QUALITY STANDARDS FOR TELEDERMATOLOGY

USING 'STORE AND FORWARD' IMAGES

Acknowledgements

Contents

Executive summary

These standards form a supplement to the broader overarching standards outlined in Quality Standards for Dermatology: Providing the Right Care for People with Skin Conditions (Primary Care Commissioning, 2011). They are intended for any service that uses teledermatology as part of the provision of care for people with skin conditions. They bring together best practice and existing guidance as it relates to the growing area of teledermatology.

Teledermatology involves referring an image of the skin or the skin appendages of a patient together with relevant history of the condition to a clinician for advice. These standards are intended as a reference for both commissioners and providers of care regarding the use of 'store and forward' digital images in dermatology (as opposed to real-time consultation conducted through electronic/digital means, such as Skype, for example).

The process can be used in three main models of care:

• As a triage tool to direct patients to the appropriate service in a timely fashion

• In so-called 'full teledermatology', where it is offered as an alternative to a face-to-face consultation

• As 'intermediate teledermatology', where a mixture of both the above approaches is used according to patient need.

See standard 1 for more detailed description of these models of care.

Face-to-face consultation between the patient and the clinician remains the gold standard for individual patients and the population against which any teledermatology service needs to be measured. There are particular identifiable risks of teledermatology services, which it is important to consider, particularly in situations where it is proposed that teledermatology be used as a substitute for the traditional face-to-face consultation with the patient. Some of these risks are considered in table 1.

Teledermatology should not be seen as a substitute for face-to-face consultations, but as a complementary service in circumstances where it better serves the interests of patients and offers better use of resources. Wherever possible, a teledermatology service should be part of an integrated local dermatology service and should not destabilise local specialist services but work with them to optimise patient care. Any potential compromise in quality of clinical assessment should be offset by the immediacy and convenience of service to the patient commensurate with clinical risk, balancing the advantages and disadvantages but always with the best outcome for the patient firmly in mind. There should always be a process in place to obtain a further specialist opinion if the teledermatology consultation has not answered the clinical question.

Table 1:
Comparison of a specialist face-to-face consultation with a specialist full-teledermatology consultation

Face-to-face consultation	Full teledermatology completely replacing face-to-face consultation
The specialist clinician takes the history, allowing the opportunity for non-verbal communication and further expert questioning as necessary to explore the clinical problem.	An intermediary, the referring clinician in primary care, asks questions either following a pro forma or completing a structured referral letter, which is then transmitted to the specialist clinician.
The whole patient can be examined. Skin lesions may be examined by touch as well as sight, improving the likelihood of diagnostic accuracy and management.	The reporting specialist bases the suggested diagnosis and management plan on the information and images provided, which may be from relatively localised areas of the body and will of necessity convey less information than a face-to-face examination.
The specialist gives advice and information directly to the patient, providing an opportunity for an additional exchange of information as required by the patient, thereby optimising patient care and likely concordance with treatment.	The referring clinician acts as a 'proxy' for the reporting specialist, feeding the information back to the patient. This provides the opportunity for both education of the referring clinician and their direct involvement in the implementation of the patient's management plan.
The specialist is able to answer patient questions based on a broad experience and understanding of the condition.	The referring clinician is unlikely to have extensive experience of the condition and may be unable to answer detailed questions.
Clinical accountability, documentation and information governance are clearly defined and developed within the context of national frameworks.	Clinical accountability, consent, methods of storage, retrieval and information governance must be safe and effective. The digital record of the referral could form an important part of an electronic patient record held in primary care by the referring clinician if such systems are in place.

Commissioners have eight standards to consider and integrate into any teledermatology service they commission. The standards outline what constitutes a good-quality service and the procedures that need to be followed when practising teledermatology to ensure patient safety and confidentiality of data.

The first seven standards each comprise a series of recommendations, with supporting rationales and references, a list of implications for commissioners and at least one key performance indicator. The eighth standard focuses on all-important audit and quality control measures and explains in depth how best to assess the quality of a teledermatology service.

All eight standards should be read within the context of the existing quality standards document produced in 2011 and published by Primary Care Commissioning (http://bit.ly/VayyN2), and in particular its first and fundamental standard covering the principles of dermatology care.

This executive summary highlights only the key points from each standard for teledermatology.

Standard 1: Models of teledermatology services including links to other services

Teledermatology services should be developed around patient needs within a local integrated service and should include clear pathways with links between levels of care and specialisms. The type of teledermatology service offered should be clearly identified and an agreed tariff established.

Standard 2: Selecting patients for teledermatology

The type of teledermatology service used will in part determine the range of patients for whom teledermatology is appropriate. For patients whose conditions fall under the two-week wait (2WW) process, national guidance must be followed at all times. For patients with pigmented lesions, dermoscopic images should form part of any teledermatology referral that replaces a face-to-face consultation.

Standard 3: Gaining the patient's informed consent

The legal consent requirements for teledermatology include consent regarding the taking and subsequent use of images. It is important that specific consent/s are taken and recorded before the photographic session and that a record of consents given is retained for as long as the images are held. Informed consent also implies that the patient is made fully aware of the potential limitations of teledermatology compared to a face-to-face consultation.

Standard 4: Competent staff

Clinicians and healthcare professionals involved in teledermatology referrals should be equal in terms of competence, training and experience to those involved in equivalent non-teledermatology referrals. For roles specific to teledermatology (ie photographing patients) it is important that training and feedback are supplied and skills audited.

Standard 5: The teledermatology referral: patient history and suitable images

The information (history and images) supplied as part of any teledermatology referral must be of the highest quality and as full as possible, since the patient will not be present when their condition is reviewed. Any service specification should include a well-designed pro forma for patient history and an agreed minimum standard for images (including number and type supplied).

Standard 6: Communication between referring and reporting clinicians

Reliable, identifiable, secure, compatible and timely communication between clinicians is central to the teledermatology process. It is important to have agreed protocols, an alert system for any breakdowns in communication and a process of feedback built in.

Standard 7: Information governance and record keeping

As well as meeting the security and privacy standards in the relevant legal and professional guidance on the holding, storage and transfer of patient data, it is important that patient teledermatology records are searchable by a variety of criteria for audit purposes. They must also be accessible both as part of the patient record and as standalone data.

Standard 8: Audit and quality control

It is vital that each teledermatology service completes at least one patient survey and one audit each year to assess the quality of the service provided. Standard 8 details practical ways to map performance against the points set out in standards 1 to 7.

Introduction

The 2011 document *Quality Standards for Dermatology: Providing the Right Care for People with Skin Conditions* was written to provide commissioners of services with clear, accessible information about what constitutes high-quality care. The British Association of Dermatologists (BAD) led the project with a multi-stakeholder group that included representatives from patient organisations, BDNG, British Society for Paediatric Dermatology (BSPD), PCDS, Royal College of General Practitioners (RCGP), commissioners, GPs, GPwSI, nurses and pharmacists, with input from the Department of Health. It was also sent out to a wider consultation group. These standards are published by Primary Care Commissioning to support the commissioning of high quality care in a changing NHS environment and are available at http://bit.ly/VayyN2.

In developing this set of dermatology-wide standards, the working group realised that further specialist standards would be needed – as a supplement to the original document – to cover new and emerging areas of practice and/or highly specialised types of dermatology care. These standards, which focus exclusively on the practice of teledermatology using 'store and forward' images, are one of the supplementary standards to be developed. It is important to bear in mind that the tenets of the original standard document still apply. This document covers additional factors that relate to the use of digital 'store and forward' images within overall dermatology services.

These standards are based on best available evidence and apply to any service using teledermatology commissioned by the NHS, including those in the independent or third sectors. They are intended as a precursor to, as well as to help inform, any future NICE quality standards on teledermatology. While the standards are intended to be particularly useful in commissioning services in England, they are endorsed by NHS Scotland through the Scottish Centre for Telehealth and Telecare and it is hoped they will be adopted as good practice throughout the UK.

Each standard comprises a series of recommendations, each with a rationale (which may include background details and further information). The rationale appears after each recommendation.

THE STANDARDS

STANDARD 1
Models of teledermatology services including links to other services

This standard outlines three types of teledermatology services and considers the benefits and limitations of teledermatology as a part of the care pathway.

1.1 Recommendations

1.1.1 Models of care

Models of care that incorporate the use of 'store and forward' digital image (or teledermatology) referral should:

• Be patient-centred

• Benefit patient care and

• Ensure that the right person sees patients in the right place first time, without unnecessary delays and as part of a process that takes no longer overall than a face-to-face referral.

These aims are best achieved where the teledermatology service is part of a local integrated service.

Any potential compromise in quality of clinical assessment due to lack of direct patient-to-specialist interaction should be offset by the patient's rapid and convenient access to a specialist opinion.

The views of patients and the public must be sought and considered when developing the service.

Rationale

Digital image technology provides a real opportunity to ensure that patients are seen promptly by the correct clinician in an appropriate location, but this technology needs to used with and complement conventional models of care to work best.

There is a range of evidence-based consensus guidance describing successful models of care developed by broad stakeholder groups that include patients, the public, doctors, nurses and pharmacists.[1-5] Ideally teledermatology services should be developed within the context of these recommended models of care. The importance of involving patients and the public in the design of services is recognised in these national guidance documents.

1.1.2 The three types of teledermatology service and their role in care pathways

The role of teledermatology should be clearly identified for all of those involved, ie patients, service providers and commissioners. It will usually fall within one of the following definitions:

• **Triage teledermatology** – a triage tool to ensure the right person sees patients in the right place promptly. All patients are seen but an image with accompanying history is used to direct the referral appropriately

• **Full teledermatolog**y – an alternative to a face-to-face consultation. Patients are not seen in person. Instead the provider of the teledermatology service (the reporting specialist clinician) offers a management plan to be explained and implemented by the referring clinician

• **Intermediate teledermatology –** a mix of both the above according to patient need. Some patients are triaged to an appropriate specialist appointment while others receive (through the referring clinician) diagnostic and management advice to oviate the need for a face-to-face specialist consultation.

It is essential to be clear about which of these roles the commissioner has chosen to commission and what the teledermatology service is providing. For triage and intermediate teledermatology there should be clearly defined care pathways linking the service to face-to-face specialist dermatology services to ensure timely and appropriate care for those patients requiring a consultation.

Rationale

Using digital images creates the potential to work across large geographical areas and a number of different organisations and, theoretically, to avoid the need for a face-to-face consultation. As well as the obvious benefits, this carries risks to the quality of clinical assessment and care and demands particular diligence about documentation, storage of images, consent and other key issues, in particular clinical accountability. The risks will vary depending on which of these above models are implemented.

Other standards address these issues in more detail but it should be noted that the risks are greatest where full teledermatology replaces a face-to-face consultation.

1.1.3   Establishing links

When considering integrating digital image services into daily clinical practice, links and clear pathways need to be established not only between levels of care (for example between generalist, specialist and supra-specialist services) but also between specialisms.

For example, links between different levels of care might include those between:
• Primary healthcare professionals (including nurses and GPwSI) and a specialist dermatologist
• A dermatologist at a local skin cancer multidisciplinary team (MDT) and a specialist skin cancer MDT
• A general dermatologist and supra-specialist, regional or nationally commissioned specialist dermatology service.

Links between specialisms might include those between:
• A dermatologist and a plastic surgeon, head and neck surgeon or ophthalmologist for a surgical procedure
• A general dermatologist and a specialist paediatric dermatologist for an opinion about a child with a rare condition
• An acute physician and a dermatologist for advice about an acutely ill patient in hospital.

Local expertise will determine the type of model and services developed.

Rationale

The types of links described above have the potential to improve patient care by supporting multi-professional and multidisciplinary working. In such examples the use of digital images can support timely clinical decision-making and ensure that patients are referred appropriately according to agreed care pathways. Local skills should be used to ensure the best service is provided. It is not, however, acceptable for clinicians to be expected to review and manage digital image services in clinical areas where they do not feel competent.

The potential integration of teledermatology services across levels of care and specialisms has implications for the storage of the original digital images, since they may need to be accessed 'downstream' by other specialist services. Record keeping is covered in detail in standard 7.

1.1.4   Cost implications and the need for an agreed tariff

When developing a model of care that incorporates teledermatology, it is important to identify the resources required to deliver the service (including primary care costs). A tariff should be agreed and the commissioners should commission the service against it. Costs will include clinician time to look at images, time taken for photography, outlay on cameras and IT equipment and any administration involved in triaging patients to appropriate clinical services. The tariff will vary dependent on the type of teledermatology service. Double charging is inevitable if a full teledermatology referral subsequently requires a face-to-face consultation, whereas for triage services tariff arrangements will need to be negotiated differently.

Rationale

Some see digital image with referral as a cheap alternative to a face-to-face consultation. While the costs of providing this service may be lower, they must nevertheless be quantified appropriately.

1.1.5   Using non-NHS service providers

Teledermatology services can be provided either through the NHS using, for example, the advice and guidance of the National Choose and Book system, or by private providers. Where services involve private providers they may provide the information technology platform alone. Some services might also include third-party private consultant dermatologist opinions. It is important that links with dermatology services are clearly defined, so patients can access convenient specialist dermatology services. To enable safe integrated clinical practice, other clinicians responsible for a patient's care must be able to access the digital images. This is more likely to require additional resource where private providers are involved. If the Choose and Book system is used, there need to be clearly recognised pathways that permit patients' choice of care provider. Whoever the provider, it is expected that images will be looked at by a suitably trained, experienced dermatologist.

Rationale

There is a risk that teledermatology services, particularly where images are reviewed by a remote private, may have a negative impact on the provision of integrated care. An experienced dermatologist is likely to be the best gatekeeper to the service. Competence is covered in detail in standard 4.

1.1.6 Incorporating education

Teaching and learning should be incorporated into all models of care, with education for the referring clinician incorporated as part of the feedback from the reporting specialist clinician.

Rationale

Undergraduate, postgraduate and nurse dermatology education is widely recognised as limited and so opportunities to teach as part of the model of care are important. Teledermatology lends itself extremely well to this, not least because of the speed with which a report is generated and returned to the referring clinician.

1.1.7 Clinical governance and risk assessment

Within any model of care, and wherever services are being linked by the use of teledermatology, there should be a clearly identified clinical governance framework and lines of clinical accountability. A risk assessment of any model of care will address this issue so that steps can be taken to minimise clinical risk.

Rationale

Clinical governance and clear lines of accountability are crucial to the safety and effectiveness of any service. Audit and quality control for teledermatology are covered in detail in standard 8.

1.2 Implications for commissioning

1.2.1

Teledermatology services should be developed within the context of nationally recognised recommended models of care, with the involvement of patients and the public.

1.2.2

When designing a service specification, commissioners should be clear about the model of teledermatology service they are commissioning (ie full, triage or intermediate).

1.2.3

Commissioners should ensure that care pathways incorporating the use of digital images are clearly identified for all of those involved (ie patients and service providers). They should also consider how to incentivise service providers to ensure close and collaborative working.

1.2.4

Commissioners should ensure an appropriate tariff for teledermatology is agreed, which sets specific standards for the service. This should include the use of the service to provide education and training.

1.2.5

As with any model of care, commissioners should undertake a risk assessment so that steps can be taken to minimise any potential areas of clinical risk.

1.3 Key performance indicators

1.3.1

Evidence of a clear statement of purpose, including a definition of the types of teledermatology used (ie full, triage or intermediate) and the scope of the service offered in any service specification.

1.3.2

Service specification for the model of care should include a full risk assessment including issues of clinical governance and accountability and requirements for audit and clinical incident reporting.

1.3.3

Demonstration of robust links between local primary and specialist services working as major partners in delivery of the teledermatology service.

1.3.4

In those health economies where Payment by Results (PbR) operates, evidence of an agreed tariff in use for the teledermatology service.

1.4 References

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2. NHS Modernisation Agency (2003) *Action on Dermatology – Good Practice Guide.* London: NHS Modernisation Agency.

3. NHS Modernisation Agency (2005) *Action on Plastic Surgery: The National Issue and Working Group Outputs. National Good Practice Guidance: Local Implementation Document 2A.* London: NHS Modernisation Agency.

4. NHS Primary Care Contracting (2008) *Providing Care for Patients with Skin Conditions: Guidance and Resources for Commissioners.* Leeds: NHS Primary Care Contracting.

5. Department of Health (2006a) *Health Reform in England – Update and Commissioning Framework: Annex – The Commissioning Framework.* London: Department of Health.

STANDARD 2
Selecting patients for teledermatology

This standard sets out the criteria that should govern the use of teledermatology. These may vary depending on whether teledermatology is being used by a GP before referral to triage patients to the appropriate service and setting (triage teledermatology), as an alternative to a face-to-face consultation with a skin specialist (full teledermatology) or a combination of both (intermediate teledermatology).

The scope and limitations of the teledermatology service must be agreed, in line with relevant national guidance, between the referring and reporting clinicians when the service is commissioned.

2.1 Recommendations

2.1.1 Patients with skin lesions: important principles

Two week wait referrals:

- In England and Wales (but not Scotland), patients presenting to primary care with a lesion that the referring clinician suspects to be malignant melanoma (MM) or squamous cell carcinoma (SCC) should be referred to skin specialists who are part of a skin cancer multidisciplinary team (MDT) and the patient will be seen within two weeks. This is known as the two week wait (2WW) referral process[1]

- Current national guidance in England (but not Wales) does not provide for downgrading of 2WW referrals (once they are made through the formal 2WW process) by specialists, only by GPs. This means that once a 2WW referral has been made a specialist cannot downgrade the referral. If they feel this is the appropriate course they must contact the referring GP and ask them to consider redirecting their referral[2]

- Teledermatology as a means to triage referrals using GP generated images, where the patient is not seen in clinic, cannot stop a two week wait clock. However, when the GP's initial urgent referral for suspected cancer results in a clinic attendance in secondary care, with a suitably trained health care professional carrying out the initial assessment as part of a consultant led team, followed by a teledermatology event, a clock stop could be recorded for the two week wait with the clinic attendance being recorded as 'date first seen'.[3,4]

- Where a suitably trained health care professional carries out the initial assessment as part of a consultant led team, followed by a teledermatology event (as described above), the two month (62 day) cancer waiting time standard (from urgent GP referral for suspected cancer to first treatment) continues to run. This is because being seen in clinic does not constitute a clock stop on this pathway.

The period the patient is deemed to be waiting will only end at the point the patient commences their first definitive treatment, or they are informed of a non-cancer diagnosis. The requirement to provide a maximum waiting time of one month (31-days) between diagnosis and first definitive treatment does NOT start as, in normal circumstances; the patient will not have been informed of a diagnosis of cancer and agreed a management plan at this consultation.

Non-two week wait referrals

• Teledermatology may be used, outside of the 2WW process, to triage patients with suspected malignant skin lesions (usually basal cell carcinomas) to the most appropriate skin cancer service, allowing the reporting skin specialist to upgrade or downgrade clinic referrals or redirect patients to skin surgery

• Where referring clinicians have a low suspicion of malignancy (eg probably benign but not sure), teledermatology may be used outside the 2WW process. This would include situations where a patient has a stable non-changing clinically benign skin lesion, but where the clinical diagnosis is uncertain. The teledermatology referral can be used to try and obtain an accurate clinical diagnosis from a specialist. As is the case with all lesions referred for an opinion, a detailed clinical history is important to assist interpretation.

Only in cases where the referring clinician feels the patient does not require a total skin examination by a skin specialist should teledermatology of individual skin lesions be used as an alternative to face-to-face consultation. This is particularly relevant in immunosuppressed patients, where tumours may be multiple and more aggressive.

Rationale

The current national cancer waiting time standards in England and Wales apply to melanoma and squamous cell carcinoma.[1] However, an overview of 52 audit studies of skin cancer referrals under the 2WW rule found that melanoma and squamous cell carcinoma account for only 10% to 12% of referrals, with the remainder being benign lesions.[5] A pilot study has suggested that up to 50% of patients referred using the 2WW process could have been redirected if teledermatology was used before the 2WW referral. Good-quality digital images of skin lesions can be used to prioritise access to skin cancer services and improve the delivery of definitive care at first visit.[6, 7, 8]

Patients with skin cancer often have widespread solar damage and develop multiple skin cancers.[1] Face-to-face consultation with a dermatologist allows total body examination by a specialist trained in the diagnosis of skin malignancy. Incidental skin cancer (non-index lesions not detected by the patient or referring clinician) accounted for 40% of skin malignancies diagnosed in a dermatology skin cancer clinic on total body examination.[9]

Referral of patients with benign skin lesions for face-to-face consultations is often unnecessary. The referring clinician may be confident that a lesion is benign but may be uncertain of the clinical diagnosis. In such a situation,a specialist diagnosis can provide reassurance for both patient and referring clinician and also an important educational element for the referring clinician.

2.1.1.1 Patients with pigmented lesions for diagnosis

Bearing in mind the above points, patients with pigmented lesions should be referred via teledermatology as an alternative to a face-to-face consultation only if:

• There are facilities to include with the referral a dermoscopic image taken by a person trained in the use of a dermatoscope and

• The reporting clinician is trained in the interpretation of macroscopic and dermoscopic pigmented lesion images.

Where facilities permit, a dermatoscope should similarly be used when referring patients with pigmented lesions for triage by teledermatology.

Rationale

Published safety data worldwide shows conflicting data on accuracy of teledermatology for the diagnosis of pigmented lesions and exclusion of melanoma, reflecting variations in photographic technique and reporting.[10-13] Studies supporting the use of teledermatology for pigmented lesion diagnosis and triage have used referrers and reporting specialists experienced in macroscopic and dermoscopic imaging,[10, 12]

The use of a dermatoscope to increase diagnostic accuracy of skin malignancy is widely accepted in dermatological practice, although a period of training is needed for its effective use.[1]

2.1.1.2 Patients with suspected basal cell carcinoma

Referring clinicians may refer patients with suspected basal cell carcinoma via teledermatology for direct booking onto a surgical list if the patient:

• Can be given adequate preoperative information about skin surgery in written format
  and

• Is offered the option of face-to-face discussion with the skin specialist or skin surgeon if they decide they would like to discuss their operation preoperatively in clinic.

Rationale

Basal cell carcinoma is the commonest form of human cancer and has a significant impact on healthcare resources. Many patients are elderly with multiple co-morbidities and find travel difficult. Diagnosis is usually made in primary care, although NICE guidance requires all basal cell carcinomas to be excised (if excision is the most appropriate treatment) by accredited GP skin surgeons, or core members of the MDT in specialist care.[14] Teledermatology can allow pre-operative planning for patients with well-circumscribed tumours, allowing patients to be triaged directly onto an appropriate surgical list rather than into the outpatient clinic for initial review.[15] Patients with large basal cell carcinomas who may require complex reconstructive surgery are likely to benefit from face-to-face consultation in clinic pre-operatively but teledermatology may also help referral of a patient straight to a plastic surgeon if appropriate.

2.1.2. Patients with widespread rashes or inflammatory skin conditions

Where a patient has a widespread rash or skin condition, they should be referred via teledermatology only if it is physically appropriate and practical to take images that provide a representative view of all the affected areas.

Rationale

Patients with localised skin rashes are easier to image than those whose skin condition involves multiple body sites. In patients with widespread skin conditions it can be technically difficult and time-consuming to obtain, transmit and view digital images showing all representative views. The accurate diagnosis of many inflammatory skin conditions requires a review of the whole body, including scalp, nails and mucosal surfaces. Certain body sites, such as dense hair-bearing skin, darkly pigmented skin, mucosal surfaces and genitalia may be difficult to image accurately.

2.1.2.1 Managing care of patients with rashes and inflammatory skin conditions

Assuming that the patient's skin condition is not so widespread as to be unsuitable for teledermatology (as outlined in 2.1.), their care should be managed via teledermatology only if the referring clinician can provide information and access to appropriate treatment based on the management plan provided by the reporting skin specialist.

Rationale

Teledermatology does not generally allow two-way interactive dialogue between the patient and the reporting specialist. The referring clinician must be able to relay the information provided by the reporting specialist accurately and comprehensively, and be able to address any questions or concerns the patient may have regarding their diagnosis and management plan.

2.1.2.2 Patients with long-term skin conditions (eg eczema or psoriasis)

Patients with chronic inflammatory skin disease should be managed through teledermatology only if the referring clinician has the facilities and clinical experience to provide on-going patient support and review based on the skin care management plan provided by the reporting skin specialist.

Rationale

Chronic skin conditions can cause significant physical, social and psychological impairment.[16] Eczema and psoriasis are common skin conditions that can fluctuate significantly in severity and may require complex treatment plans for safe and effective long-term management. Patients (and parents/carers) should have access to suitable nursing expertise for treatment, counselling, education and advice.[6]

2.2 Implications for commissioning

2.2.1

Commissioners should ensure that teledermatology services developed for the diagnosis, management or triage of patients with suspected skin malignancy should conform to national guidelines for the management of patients with skin cancer.[1]

2.2.2

Teledermatology services should be integrated with local specialist services wherever possible, and should always have clear pathways of care for patients requiring specialist skin surgery, or face-to-face review if skin cancer cannot be excluded on images.

2.2.3

Commissioners should be aware of the potential limitations of teledermatology for patients with widespread or severe inflammatory skin disease compared to face-to-face consultation with a dermatologist.

2.3 Key performance indicators

2.3.1

Percentage of 'full' teledermatology referrals (ie replacing face-to-face), for pigmented lesion diagnosis, that have included a good-quality dermoscopic image. (Standard: 95%).

2.3.2

Percentage of responses to the referring clinician within two weeks of the initial teledermatology referral for 2WW referrals. (Standard: 100%).

2.3.3

Percentage of patients triaged directly to skin surgery who have been given adequate pre-operative information and been offered a face-to-face pre-operative discussion with skin specialist or surgeon where necessary. (Standard: 95%).

2.3.4

Patient satisfaction with the teledermatology diagnosis and management plan.

2.4 References

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Standard 3
Gaining the patient's informed consent

This standard explains the issue of informed consent in relation to the images that are taken, transferred, viewed and stored as part of the process of teledermatology. It assumes an understanding of the general principle of informed consent and related issues of competence as outlined in the relevant literature.[1-4]

3.1 Recommendations

3.1.1 The principle of consent

Any interaction between a patient and a healthcare professional is subject to informed consent being given by the patient.

Rationale
Rational, informed consent is a legal requirement.[4]

3.1.2 Information for patients about teledermatology

In order that patients have enough information to consent to teledermatology, the referring clinician should provide the relevant information in a way that the patient can understand (including in special formats for those who need them, ie non-English speakers or patients with sight or hearing problems).

The information should include:

- What the teledermatology process involves (this will vary between services) and why it may be helpful for their care

- That there may be a difference in diagnostic accuracy between teledermatology and a face-to-face consultation

- They may still need to have a face-to-face consultation

- They may bring a companion or, if appropriate, a chaperone to the teledermatology session.

The patient should also be told:

- Who takes the images

- What images will be taken

- What information will be sent with the images

- That they can, provided it is appropriate (see standard 6, outcome and follow-up), receive a printed copy of the information sent to and from the referring clinician 5

- How the images are transferred

- Information about the specialist to whom the images are sent and what the specialist will do with the information

- What happens in response to the teledermatology consultation

- How they can access information held about themselves
- Where the images will be stored, for how long and who will have access to them
- That if they consent to teledermatology their images may be used for audit and teaching healthcare professionals but that their written consent is required if identifiable images are to be later used for broader teaching or publication
- They are under no pressure to give their consent for teledermatology if they do not wish to do so.

Rationale

Whatever the context in which medical decisions are made, the clinician must work in partnership with the patient to ensure good care.[6] People with skin conditions have the right to be involved in discussions and to make informed decisions about their treatment and care.[7]

The GMC advises that the patient's consent, which should usually be written, should be obtained before making a recording that will be used in widely accessible public media (television, radio, internet, print), whether or not the patient will be identifiable.[8] If a recording was made as part of a patient's care for which consent was not obtained at the time, then it is good practice to obtain consent and essential if the patient could be identified.

Appendix C shows a model consent form for the use of digital image with referral for people with skin conditions.

3.1.3 Recording patient consent

The signed consent form should be held with the patient record or transferred to the electronic patient record (EPR) as appropriate. There should also be a way of noting the consent/s given and recording this as part of the referral information so it is immediately clear to the reporting specialist what level of consent has been obtained.

Rationale

Information about patient consent is important if, for example, the image is later used for teaching purposes or is published.

Standard 5 covers suitable images and patient history.

3.2 Implications for commissioning

3.2.1

Commissioners should ensure that informed consent is obtained for all patients, including vulnerable adults and children, taking into consideration current guidance.[3]

3.2.2

It is the responsibility of service commissioners to ensure that a face-to-face consultation is available to those patients who refuse to give consent for teledermatology.

3.3 Key performance indicators

3.3.1

Provision of an information leaflet for potential teledermatology patients explaining the nature of the service, with translations as required. (Standard: 95%).

3.3.2

Adherence to local and national guidance to ensure that patient consent to teledermatology is recorded in the referring and reporting clinicians' patient record for all patients. (Standard: 95%).

3.4 References

1. NSPCC (2009) *Gillick Competency and Fraser Guidelines*, NSPCC factsheet. (Available at http://tinyurl.com/3axo33f)
2. GMC (nd) *0—18 Years Guidance: Making Decisions* (http://tinyurl.com/a253rjh)
3. Mental Capacity Act 2005. London: The Stationery Office. (Available at http://tinyurl.com/39rfkrh).
4. Department of Health (2009) *Reference Guide to Consent for Examination or Treatment, Second Edition.* Gateway reference 11911. (Available at http://tinyurl.com/as3b87g)
5. Department of Health (2003) *Copying Letters to Patients: Good Practice Guidelines.* London: Department of Health. (Available at http://tinyurl.com/afqvyt3)
6. GMC (nd) *Consent: Patients and Doctors Making Decisions Together* (http://tinyurl.com/35k75q4)
7. *Quality Standards for Dermatology: Providing the Right Care for People with Skin Conditions (2011).* (Available at http://bit.ly/VayyN2GMC (2011) *Making and Using Visual and Audio Recordings of Patients* London: General Medical Council. (Available at http://tinyurl.com/38dgzod)
8. GMC (nd) *0-18 Years Guidance for All Doctors* (http://tinyurl.com/4u2mpk9)

Standard 4
Competent staff

This standard sets out the competences required for the referring clinician and the reporting specialist and other healthcare professionals providing teledermatology services.

4.1 Recommendations

4.1.1 Competence to deliver services

As with the provision of face-to-face consultations, it is expected that all staff involved in a teledermatology service should have the appropriate knowledge, skills and competence.

Appendix D shows a list of competences required for teledermatology roles.

Rationale

Competences should be relevant to the service being commissioned and individuals should work within the scope of their own competence. The standard required to achieve a particular competence for teledermatology should be the same regardless of the professional group.

4.1.2 Clinicians referring via teledermatology

The decision to offer a teledermatology referral should be made by a qualified healthcare professional (generally but not necessarily a GP). This referrer should be able to:

• Select appropriate patients for this service (standard 2)

• Gain their written informed consent (standard 3)

• Take a detailed clinical history to accompany the teledermatology images (standard 5).

The referring clinician should understand the limitations of teledermatology in allowing for confident definitive diagnosis and should recognise those conditions that may not be suitable for teledermatology (as outlined in standard 2).

It is vital that the referring clinician has the skills and knowledge to take a detailed clinical history and so provide as a minimum the information outlined in standard 5.

The referring clinician should be able to interpret and act on a teledermatology response and provide appropriate patient care or triage based on the management plan provided by the reporting specialist.

Rationale

Teledermatology is not suitable for all patients or conditions.

Informed consent is a legal requirement.

Accurate and comprehensive information must be provided along with images, as teledermatology does not allow interaction between the patient and the reporting specialist. For this reason the referral should include at least as much (if not more) information than a standard face-to-face referral request letter.

4.1.3 Staff taking images for teledermatology

The person taking the images should have access to good-quality photographic equipment and be trained in capturing high-quality images.[1]

The photographer should be identifiable from within the record of the dermatology event and their competence should be measured by the quality of the images.

Where there is a need for dermoscopic images, training in the effective use of a dermatoscope is required.[2]

Rationale

High-quality images are required for the reporting specialist.

4.1.4 Specialist clinicians reviewing and reporting on teledermatology images

There follow general principles for all reporting specialists and specific recommendations for the different models of care.

Principles

• Teledermatology should be only one part of the reporting specialist's working practice. Most of their time (direct clinical care) should be spent in face-to-face consultations

• Appropriate time must be set aside for teledermatology and this task must be explicitly included as part of the reporting specialist's job plan as direct clinical care

• The reporting specialist should recognise the technological limitations of teledermatology and be equipped to arrange a timely face-to-face consultation through the appropriate referral pathway where this is appropriate

• Reporting specialists should feed back on the images and histories they receive as part of audit and quality control as outlined in standard 8.

Rationale

It is important that reporting specialists maintain their skills in face-to-face consultations with patients. Their experience and expertise in the conditions they are reporting on are vital.

Reading teledermatology images is time-consuming and requires concentration.[3]

4.1.4.1 Full teledermatology: where there is no face-to face consultation

For models of care where teledermatology replaces face-to-face consultation the reporting specialist should be on the GMC dermatology specialist register with experience in teledermatology and, preferably, be in active clinical practice as an NHS consultant.

4.1.4.2 Triage and intermediate teledermatology: where the model allows for patients to be triaged to a face-to face consultation

The reporting clinician should have specialist skills in dermatology (for example an accredited GPwSI or a speciality doctor) and be working as part of an integrated dermatology service, where the commissioned model of care includes support from a consultant dermatologist on the UK GMC specialist register with a commitment to and ongoing experience in teledermatology.

4.1.5 Clinical leadership

Clinical leadership is vital in supporting education, training and ongoing clinical governance arrangements for teledermatology. This role should be both explicit and commissioned.

Rationale

Providers of specialist dermatology services have a key role in supporting the delivery of a teledermatology service. Their expertise should be commissioned to support the development of this service locally and to provide leadership in education and training issues.

4.1.6 Training and assessment

Training in the skills and competence required for the roles involved in the teledermatology care pathway, should be standardised in content and multi-professional education and training should be encouraged where appropriate.

Agreed mechanisms should be in place for assessing clinical competence of those involved in providing teledermatology services. These should be standardised across all professional groups.

Those assessing competence should be trained to do so.

Rationale

Teledermatology is not, at present, included in any training curriculum.

Where there is an established training pathway, competence for teledermatology should be the same regardless of the professional group.

4.1.7 Maintaining competence

Service providers should be able to produce evidence that the healthcare professionals delivering care as part of a teledermatology service are competent to do so – not just at recruitment but also continuously throughout their employment.

Individual practitioners are responsible for maintaining their own competence but must be supported in this by their employers and commissioners.

Rationale

All practitioners should work within a robust clinical governance framework that is able, by audit and quality control, to demonstrate conformity with and maintenance of national and local standards. Audit and quality control is covered in detail in standard 8.

4.2 Implications for commissioning

4.2.1

Clinical leadership should be explicitly commissioned as part of a local service specification.

4.2.2

Staff delivering a teledermatology service should be competent to do so.

4.2.3

Commissioners should ensure that the specialist provider responsible for reviewing and reporting teledermatology images is accredited and suitably regulated.[4]

4.3 Key performance indicators

4.3.1

Evidence of an identified named clinical lead for the service who is on the GMC dermatology specialist register and working in active NHS practice.

4.3.2

Evidence that every reporting specialist is working as part of an integrated dermatology service where the commissioned model of care includes support from a consultant dermatologist on the UK GMC specialist register with a commitment to and ongoing experience in teledermatology.

4.3.3

Evidence that most of the reporting clinician's clinical interactions are face-to-face consultations.

4.3.4

Audit and quality control: percentage of staff who are involved in audit and quality control as outlined in standard 8. (Standard 100%).

4.4 References

1. *Quality Standards for Dermatology: Providing the Right Care for People with Skin Conditions* (2011). (Available at http://bit.ly/VayyN2)

2. National Institute for Health and Clinical Excellent (2006): *Improving Outcomes for People with Skin Tumours including Melanoma:* The Manual. London: National Institute for Health and Clinical Excellence. (Available at http://tinyurl.com/alrlkzu)

3. Aas IH (2002) Changes in job situation due to telemedicine, *Journal of Telemedicine and Telecare* 8(1): 41-47.

4. General Medical Council Statements (2009): *Joint Statement of the GMC and the Regulation and Quality Improvement Authority (RQIA) on the Regulation of Doctors Providing Telemedicine Services to Patients in the UK.* (Available at http://tinyurl.com/aag9d9g)

Standard 5
The teledermatology referral: patient history and suitable images

This standard covers the requirement for a detailed patient history and clear images for every teledermatology episode. A guide to camera specifications and a step-by-step photography protocol are included at appendix E.

5.1 Recommendations

5.1.1 Patient data and clinical history

A structured referral letter or pro forma may be useful in ensuring the required information is captured consistently.

The following patient demographic data should be collated as standard:

- Date of birth

- Gender

- Ethnic group

- Address and contact telephone number.

The pro forma should also show the patient consents given, as outlined at standard 3, recording patient consent.

The minimum information required for a teledermatology referral for skin lesions is:

- Date of onset/duration

- Whether single or multiple

- Location/s on body

- Changes in size, shape, colour

- Any bleeding and/or ulceration

- Symptoms

- Any personal and/or family history of skin cancers

- Other risk factors, ie excessive sun exposure, fair skin, large number of naevi, immunosuppression, outdoor occupation etc.

- Repeat and recent medications

- Other medical conditions.

The minimum information required for a teledermatology referral for inflammatory dermatosis is:

• Date of onset/duration

• Location/s on the body

• Symptoms

• Previous treatment for this condition and its response to medications

• Personal and family history of skin disease

• Personal and family history of atopy

• Relevant medical history

• Known allergies

• Repeat and recent medications

• Active problem list.

A body map is also recommended to show the site of the lesion/s and/or the site/s and extent of inflammation.

Rationale

For the reporting specialist the clinical history is of increased importance in teledermatology since it replaces a conversation with the absent patient.

Patient details often have diagnostic value and can also be used for audit purposes.

A well-designed pro forma helps ensure relevant details are not overlooked.

5.1.2 Taking photographs: modesty, privacy and dignity

Certain patients may be reluctant to have their photograph taken under any circumstances due to their skin condition; others may have specific concerns about modesty or dignity. Provision should be made to protect patient's modesty and allow them to retain a sense of privacy and dignity, whatever and wherever their skin condition. This should be explained to them and their right to ask for a chaperone or bring a companion should also be made clear, as it would be for a face-to-face consultation.

Rationale

Many skin conditions cause considerable distress and embarrassment, and patients may express reluctance to be photographed simply because they are not clear how their privacy and dignity will be protected during the process.

5.1.3 Camera and photographic standards

See also appendix E for detailed camera specifications and photography protocol.

5.1.3.1 Camera quality

Compact cameras and camera phones are acceptable for use in teledermatology, provided they meet the minimum specifications set out below.

Rationale

See the table of camera specifications at appendix E for further detail.

5.1.3.2 Image size/resolution

Images for teledermatology assessment should be a minimum size of 2000 x 1500 pixels or 3 megapixels.

Maximum size should be set to within the capacity of the referring system, eg an email system may have limits on the size of files it can send and receive. Many digital cameras have maximum file sizes of 4600 x 3450 pixels or 16 megapixels. This file size is intended for print and far exceeds what is need for viewing on screen.

Rationale

Teledermatology images are intended for viewing on screen. The common screen resolution currently in use is 1280 x 1024 pixels. As a minimum, this resolution will provide adequate viewing and allow a degree of magnification without noticeable loss in quality.

5.1.3.3 File format

Cameras set to capture maximum quality JPEG files will produce acceptable images for teledermatology assessment both in terms of viewing quality and ease of image transfer.

However, images should not be opened, processed in any way through imaging packages and resaved as JPEG before sending for assessment.

Rationale

Although the JPEG is a compressed file, an image appropriately sized for the viewing system can be saved as a .jpg at maximum quality without any noticeable loss of detail.

While the camera original JPEG file is acceptable, each resaving of the JPEG file will cause data to be lost and may compromise the quality of the image.

5.1.3.4 Lighting

Teledermatology subjects should preferably be photographed using electronic flash and photographs taken from two different angles.

Rationale

Electronic flash gives adequate light intensity and exposure to avoid camera shake and will provide a degree of reflection, which will enrich the texture details of the subject. Photographing from two different angles can compensate for any loss of detail in reflections from the skin.

5.1.3.5 Backgrounds

A neutral coloured, plain background, such as a dressing towel, should be used.

Rationale

This helps to isolate the subject from any visual distractions.

5.1.3.6 Focusing – close-ups

Macro focus (no closer than a focusing distance of 20cm) must be used to capture individual lesions.

Rationale

Teledermatology referrals of lesions and rashes should include a detailed, close-up image as well as a locating image.

5.1.3.7 Patient identification of the image set

Each unique patient event sent through teledermatology should include an image that identifies the patient through the inclusion of some form of unique patient identifier, such as NHS number, a case record number or initials and date of birth. It is essential that the image set be tagged with some form of unique identifier before it is sent so that there can be no misunderstanding about identification of a series of images from the same patient.

Rationale

Images of lesions can appear anonymous. Without some form of clear identifier for a set of images, which can be cross-referenced with the text referral, there is a risk of patient misidentification.

5.1.4 Photographing lesions

To ensure images are as informative as possible each session should include:

• A mid-close up image to include some anatomical marker, establishing the location and providing some general context for the lesion

• At least one macro (close-up) image of the lesion. A second photograph can be taken from a different angle to supplement this. A further image, with a centimetre scale can also be taken. A close-up without a scale is important, as scales will cover an area of the surrounding skin and could hide some salient features.

Rationale

See the photography protocol at appendix E for fuller guidance.

5.1.4.1 Dermoscopy

Dermoscopic images can be extremely helpful in teledermatology referrals for the assessment of skin lesions (they are vital for 'full' teledermatology referrals for pigmented lesions and also recommended for triage referrals – see 2.1.1.1, standard 2, patients with pigmented lesions for diagnosis) but only a trained and competent person should use a dermatoscope and a standard macro photograph should always accompany a dermoscopic image.

Rationale

The use of a dermatoscope is widely accepted as increasing diagnostic accuracy of skin malignancy, but a period of training is needed before an operator can use it effectively.[1]

5.1.5 Photographing inflammatory skin conditions

In the case of a rash each session should include:

• A wider, regional view or series of views to illustrate the general distribution and symmetry and

• A number of detailed macro views to show detailed, textural features of the condition.

Rationale

See the photography protocol at appendix E for fuller guidance.

5.1.6 Facilities and further equipment needed for producing images

Further equipment may include:

• A dermatoscope for skin lesion referrals – essential where teledermatology is being used as an alternative to face-to-face consultation, as discussed in standard 2 recommendations: Patients with skin lesions: important principles.

No special facilities are required beyond those usually found in a consulting room:

• A reasonable level of ambient light (ideally approximately 25-40 lux)

• Space for the patient to remove clothing.

Rationale

Taking good images is dependent on learned skills and taking the correct views. It requires an adequate camera and may require a dermatoscope. Body views benefit from studio lighting, but that is not possible in the GP setting.

5.1.7 Encryption, downloading, processing, reviewing, storing and handling images

5.1.7.1 Encryption of images

Images should be transmitted electronically using the level of encryption equivalent to that required by the NHS Information Governance data encryption standards (http://tinyurl.com/am9c5g9)

Rationale

Patients need to be sure that images are suitably encrypted and will not be accessible to other third parties. Standard 7 considers information governance.

5.1.7.2 Reviewing the images in primary care

All images should be reviewed on a computer monitor by a member of the primary care team before sending for quality assurance and to ensure a match with the clinical record. The identity of the person performing this check should be recorded for audit purposes.

Rationale

A simple visual check ensures that any technical failures are noted before the referral has been sent.

5.1.7.3 Download and storage in primary and specialist care

Images should be downloaded to a secure, backed-up server and stored within a file structure that identifies each individual patient and, within that, each event.

Rationale

For more information on record keeping and storage see standard 7.

5.1.7.4 Image processing

Post-capture processing of images, through image editing software, such as Adobe Photoshop should be avoided unless part of a planned image management workflow, initiated and overseen by an imaging professional. Any processed or enhanced images must be saved as copies, with the original, unprocessed image available for auditing.

Rationale

The original image must be retained as the first reference point for accurate diagnosis, future clinical reference and audit purposes.

5.1.7.5 Image reviewing in specialist care

The viewing monitor in specialist care should meet basic specifications:

• Monitor less than five years old

• 1280 x 1024 resolution

• Basic colour setup using monitors own system to the above settings

• Reviewer software should allow brightness control, magnification and rotation.

Rationale

A substandard monitor could compromise the viewing of the image and increase the difficulty of diagnosis.

5.1.7.6 Image handling in specialist care

Images manipulated in any software program must not be saved over the original file, but can be saved as a copy.

Rationale

The original image should always be retained for future clinical reference and audit purposes.

5.2 Implications for commissioning

5.2.1

A teledermatology service requires the use of a digital camera meeting the minimum specifications.

5.2.2

Use of a dermatoscope should be considered an essential supplement to digital images where pigmented skin lesions are referred via teledermatology as an alternative to a face-to-face consultation.

5.2.3

Ongoing feedback from the reporting clinician regarding the quality of the teledermatology referral (both history and images) should be built into the service.

5.3 Key performance indicator

5.3.1

Minimal number of referrals returned due to incomplete patient demographic data/ inadequate clinical history/poor quality images. (Standard: <15%).

5.4 References

1. National Institute for Health and Clinical Excellence (2006): *Improving Outcomes for People with Skin Tumours including Melanoma: The Manual.* London: National Institute for Health and Clinical Excellence. (Available at http://tinyurl.com/alrlkzu)

5.5 Further reading

Bhatia A, Kostuchenko P and Greenwood P. (2002): Digital Cameras: Still Photography and Video Imaging in Teledermatology, in Wootton R and Oakley A (eds) *Teledermatology.* London: Royal Society of Medicine Press, pp. 41--55.

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Whitehouse RW (2002): Digital Imaging, Wootton R and Oakley A, eds. *Teledermatology*. London: Royal Society of Medicine Press, pp. 11-26.

Standard 6 Communication between referring and reporting clinicians

This standard recommends ways to provide safe and effective communication between the referring clinician and reporting specialist providing the teledermatology opinion.

6.1 Recommendations

6.1.1 The referral process

The referral should be received in a timely fashion and in a suitable format for the specialist to use. (The content of the teledermatology referral – both images and patient history – is covered in detail in standard 5).

To ensure a safe and fast referral:

• A patient identifier, which could be the NHS number (or in Scotland the CHI number), should be linked to the image

• The referral should be logged by both sender and recipient so that an audit trail can be established using an identifier of the episode in both settings

• It should be possible at any time to identify where the referral is in the system

• All communications should be secure (this is dealt with in more detail in standard 7)

• The information and images provided with the referral should be as outlined in standard 5.

Rationale

This form of electronic referral has no ongoing patient input (eg receiving an appointment date) and without checks any break in the chain of communication could go unnoticed by both referring clinician and reporting specialist as well as by the patient. It is the referrer's responsibility to ensure that the referral is received and any advised outcome actioned.

The linking of the correct patient's image to the referral form is an area in which there is potential for human error which could, in the absence of a face-to-face interview, go undetected.[1, 2]

More information is required in the initial referral than would be given regarding a face-to-face consultation because the clinical history replaces a conversation with the absent patient.

6.1.2 Reporting specialist's response to the referral

Responses should be:

• Given within an agreed timescale as set out by the service specification and contractual process

• Structured to deliver maximum information and education to the referring clinician to enhance the delivery of high-quality patient care

• Processed so that the specialist service retains a record of the episode.

The response should be structured to match the purpose of the referral model, ie triage, full teledermatology and intermediate teledermatology (these models are explained in standard 1: Types of teledermatology service and their role in care pathways).

Triage

This model will result in a face-to-face consultation and its main purpose is to direct the patient to the most appropriate service. The response of the reporting specialist should state:

• The outcome of the triage, eg outpatient appointment, minor surgery listing

• The timeframe of that outcome if triage is being used to prioritise waiting times

• What further action is recommended, eg specific treatment or investigation by the referring clinician.

Full and intermediate teledermatology

The purpose of these types of teledermatology varies between different models of care. As they may not result in a face-to-face consultation, extra care is required in the detail of the response, which should include:

• A management plan and differential diagnosis

• If required, arrangements for the onward referral to another specialist; this may involve the referring clinician in offering choices to the patient

• Where the referring clinician will be continuing the clinical care, educational materials for both referrer and patient where appropriate and if available.

If no diagnosis or management plan can be given after the teledermatology referral, the referring clinician should be informed and will need to consider alternative options for a specialist opinion. This form of response should also include feedback as to why the referral is unsuitable, eg poor-quality image, patient unsuitable for teledermatology (see standard 6: Feedback on the quality of the referral).

If a diagnosis of possible skin malignancy or other urgent diagnosis is made, communication to the referring clinician should be appropriately rapid, so that the patient can be informed and appropriate action taken.

Rationale

Although a teledermatology consultation may be shorter than a face-to-face one, it requires at least the same level of care and attention to detail in its response.

In the absence of a face-to-face consultation with a skin specialist, the referring clinician is acting as a proxy in delivering the diagnosis and management plan and requires sufficient information to do this effectively and safely.

Sources of further online patient information can be used to supplement patient care in similar ways to the use of written patient information leaflets in a face-to-face consultation, thereby optimising care. Educational materials for the referring clinician are also important so that the service provides education. Feedback on the quality of the referral is intended to increase the value of the service over time.[3, 4]

6.1.3 The outcome and follow-up

The outcome of the referral should be clearly communicated to the referring clinician to ensure a smooth pathway of care for the patient.

All recommendations regarding management within primary care should be detailed and should include guidance about follow-up and an indication as to when/in what circumstances further specialist advice may be needed.

Communication about the outcome and any related information should be sent back to the referrer electronically. It is then the responsibility of the referring clinician to inform the patient of the outcome of the teledermatology referral. An agreed process for implementing the management plan, including any responsibility for prescribing and follow-up, should be made explicit to the patient at the point of referral.

Rationale

It would not usually be appropriate to copy the outcome of the teledermatology event to the patient unless they have specifically requested this (see 3.1.2). Although this is common practice after face-to-face consultations, with teledermatology the patient has had no opportunity to talk to the specialist or clarify points of concern, so to receive communication from the reporting specialist relating to the teledermatology event could be confusing or distressing.

If the outcome of the teledermatology consultation suggested is onward referral, eg to a plastic surgeon, the referring clinician will normally be responsible for this unless specified otherwise in a commissioned process. If direct onward referral is commissioned, it must include notifying the patient of the need for onward referral. A copy of the referral should be sent to the original referrer. This is the responsibility of the specialist reporting service.

6.1.4 Alert system for a break in the teledermatology pathway

There must be a robust system for dealing with the results of the teledermatology referral when it is received back by the referring clinician either electronically or on paper. The referring clinician and reporting specialist may wish to agree a system whereby the patient is notified when the teldermatology episode is complete and the report has been sent to the GP.

Rationale

There is a significant risk with remote consultation methods that errors of omission creep in, and at every stage the referrer and patient need to know that the referral is progressing.

In primary care, all communication from specialists in whatever format they are received, should be seen by a doctor who decides whether any further action is required. This again is a point of potential risk and one where the responsibility needs to be clearly defined. Involving the patient by the specialist reporting service notifying them when the teledermatology episode has been completed provides an opportunity for the patient to contact their GP, so acting as a further safeguard.[5, 6]

6.1.5 Feedback on the quality of the referral

The response of the reporting specialist should include feedback on the quality of the images and related information. If a diagnosis or accurate differential diagnosis is not possible because of a lack of clinical data or poor image quality, the reporting clinician should return the referral within a specified time and ask for more information/better-quality images.

Rationale

This feedback is essential not just for high-quality care but also to ensure that teledermatology operates in a cost and time-effective way.

6.2 Implications for commissioning

6.2.1

Commissioners should ensure there are no breaks in the communication pathway between the referring clinician and reporting specialist and that the information collected and stored is comparable with a face-to-face consultation.

6.2.2

Commissioners need to be aware that in teledermatology services, the referring clinician often acts as a proxy for the reporting specialist in providing the patient with their diagnosis and management plan. This means that the service provides a very different patient experience from a traditional face-to-face consultation.

6.2.3

Commissioners must feel confident that the reporting specialist provides the referring clinician with enough information to act in this proxy role.

6.2.4

Commissioners should ensure that there are robust mechanisms for tracking the referral and the outcome at all stages.

6.3 Key performance indicator

6.3.1

Providers of services for teledermatology should be able to demonstrate a complete electronic pathway with appropriate logging and receipt points. The audit should also include evidence of the reliability of the patient identification and the timeframe within which the result is reported back to the referrer.

6.3.2

Patient records of the referring clinician to include received response from the reviewing clinician and a full note of the outcome of the teledermatology referral (standard: 100%).

6.4 References

1. GMC (2006) Good Medical Practice. London: GMC Paragraphs 50-53 Sharing Information with Colleagues. (Available at http://tinyurl.com/yk5c9vu)
2. GMC (2006) Good Medical Practice. London: GMC Paragraphs 54-55 Delegation and Referral. (Available at http://tinyurl.com/yk5c9vu)
3. General Medical Council Statements (2009): Joint Statement of the GMC and the Regulation and Quality Improvement Authority (RQIA) on the Regulation of Doctors Providing Telemedicne Services to Patients in the UK. (Available at http://tinyurl.com/az67qks)
4. General Medical Council (2010): Public Consultation on the Future of Electronic Commerce (2000/31/EC), 5 November 2010. (Available at http://tinyurl.com/bjcxznx)
5. Medical Protection Society (2011): Common Problems - Managing Risks in General Practice. (Available at http://tinyurl.com/aerjta6)
6. Medical Protection Society (2011): Common Problems - Managing Risks in Hospital Practice' (Available at http://tinyurl.com/a8aax3a)

Standard 7
Information governance and record keeping

This standard explains the duty of all healthcare professionals to handle 'information in a confidential and secure manner to appropriate ethical and quality standards'[1] and explains how best to store teledermatology records.

7.1 Recommendations

7.1.1 Principles of information governance

Data (including digital images) should be obtained, recorded, held, altered, retrieved, transferred, destroyed or disclosed in accordance with the Common Law Duty of Confidentiality,[2] the Caldicott Guidance,[3] the Data Protection Act 1998 and other national and professional guidance.

Rationale

The principles of information governance and guidance on handling personal data, which includes digital images and information, are covered in full in standard 8 of the Quality Standards for Dermatology, which was published by Primary Care Commissioning in 2011.[5]

7.1.2 Safeguarding digital equipment and security

All healthcare providers offering teledermatology services should have policies and procedures in place to ensure:

• The safety, security and effectiveness of equipment through ongoing support and maintenance and

• The electronic security of data.

They should also ensure compliance with all relevant safety laws, regulations and codes for technology and technical safety and have infection control policies and procedures in place for the use of teledermatology equipment and patient peripherals.

Rationale

Closely related to this is the need for ongoing training to ensure the competence of anyone who operates the equipment or is responsible for processing the resultant images and information. This is covered in standard 5.

7.1.3 Ensuring data is transferred securely

Data may be transferred using various forms of media including email, Choose and Book, or through private company websites.

All data should be encrypted to ensure protection. Both referring and reporting services need to use the same level and type of encryption to enable ease of data transfer.

Rationale

All such communications form part of the patient record and are potentially legal documents. It is essential that every organisation providing NHS services meets its Information Governance Statement of Compliance[1,6] obligations to the required standards to safeguard NHS services. Data protection[4] and human rights legislation, combined with case law on confidentiality, provide considerable protection for patient information.[7,3]

7.1.4 Compatibility of systems

The teledermatology system must integrate easily with the GP practice IT systems and patient record. Equally important, if a face-to-face hospital consultation is subsequently required, is the ability to integrate the teledermatology referral into the hospital records. Where the teledermatology provider is not the same as the referral destination for a face-to-face consultation, this will require the referring clinician to duplicate the record within the referral.

Rationale

Full integration of the teledermatology system with the GP practice IT systems and patient record should allow direct transfer of patient demographics and GP details to the referral.

The Choose and Book advice and guidance service is fully integrated with both GP systems and most provider patient administration systems (PAS).

7.1.5 Storage of data

The teledermatology referral and the image form part of the patient's records in the same way as a referral and notes for outpatient attendance would and it is equally important that they be retained. Images and text should be easily accessible by patient identity or by episode identity to both the referring and reporting clinicians as part of ongoing exchanges around a specific referral for the recommended time.[6]

The referral and outcome letter and preferably the image should be held in the patient's full records. Where patients have paper records, contributions to their care from teledermatology should be printed for inclusion in the notes, but electronic storage is recommended for photographs (facilitated where necessary through liaison with departments of medical illustration). Images should not be stored unencrypted on individual personal computers or memory sticks or other portable media.

The data should be backed up externally, preferably by transfer of files onto a central server that is backed up regularly. A further back-up option would be to send the data to a third party (eg Choose and Book or an independent teledermatology provider).

Electronic linkage in specialist care should be through the electronic patient record (EPR), where available. Other options might allow integration with departments of medical illustration.

Any electronic storage system should be structured to enable data searching for audit (see standard 7: Maintaining archived records in an accessible format).

Rationale

The referral and outcome may be directly relevant to other health providers, and if the patient is attending other specialists, this information must be available to them as well. Using independent providers for the teledermatology service can make this level of record keeping hard to achieve.

All networks, PCs and back-up media holding patient data should fulfil the requirements of the Data Protection Act 1998.[4]

All confidential information should be transferred to safe havens,[8] where information can be received and stored securely.

Data must remain retrievable for reasons of potential clinical need, audit and medical defence.

7.1.5.1 Creating searchable records

For the purposes of audit and research it is important that teledermatology records are stored so as to be searchable in a variety of ways. For example:

By demography, ie by patient:

• Patient identifier

• Patient gender

• Patient age

• Patient ethnicity

By outcome, ie:

• Diagnosis (differential diagnosis, disease category, management plan category)

• Advised outcome (pathway of care advised by reporting clinician)

• Final outcome (subsequent patient pathways for the same conditions within six months, eg face-to-face referral in specialist care, GPwSI referral, skin surgery, etc.).

By time, ie:

• Date of referral

• Turnaround time.

By medical team, ie:

• Referring clinician

• Photographer

• Reporting specialist.

Rationale

The above is a minimum to allow basic audit. It would be desirable to add fields for feedback to be used within an audit framework, such as quality of image, value of the patient history provided, educational value of feedback, clinical value of feedback, patient feedback, and so on.

7.1.6 Maintaining archived records in an accessible format

All teledermatology records should remain accessible for audit or clinical review by both referring clinician and reporting specialist, in primary and specialist care and should be retained for the duration of the patient record and for time periods required by national guidance (GP records lifetime, hospital records 20 years) for purposes of comparative audit.

Rationale

To monitor and maintain standards it is important that both the referring and the reporting services are able to audit the process. The quality indicators may be different for each, such that a primary care service may want to audit how quickly the responses were provided and a specialist care service may want to audit the quality of the submitted images or histories, for example. Effective audit demands that each service has full access to a format that allows this scrutiny.

7.1.6.1 Ensuring archived records are accessible within and without the patient medical record

Teledermatology records should be accessible in two ways:

• Within the patient record – the teledermatology record (including the image) is an important part of the patient's clinical history and should always be archived with a link to the patient record so it can be accessed from there

• Without the patient record – the teledermatology record should also be available in a standalone format defined by specific data fields (excluding patient name) so they can be scrutinised independently of the patient record.

Rationale

The teledermatology record – and the images in particular – are needed within the patient record as a clinical reference of the disease at the time of the consultation and are important as part of the tracking of progress. For them to be stored with no link to the clinical record makes them vulnerable to loss from the record in subsequent care or legal challenge.

However, if teledermatology episodes are recorded solely within the patient record, there is a risk it will be difficult or impossible to look at them without going through individual patient records. This would be a significant obstacle to audit of a total service and could also be a data protection issue, particularly if the person conducting the audit was not a clinician. For these reasons the record of each episode should be stored in a format that allows independent scrutiny and analysis based on fields within the data (so it is possible, for example, to work out what fraction of patients required a subsequent hospital visit and to analyse this group in relation to their proposed diagnosis, disease category or demographic).[9]

7.1.7 Information for patients

All patients should have access to information about how their data is being used and safeguarded and how they may access the data held on them.

Rationale

This information should be given to the patient as part of the process of consent for teledermatology covered in standard 3.

7.2 Implications for commissioning

7.2.1

Accreditation and commissioning of a teledermatology service should include assurance that data protection is complete at all stages of the service process.

7.2.2

Consideration should be given to the volume of data generated by teledermatology and any accredited teledermatology service should give an assurance that data is stored in a secure manner by both provider and referrer and are accessible as required.

7.3 Key performance indicators

7.3.1

Service providers have an information governance policy in place to ensure that legal and national guidelines and the provisions of the Data Protection Act 1998 are followed with regard to the use of teledermatology (Standard: 100%).

7.3.2

All images are transferred using encryption equivalent to that required by the NHS Information Governance data encryption standards.[10] (Standard 100%).

7.3.3

The teledermatology system is compatible with both primary and specialist care computer systems. (Standard: 100%).

7.3.4

The teledermatology service record-keeping and storage practices allow for each episode to be audited within both primary and specialist care as well as for individual patient outcomes. (Standard: 100%).

7.4 References

1. NHS Connecting for Health (nd): *The Information Governance Assurance Programme and Framework.* (Available at http://tinyurl.com/yeutqb6)

2. Department of Health (2003): *Confidentiality: NHS Code of Practice.* London: Department of Health. Gateway reference 1656. (Available at http://tinyurl.com/4wuhz)

3. Department of Health (2010): *Caldicott Guardian Manual 2010.* Gateway reference 14043. (Available at http://tinyurl.com/3ya4ea6)

4. The Data Protection Act 1998. London: The Stationery Office. (Available at http://tinyurl.com/2c26dx8)

5. *Quality Standards for Dermatology: Providing the Right Care for People with Skin Conditions* (2011). (Available at http://bit.ly/VayyN2)

6. Department of Health (2006): *Records Management: NHS Code of Practice Part 1: For the Functional and Operational Management of Clinical Records.* Gateway reference 6295. (Available at http://tinyurl.com/2wwle5)

7. Best practice guidance for information security within Choose and Book is available at http://tinyurl.com/bfus74k

8. NHS Connecting for Health (nd) *Safe Haven* (download). (Available at http://tinyurl.com/b4xnsop)

9. NHS Connecting for Health (nd): The Information Governance Assurance Programme and Framework. (Available at http://tinyurl.com/yeutqb6)

10. NHS Connecting for Health (nd) Principles of Information Security. (Available at http://tinyurl.com/bxrv8gm)

Standard 8
Audit and quality control

This standard follows a different format. It proposes practical ways to audit the teledermatology service over time to demonstrate its quality. The audit points map to the standards set out earlier in this document.

A system of regular audit, the results of which are disseminated to all staff, plays an important role in clinical governance. There should also be, within the service, a mechanism for clinical incident reporting. An annual report including an account of the annual audit, clinical incidents and relevant corrective action plans should be available for commissioners, providers and service users.

It is expected that all teledermatology services will complete at least one audit and one patient survey every 12 months and report the results to all members of the service. Where an audit loop is being closed through repeat of a previous audit, this should be undertaken as well as a further new audit area for that year.

For ease of reference, the audit measures are grouped into six areas as follows.

> **8.1.1 Views and feedback from service users: the patient survey**
>
> **8.1.2 Quality of teledermatology referrals**
>
> **8.1.3 Communication between healthcare professionals**
>
> **8.1.4 Training and continuing professional development (CPD)**
>
> **8.1.5 Organisation, storage and retrieval of data**
>
> **8.1.6 Auditing the audit process**

Suggested audit methodology and standards for these areas are described below. The basic methodology for the service user audit requires feedback from 50 patients and, where clinical episodes are being evaluated, a review of 100 consecutive referrals to the teledermatology service is recommended. The latter must be without bias with respect to the referring clinician or the reporting specialist. Also, ideally, an assessment of clinical expertise should be performed which compares teledermatology with the 'gold standard' of a face-to-face consultation. This is to ensure that the absence of the patient from the clinical assessment does not allow errors, misunderstandings and delays in management to arise. Processes to evaluate clinical expertise are difficult to implement in busy day-to-day clinical practice. Appendix F suggests ways in which clinical expertise might be measured in a teledermatology service.

8.1 Audit measures

This section describes practical audit measures that are recommended and the expected standard that should be achieved (either as a 'yes/no' response or as a percentage). Where possible, cross-references to the recommendations are given in brackets.

8.1.1 Views and feedback from service users: the patient survey

Patient feedback and a patient survey are vital tools in maintaining a high-quality service and should be considered central to the audit process.

Methodology

A sample of consecutive patients should be undertaken annually to yield at least 50 respondents concerning their experience of the service. The results should be shared between primary and specialist care. Although questions can be taken from the national patient experience questionnaire to enable comparison with face-to-face services, it may be more helpful to use a more specific questionnaire.

The survey should include the following questions where they are relevant to the care pathway, with gradable responses, ie a choice between agree, don't know and disagree:

• Were you given a leaflet explaining the teledermatology process when it was offered to you?

• Did you fully understand the process – and your right to choose not to have teledermatology – before you signed the consent form?

• During the photography session did you feel you were treated with dignity and your privacy was respected?

• For patients with suspected basal cell carcinoma who are triaged directly to surgery: Were you given written information about your surgery that included: name and contact details of the clinician in charge of your care, a leaflet describing the type of surgery, instructions on how to get to the clinic or hospital and what aftercare you will need?

• For all patients triaged directly to surgery: Were you offered the option of a clinic appointment before your surgery to discuss the procedure and any concerns you might have had?

Specific measures

• Audit: Is user feedback sought annually and monitored to improve the service and highlight any areas for concern?

• Standard: Yes (mandatory)

• Audit: Is there a feedback mechanism easily accessible to each user throughout the teledermatology process?

• Standard: Yes

8.1.2 Quality of teledermatology referrals

Methodology

A review of 100 consecutive referrals should be completed to assess the following:

Is demographic data for each patient complete (5.1.1)?

   • Audit: All demographic data should be completed

   • Standard: 95%.

Is the clinical history for each patient complete, as required by the type of referral (5.1.1)?

   • Audit: Patient history should be evaluated through feedback from reporting clinicians to ensure it contains all elements specified at 5.1.1 for the referral type.

   • Standard: 80% should score satisfactory or better.

Does the image set contain a unique patient identifier specific to the clinical episode (5.1.3.7)?

- Audit: Each package of images in each referral to determine presence of identifier image
- Standard: 100% of referrals should have an identifier linked to the images.

Do photographs of lesions conform to the standard views of context (mid-close up), macro and dermoscopic if appropriate (5.1.4)?

- Audit: Review images sent for the evaluation of lesions
- Standard: 95% should meet technical requirements of medical images.

Are photographs taken and processed to the standards specified (5.1.3.2—5.1.3.6)?

- Audit: Review images – are they technically adequate to allow the reporting clinician to give a clinical opinion?
- Standard: 95% of images should be of acceptable quality and be clinically relevant in the context of the history and information provided.

Is it possible to identify the photographer of the images to provide feedback on substandard images?

- Audit: Review of all sub-standard images to see whether feedback has been provided about the image quality to the photographer
- Standard: 100% of such referrals should receive feedback from the reporting clinician about the image quality.

8.1.3 Communication between healthcare professionals

Methodology

A review of 100 consecutive referrals should be completed to assess the following:

Does the reporting specialist respond to the referral within a specified timescale (6.1.2)?

- Audit: Time to taken from the point of the referrer uploading the query onto the system to their receipt of the teledermatology response (the time between initial patient consultation and uploading can be assessed separately, but may be recorded outside the teledermatology system)
- Standard: 95% of reports should be provided within the contractually agreed timescale, measured in working days (excluding Saturday, Sunday and bank holidays).

Is there a mechanism in place for urgent clinical review if inadvertently the outcome of the specialist teledermatology consultation indicates risk of clinical emergency (6.1.2)?

- Audit: Review whether patients deemed to need urgent review in the teledermatology report have had it within suggested timescale
- Standard: All cases (100%) designated as needing urgent referral by the teledermatology provider should be identified as such and be managed appropriately.

NB: There may be no urgent cases identified in the 100 consecutive cases. An alternative approach is for providers to log cases requiring urgent review throughout a 12-month period and audit the outcome of these cases.

Do teledermatology responses include links to relevant educational material where appropriate and where it exists (6.1.2, not required for triage teledermatology)?

- Audit: Review how many responses include appropriate links for patient and referring clinician
- Standard: 90% of responses from the reporting specialist should include such links.

8.1.4 Training and continuing professional development (CPD)

These audit measures relate to reporting specialists and will be assessed as part of appraisal and revalidation. The methodology will involve review of the five-year CPD records, which are part of the appraisal documentation.

Are reporting specialists maintaining their competences (4.1.6 – 4.1.7)?

- Audit: Is relevant CPD cited within the five-year cycle of revalidation appraisals, including feedback from the teledermatology service as one of the multisource elements, for all reporting specialists?
- Standard: Yes, for all reporting specialists.

Is relevant training and CPD provided for all clinicians who report on dermoscopic images (2.1.1.1)?

- Audit: Where dermoscopy is part of the teledermatology service, do all clinicians providing an opinion have relevant training and CPD in dermoscopy?
- Standard: All clinicians should show evidence of nationally accredited CPD specific to dermoscopy and the clinical management of pigmented lesions in the five-year revalidation cycle
- Audit: Are all clinicians reporting on dermoscopic images of possible skin cancer, active members of a skin cancer MDT?
- Standard: All clinicians reporting on dermoscopic images of possible skin cancer should show attendance at more than 50% of skin cancer MDT meetings.

Does every reporting specialist provide an annual summary of their teledermatology activity alongside their face-to-face clinical activity as part of their appraisal?

- Audit: Review of reporting specialist's current job plan audit indicating the proportion of work relating to teledermatology and face-to-face consultations.
- Standard: All reporting specialists should be spending the majority of their time undertaking face-face-to consultations.

8.1.5 Organisation, storage and retrieval of data (information governance)

Is signed patient consent identifiable within the record for each teledermatology episode (3.1.3)?

- Audit: Review of 100 consecutive clinical records for evidence of consent process, including the possible opt-out where images should not be used for medical training
- Standard: 100% of records should have evidence of the required consent process.

Is an identifier used for each patient/episode by primary and specialist care (where identity is by episode, patient identity must be traceable through the GP system) (6.1.1, 7.1.5.1)?

- Audit: Review of 100 consecutive cases to establish whether patient or episode identifier is used every time teledermatology is undertaken
- Standard: 100% of cases should reveal patient or episode identifier.

Can the photographer for each dermatology episode be identified (4.1.3)?

- Audit: Review records to identify photographer
- Methodology: review of 100 consecutive records should reveal identity of photographer in every case.)

Can each dermatology episode be tracked as it progresses (6.1.1)?

- Audit: Is the database of teledermatology activity kept in a format that allows tracking of individual referrals? Y/N
- Standard: Such a tracking process should be demonstrable.

Is each episode recorded in a way that allows for retrieval and auditing from within both primary and specialist care as well as for individual patient outcomes (7.1.5), for the required statutory periods?

- Audit: Does the teledermatology service use data fields from 7.1.5.1?
- Standard: Yes
- Audit: Is the database of teledermatology activity kept in a format that allows audit independent of the clinical record?
- Standard: Yes
- Audit: Are the teledermatology records stored with assured access for the required statutory periods (currently an eight-year period or for children until the child reaches 21)?
- Standard: Yes, the process of storage and retrieval should be demonstrable.

Is each episode (including photographs) retrievable for audit from within both primary and specialist care by patient identity or episode identity (7.1.5)?

- Audit: Demonstrate the retrieval of complete teledermatology episodes based on patient ID using 100 consecutive identities of patients who have used the service. How well it can be retrieved should be tested within the GP and provider systems
- Standard: 100% of patient records can be retrieved with episode including the image within the record by the referring clinician and the provider.

8.1.6 Auditing the audit process

It is important to demonstrate active audit of the service and a report containing at least one audit measure should be prepared and presented annually to all involved in delivering teledermatology with feedback to both clinicians and management.
The following is a checklist, which audits the audit process (the answer to all questions should be 'Yes'):

- Is there an audit record for the service, which records: the audits undertaken in both primary and specialist care, their dates, a summary of the methodology, results and action plan, and those who attended? Y/N
- Does at least one audit take place each year? Y/N
- Are all those participating in the teledermatology service included in the audit programme and able to demonstrate implementation of improvements arising from previous audits? Y/N
- Does the service have a record of audits undertaken each year? Y/N
- Is there a record of all those involved in the teledermatology service in all sectors and a description of their roles? Y/N

THE APPENDICES

APPENDIX A
Membership of the project working group

Project working group

Name	Role	Organisation/Region
Julia Schofield	Project lead, Consultant Dermatologist	United Lincolnshire Hospitals NHS Trust
Veronique Bataille	Consultant Dermatologist	West Hertfordshire NHS Hospitals Trust
Carol Blow	GP	RCGP
Rachael Burridge	Programme Manager, Devon Access and Referral Team (DART)	NHS Devon and NHS Torbay
Carolyn Charman	Consultant Dermatologist	Royal Devon and Exeter NHS Foundation Trust; British Teledermatology Society Committee
Todd Chenore	Teledermatology Service Development Manager	Devon PCT
Paul Crompton	Head of Service, Media Resources Centre	Cardiff and Vale University Health Board
David de Berker	Consultant Dermatologist	University Hospitals Bristol, BAD Health Informatics
Elizabeth Derrick	Consultant Dermatologist	Brighton General Hospital; NCRP for Choose and Book
Stephen Foster	National Clinical Lead	Pharmacy
Saul Halpern*	Consultant Dermatologist	British Teledermatology Society Committee
Susan Maguire	Operations Manager	BDNG
Stephen Kownacki	Executive Chair	PCDS
Stephen Lock	Senior Policy Manager	DH
Helen McAteer	Chief Executive	Psoriasis Association
Janet McLelland	Consultant Dermatologist	BAD
Susan Maguire	Operations Manager	BDNG
Colin Morton	Consultant Dermatologist	NHS Forth Valley, Scotland; British Teledermatology Society Committee; Advisor, Scottish Centre for Teledermatology
Elizabeth Ogden	Associate Specialist in Dermatology	East and North Hertfordshire NHS Trust; PCDS Committee
Amanda Roberts	Patient representative	N/A

We would like to thank Stacey Croney for attending as an alternative for Dr Saul Halpern

Appendix B:
Key performance indicators

1.3.1

Evidence of a clear statement of purpose, including a definition of the types of teledermatology used (ie full, triage or intermediate) and the scope of the service offered in any service specification.

1.3.2

Service specification for the model of care should include a full risk assessment including issues of clinical governance and accountability and requirements for audit and clinical incident reporting.

1.3.3

Demonstration of robust links between local primary and specialist services working as major partners in delivery of the teledermatology service.

1.3.4

In those health economies where Payment by Results (PbR) operates, evidence of an agreed tariff in use for the teledermatology service.

2.3.1

Percentage of 'full' teledermatology referrals (ie replacing face-to-face) for pigmented lesion diagnosis that has included a good-quality dermoscopic image (Standard: 95%)

2.3.2

Percentage of responses to the referring clinician within two weeks of the initial teledermatology referrals for 2WW referrals (Standard: 100%).

2.3.3

Percentage of patients triaged directly to skin surgery that have been given adequate pre-operative information and been offered a face-to-face pre-operative discussion with skin specialist or surgeon where necessary (Standard: 95%).

2.3.4

Patient satisfaction with the teledermatology diagnosis and management plan.

3.3.1

Provision of an information leaflet for potential teledermatology patients explaining the nature of the service, with translations as required.(Standard: 95%)

3.3.2

Adherence to local and national guidance to ensure that patient consent to teledermatology is recorded in the referring and reporting clinicians' patient record for all patients (tandard: 95%).

4.3.1

An identified named clinical lead for the service who is on the UK GMC Dermatology Specialist Register and working in active NHS practice.

4.3.2

Evidence that every reporting specialist is working as part of an integrated dermatology service where the commissioned model of care includes support from a consultant dermatologist on the UK GMC Dermatology Specialist Register with a commitment to and ongoing experience in teledermatology.

4.3.3

Evidence that the majority of the reporting clinician's clinical interactions are face-to-face consultations.

4.3.4

Audit and quality control: percentage of staff who are involved in audit and quality control as outlined in standard 8 (Standard: 100%).

5.3.1

Minimal number of referrals returned due to incomplete patient demographic data/ inadequate clinical history/poor quality images (Standard: <15%).

6.3.1

Providers of services for teledermatology should be able to demonstrate a complete electronic pathway with appropriate logging and receipt points. The audit should also include evidence of the reliability of the patient identification and the timeframe within which the result is reported back to the referrer.

6.3.2

Patient records of the referring clinician to include received response from the reporting specialist and a full note of the outcome of the teledermatology referral (Standard: 100%).

7.3.1

Service providers have an information governance policy in place to ensure that legal and national guidelines and the provisions of the Data Protection Act 1998 are followed with regard to the use of teledermatology (Standard: 100%).

7.3.2

All images are transferred using encryption equivalent to that required by the NHS Information Governance data encryption standards (Standard 100%).

7.3.3

The teledermatology system is compatible with both primary and specialist care computer systems (Standard: 100%).

7.3.4

The teledermatology service record-keeping and storage practices allow for each episode to be audited within both primary and specialist care as well as for individual patient outcomes (Standard: 100%).

APPENDIX C
Consent form for the use of digital images with referral for people with skin conditions

Statement of the patient

I confirm that I: _____

• Have had the process of teledermatology explained to me and I have had the opportunity to ask questions about the procedure

• Understand that I have the right to withhold or withdraw my consent at any time without this affecting my right to future care

• Am aware that teledermatology is not always a substitute for seeing a hospital consultant and that there may be a difference between the diagnostic accuracy of a face-to-face consultation and a teledermatology referral

• Understand that the images will be securely stored.

I consent to use of the recordings *(please tick all boxes that apply):*

☐ 1. For medical records only

☐ 2. To teach appropriate professional staff

☐ 3. To inform and educate other patients and their families, to whom the images are relevant

☐ 4. For clinical research and audit

☐ 5. In publications and electronic publication as long as I am not identifiable in the image. If images are potentially identifiable I will be contacted for specific consent before publication

Signature _____ **Date** _____

Name _____

Relationship to patient if signed on behalf of patient _____

Statement of healthcare professional

I have discussed the teledermatology service with the patient and provided them with the opportunity to ask any questions.

Signature _____ **Date** _____

Name _____ **Role** _____

Photographer

Signature _____ **Date** _____

Name _____

APPENDIX D
Competences required for teledermatology roles

Reporting system/referral documentation

- Accurate description of the presenting condition
- Precise documentation of patient history and data
- Understanding of the requirements of data protection.

Technical/device knowledge

- Thorough understanding of the service protocols
- Basic knowledge of the camera and understanding of the appropriate settings for taking teledermatology images
- Able to take a satisfactory image
- Able to connect and disconnect camera to and from the computer and download images.

Image storage/retrieval/transmission

- Able to upload and store image on computer, retrieve as needed and transmit securely as necessary.

Consent taking

- Understands concept of informed consent
- Understands concept of Gillick competence
- Competent to explain procedure a to patient and record consent as appropriate.

Clinical skills and use of correct terminology

- Can identify and correctly describe a lesion
- Can identify and describe differences between lesions.

Communication

- Able to communicate effectively with patients, giving them an appropriate amount of information to help them manage their condition and/or move on to the next level of care.

APPENDIX E
Camera/photographic specifications and photography protocol

Camera/Photographic specifications

Digital cameras range widely in sophistication and price. Cameras in the lower price bracket generally have sufficient resolution and basic image quality but lack the functionality required for reliable photography to support teledermatology.

The specifications outlined in the table below are for an entry-level camera suitable for use by a non-expert photographer for the purposes of teledermatology.

Camera settings	Camera modes of operation often include: manual, automatic, program, preset and scene. A camera with the ability to pre-programme the settings given below into an easily selectable (preset) mode is ideal.

Function	Recommended setting	Rationale
Resolution	Minimum 2000 x 1500 pixels	Images intended for screen viewing need be no larger – most screens are setup to work at a resolution 1280 x 1024.
File format	JPEG: maximum quality/ minimum compression	High-quality JPEG files are the most reliable/transferable in this context. Alternatives such as uncompressed TIFF files will be unnecessarily large, while manufacturers' RAW files need specialist software for interpretation.
File size	N/A	The combination of resolution and file format should produce an image of approximately 800kb, depending on the tone and colour of the image.
Flash	On	Flash is essential to achieve reliable, repeatable illumination. It will also improve recording of subject definition, texture and detail.
Macro	On	Essential for lesion photography. Needs to work with flash. Some super-macro settings do not work with flash. The combination of macro with flash is essential.
Optical zoom setting	Short telephoto setting (100 mm @35 mm equivalent)	Shorter focal lengths will cause visual distortion in pictures of the face and close-up images.
White balance	Automatic	Modern digital cameras have excellent automatic white balance features, which will balance mixed flash and available light sources.

Function	Recommended setting	Rationale
Colour space	sRGB	sRGB is the default setting for use on personal computer monitors so should be used in the camera if the option is available. Adobe RGB (1998) is a more refined colour space used in professional image systems and could be used if the reviewer is using a system colour calibrated to Adobe 1998.
Autofocus	On	Intelligent/dynamic auto-focus should be selected if available.
Exposure control	Program setting	Exposure will essentially be controlled by the flash output. However, a program setting can be selected. Shutter priority preferred to aperture priority. Full auto programs are likely to override pre-sets for colour balance and sensitivity.
Advisable settings, depending on camera functionality		
The ability to select individual settings for shutter speed/aperture will depend on the functionality of the camera.		
ISO (sensitivity)	400	If these are controllable these settings can be recommended when used with a programmed flash exposure.
Shutter speed	1/50th sec	
Aperture	F5.6	

Photography protocol

1. Patient consents to teledermatology process.

2. Photography session.

Patient identification shot

To avoid risk of misidentification, each individual patient session should begin and end with a photograph to identify the patient. Take one photograph of something to identify the images as belonging to an individual patient, eg unique identification number. This should not be a full set of patient identifiable data (PID). Repeat at the end of the individual patient session.

Backgrounds

A neutral coloured, plain background, such as a dressing towel, should be used to isolate the subject from any distractions.

Photographing lesions

- Produce a mid-close-up image to include some anatomical marker, establishing the location and providing some general context for the lesion
- Produce at least one macro (close-up) image of the lesion. A second photograph can be taken from a different angle to supplement this. A further image, with a centimetre scale can also be taken. A close-up without a scale is important, as scales will cover an area of the surrounding skin and could hide some salient features

- Where there are multiple lesions or where a lesion is not obvious, the area can be identified on the skin using surgical tape, sticky label or a washable marker (an alternative would be to add a circle, box, arrow or number markers to the digital image, if the program permits).

Photographing rashes

- A wider, regional view, or series of views, is useful in illustrating the general distribution
- A number of detailed macro views are useful in illustrating the detailed, textural features of the condition.

3. Download and store the images within the practice

- Images should be downloaded to a secure, backed-up server and stored within a file structure that identifies each individual patient, and, within that, each episode
- Where possible, images should be attached to the patient's individual electronic practice record
- Images should not be duplicated, so if images are stored in the record, the original downloads can be deleted. Care should be taken to ensure the image itself and not simply the path to the downloaded image is stored
- Images should not be stored in the practice on unencrypted individual personal computers or on memory sticks or other portable media, such as CDs/DVDs
- Post-capture processing of images, through image editing software, such as Adobe Photoshop should be avoided unless it is part of a planned image management workflow, initiated and overseen by an imaging professional.

4. Storage and retrieval by the reviewer

- Images should be stored with their referrals in a searchable retrieval system, with each patient and patient event identifiable. Care should be taken with the storage of PID. If an email system is used, the subject line must not contain a full set of PID
- All systems must be password protected and any storage on portable media must be encrypted.

5. Image viewing

Ideal specification

- Graphics monitor
- Viewing monitors should be less than five years old
- Working at a resolution around 1280 x 1024
- Working in sRGB or Adobe RGB colour space, selected dependant upon the camera setting used (see appendix Z)
- Working at a gamma of 2.2
- Calibrated for colour (colour temperature 5500k - daylight), brightness and contrast using a professional calibration system, with calibration repeated every two months.

Basic specification
- Monitor less than five years old
- 1280 x 1024 resolution
- Basic colour set-up using the monitor's own system to the above settings.

6. Reviewer software should:

- Allow brightness control, magnification and rotation
- Include at least basic image viewing programs, eg Microsoft Windows Preview or Apple Preview (specialist imaging software such as Adobe Photoshop will give more functionality but should be used with care so as not to distort the original image)
- Not allow images manipulated in any software program to be saved over the original file, although these can be saved as a copy.

7. The response of the reporting clinician should ideally include feedback on the quality of the images and related information. If a management plan is not possible because of lack of clinical data or poor image quality the clinician assessing the images should return the referral within a specified time and ask for more information and/or better quality images.

Appendix F
Suggested audit/assessment measures for clinical expertise in teledermatology

Teledermatology is a variant of dermatological practice and expertise not currently within the curriculum for accreditation as a consultant dermatologist, specialty doctor or GPwSI. It demands both expertise within the dermatology curriculum and an awareness of the limitations of the medium of teledermatology.

It is possible to assess the competence of an individual to provide a high level of personal judgement within teledermatology. To record the result of this assessment could provide an extra measure of quality within a service, and such assessments could be incorporated into a commissioning framework. There might also be circumstances where individuals or teams could undertake a benchmarking exercise concerning their personal teledermatology judgements.

The necessity for this type of assessment is greater in a full teledermatology service, where teledermatology substitutes for a face-to-face consultation than in a triage service, where patients may be seen face-to-face in due course.

So the expertise of teledermatology assessment by an individual might be most usefully undertaken in the following circumstances:

1. As part of a voluntary element of self-directed learning (incorporated into appraisal)

2. As a team exercise within a teledermatology service to ensure consistency and high standards within that service

3. As a requirement where a lesion service is being commissioned that involves direct discharge without a subsequent face-to-face consultation. In this setting there is the need to avoid false negative clinical judgements (ie reporting a melanoma as a benign mole).

Methods to assess clinical expertise are drawn from the teledermatology research literature[1-4] where the three main controls are:

• Comparison with face-to-face consultation

• Comparison with histological diagnosis

• Comparison with other teledermatology consultations with the same data input.

The following examples show how these models can be adopted.
They are described in outline only and are open to local adaptation.

I. Twenty consecutive cases a year should be sent to another reporting clinician blinded to the initial report for a second opinion.

Rationale

There is a model of quality assurance used within pathology services,[5] where a sample that is determined to have defined characteristics (eg a histological section of a basal cell carcinoma) is sent to participating group of histopathologists with a brief history. Their report is then compared with the defined standard and with those of colleagues. The image and history of a teledermatology referral can be handled in the same way. If a random sample of teledermatology cases were taken for corroboration with colleagues, it would be expected that there would be approximately 80% agreement (in management plan) as there is in normal clinical practice.

II. Where the first level of assessment has demonstrated a <75% corroboration between two reporting clinicians and the sample clinician, teledermatology should be assessed against face-to-face consultations.

Rationale

Teledermatology has been tested with parallel face-to-face consultations as a validation technique, as has been reported in many publications. However, such testing is expensive and is therefore not part of a routine teledermatology service. One example would be for 20 patients to have immediate clinic appointments following a teledermatology assessment based on the normal history and photographic protocols for that service. The sampled clinician would report the teledermatology consultation, then see the patient and provide a normal clinical consultation. An assessing clinician would repeat the same two activities, making possible a four-way comparison process:

• Sampled reporting clinician (teledermatology): sampled reporting clinician (face to face)

• Sampled reporting clinician (teledermatology): assessing clinician (face to face)

• Sampled reporting clinician (teledermatology): assessing clinician (teledermatology)

• Sampled reporting clinician (face to face): assessing clinician (face to face)

III. Where lesions are concerned, 20 consecutive lesions per clinician should be selected for corroboration. Method I could be used initially, but method II should be used if any of the management decisions are seen to differ in a manner that might lead to patient harm (ie one clinician advising excision and another advising discharge). Increasing the number of clinicians in the quality assurance exercise will increase the validity of the exercise.

IV. In any of the corroboration activities, where there is the risk that, because of a clinical disagreement, a patient could come to serious harm, that patient should be recalled for a face-to-face consultation for further opinion.

Rationale

If there is a possibility that a specific patient could suffer an adverse outcome as a result of a mistaken teledermatology opinion, then the patient should be reassessed using the gold standard of a face-to-face consultation (unless subsequent information since the teledermatology episode has clarified the situation).

V. Where excision or diagnostic biopsy is advised, there should be an audit of clinical diagnosis and certainty against histological diagnosis.

Rationale

Histopathology is one of the most secure means of establishing a diagnosis, specifically for excision biopsy of lesions and, to a lesser extent, for incision biopsies and rashes. To make this quality control measure possible, it is necessary for the patient identity details to be retained by the specialist care teledermatology provider in connection with the teledermatology episode. This will make it possible to search for histology results in those designated to have histopathology.[5]

7.4 References

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2. Warshaw EM, Hillman YJ, Greer NL, Hagel EM, MacDonald R, Rutks IR and Wilt TJ (2011): Teledermatology for Diagnosis and Management of Skin Conditions: A systematic Review, Journal of the American Academy of Dermatologists 64(4): 759--772

3. Eminovi N, de Keizer NF, Bindels PJ and Hasman A. (2007): Maturity of Teledermatology Evaluation Research: A Systematic Literature Review, British Journal of Dermatology 156(3): 412--419

4. Lowitt MH, Kessler II, Kaufman CL, Hooper FJ, Siegel E and Burnett JW (1998): Teledermatology and In-person Examinations: A Comparison of Patient and Physician Perceptions and Diagnostic Agreement', Archives of Dermatology 134: 471--647

5. Clinical Pathology Accreditation (UK) Ltd (www.cpa-uk.co.uk/).

Glossary of abbreviations

2WW	Two-week wait (referral process)
BAD	British Association of Dermatologists
BDNG	British Dermatological Nursing Group
BSPD	British Society for Paediatric Dermatology
CHI	Community Health Index (CHI number is Scottish equivalent of NHS number)
DH	Department of Health
EPR	Electronic patient record
GMC	General Medical Council
GP	General practitioner
GPwSI	General practitioner with a special interest
MDT	Multidisciplinary team
MM	Malignant melanoma
NCRP	National Clinical Reference Panel
NICE	National Institute for Health and Clinical Excellence
PAS	Patient administration system
PbR	Payment by Results
PCDS	Primary Care Dermatology Society
PID	Patient identifiable data
RCGP	Royal College of General Practitioners
RPS	Royal Pharmaceutical Society
SCC	Squamous cell carcinomas