduced appointment time in secondary care***

During the pilots, Consultant dermatologists needed less time to review referrals accompanied by images versus conducting face-to-face appointments. Therefore, the use of teledermatology has the potential to increase capacity in secondary care.

### ***Patients seen in the right clinic, first time***

The introduction of virtual triage of teledermatology referrals, either by GPs with Extended Roles, or consultant dermatologists, has enabled the redirection of referrals onto the appropriate clinical pathway, or a lower priority pathway, thus saving unnecessary appointments and reducing waiting times for diagnosis and/or treatment.

### ***Improved patient and staff experience***

The data collected through surveys and interviews revealed generally positive staff and patient experiences of the teledermatology projects, with good support for recommending the services and for the pathways' continuation.

## Recommendations for selecting and implementing teledermatology models

This work highlighted a number of areas of good practice and potential improvements for other UK dermatology services to consider when looking to implement teledermatology transformations.

### ***Taking a standardised regional approach to implementation***

All three programmes operated at a sub-regional level and took a collaborative network approach to develop the teledermatology models, across primary and secondary care, taking into consideration local needs. Working collaboratively as a region or sub-region promotes standardised ways of working across the region and could reduce unwarranted variation in access and treatment times for patients.

### ***Securing engagement and uptake across primary care***

Early engagement with GPs during pathway design, and implementation of routine feedback channels throughout project delivery, are crucial in order to understand barriers to uptake of technology and support more consistent adoption of these new models.

Increased support should be provided for GPs adopting the dermatoscope pathway, such as face to face training on using the equipment, allowing time for them to practice using the tools, and appropriate IT and administrative support.

Alignment of incentives offered to GPs for teledermatology pathway completion following the outcome from secondary care, rather than for taking the image, could help to ensure that the full benefits of the pathway are realised.

### ***Addressing technical and procedural blockages***

The time taken in primary care to take and upload the images using the dermatoscope, and then process the referral was around double that of a standard ten-minute appointment.

The following improvements could make the process more time efficient:

- Using a device that is a combined dermatoscope and smartphone, to avoid problems with the attachment between the two devices.
- Streamlining the photo upload and transfer process, as the system can be very slow, by ensuring appropriate WiFi and IT infrastructure.

### ***Ensuring dedicated clinician and project management resource***

Ensuring that project management resource is available at the beginning will ensure adequate project planning, monitoring progress, coordinating stakeholders, and addressing any challenges that arose. Taking a clinically led improvement approach is essential to ensure clinical buy-in, and that the transformation is properly implemented, fully utilised and sustainable. Similarly, having a dedicated clinician leading on the implementation and testing of the teledermatology digital platform is crucial in ensuring its functionality is intuitive and efficient. Leads that can span both primary and secondary care are particularly beneficial.

### ***Considering new approaches to workforce planning***

A well-structured workforce plan is vital for the successful implementation and scale up of teledermatology models in secondary care. Utilising different staff groups, such as nursing or healthcare assistants, to take the images of the lesions, through tailored training programmes, can help mitigate workforce issues.

### ***Undertaking health economics analysis***

While the financial aspect of the projects was outside the scope of this report, inevitably the cost of systems will have a bearing on procurement decisions. When choosing a teledermatology solution, trusts should consider the whole life-cycle cost implications including implementation costs when assessing the return on investment.

### ***Pilot sample size and study period***

Gathering data across a longer period of time and larger referral numbers, to continue to build on the early evidence, will allow for a more conclusive evaluation of the initiatives in relation to overall dermatology services performance.



## ***Undertaking continuous monitoring and formal service evaluations***

NHS providers and ICBs should continue to monitor teledermatology solutions after implementation, to enable further real-world evaluation, and pilot new technology innovations that are being developed, specifically artificial intelligence (AI), to improve dermatology services. The British Association of Dermatologists (BAD) has highlighted the potential of AI interventions to standardise many aspects of clinical care, optimise processes and allow greater use of clinical data to inform best practice and outcomes. BAD have provided guidance for clinicians and commissioners considering implementing AI within their pathways.<sup>9</sup>

# **8. Conclusion**

The report showcases case studies on teledermatology improvement projects undertaken across three different ICSs, and a summary of the impacts revealed through analysis of the available data. It aims to facilitate the dissemination of best practices, enabling other dermatology services to benefit from the experiences and lessons learned through teledermatology transformation.

Each ICS has taken a localised approach to designing their projects, based on needs and challenges, some originating in primary care and others originating in secondary care. The models focus on routine referrals/advice and guidance requests, or both routine and 2WW pathways, and provide forward-looking solutions to the challenges of rising demand and limited workforce.

In teledermatology models initiated in primary care, primary care clinicians can send Advice & Guidance requests, and make teledermatology referrals, both accompanied by digital images acquired via dermatoscopes or mobile phones.

In one ICS, the data shows the majority of Advice & Guidance requests accompanied by smartphone images (over 60%) did not require a secondary care referral, while those remaining were redirected to the appropriate pathway. By redirecting unnecessary referrals, consultant-led outpatient appointments were avoided. In another ICS, the use of routine teledermatology referrals followed by virtual triage was able to return 12% of referrals to primary care, saving patients unnecessary appointments, and directing those patients to more appropriate treatment.

Models initiated in secondary care require patients to attend a medical photography appointment following GP referral and/or appropriate triage. At this clinic high quality, dermoscopic images are taken and remotely assessed by secondary care consultants. A pilot implementing this model for 2WW referrals was able to appropriately redirect 41% of referrals to lower priority pathways. Another pilot using a similar model for routine referrals, showed that 63% of referrals were discharged back to primary care.

All three projects have showed some positive impacts. Nevertheless, there was a high degree of variability between the types of impact demonstrated between the projects, as well as sample sizes and study periods of three initiatives. Therefore, it is difficult to conclude on the optimal model and its potential impact. This suggests that on-going monitoring of these emerging models and more real-world evaluation of the impact of the different models in different settings would be beneficial before making definitive recommendations about optimal pathways and solutions.

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<sup>9</sup> [https://cdn.bad.org.uk/uploads/2022/05/05084401/Positional-Statement\\_Lay-version-FINAL.pdf](https://cdn.bad.org.uk/uploads/2022/05/05084401/Positional-Statement_Lay-version-FINAL.pdf)