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Teledermoscopy as a community based diagnostic test in the era of COVID-19?

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Teledermatology has seen an explosion in recent years, with 26% of dermatology departments across the UK offering some form of virtual clinic.¹ This rapid evolution has been further hastened by the COVID-19 pandemic, during which the number of patients seen in face-to-face (FTF) clinics has been limited due to social distancing measures, which are likely to stay in place for the foreseeable future. There is, therefore, a need for an innovative way to ensure that these limited places are allocated carefully to those who really need to be seen FTF. Studies agree that including dermoscopic images in a teleconsultation improve the reliability of telediagnoses, reportedly improving both sensitivity and specificity.^{2,3} Other studies have found that interobserver concordance when using teledermoscopy is moderate to excellent,^{4,5} except for very difficult lesions. We would like to share our departmental experience of using a high-quality teledermoscopy service for urgent suspected skin cancers and routine lesion referrals over a period of 12 months in 2019.

We cater to a population size of approximately 600 000 people, and 12 253 lesion referrals were received by our department in 2019. Urgent suspected skin cancer and routine lesion referrals from primary care were triaged for their suitability for a teledermatology clinic, during which high-quality clinical photographs and dermoscopic images are taken by clinical photographers. Referrals considered unsuitable included genital lesions, hair-bearing skin and subcutaneous lesions. As we cover a wide geographical area, one of the advantages of our service was in establishing medical photography clinics in peripheral hubs, which did not traditionally offer dermatology services, thereby lessening travel time for patients.

In total, 4589 patients with skin lesions were seen in the teledermatology clinic in 2019. Photographs (D33S camera; Nikon, Tokyo, Japan) and dermoscopic images (DELTA 20T; HEINE Optotechnik GmbH, Gilching, Germany) were taken and uploaded into the patient's electronic medical record. Five different consultants trained in dermoscopy reviewed the referral letter and photographs, reporting to the referring general practitioner and to the patient (Table 1). Difficult-to-diagnose lesions were often peer-reviewed.

Strikingly, we were able to divert 86.3% (range 78–93%) of the total number away from needing to attend FTF clinic. More than half of patients (53%; range 51–59%) were directly discharged, 9.9% were referred to the Locally Enhanced Service for surgical treatment in the community and 1.23% to other specialties (Table 1). Only 13.7% needed to be seen FTF, and of these, 17.7%

Table 1 Outcomes for lesion referrals from primary care seen via teledermatology by five different teledermatologists (A–E) 2019.

	Consultant					Total
	A	B	C	D	E	
Total seen, <i>n</i>	1409	707	913	560	1000	4589
Direct discharge, <i>n</i> (%)	732 (51)	419 (59)	467 (51.1)	302 (53.8)	519 (51.9)	2439 (53.1)
Referred to LES, <i>n</i> (%)	167 (12)	67 (9.5)	118 (12.9)	40 (7.1)	64 (6.4)	456 (9.9)
Referred to other specialties, <i>n</i> (%)	23 (1.6)	4 (0.56)	7 (0.77)	9 (1.6)	14 (1.4)	57 (1.2)
Gynaecology, <i>n</i>	1	–	–	–	–	1
Hand surgery, <i>n</i>	7	–	2	1	3	13
Foot surgery, <i>n</i>	–	–	1	–	–	1
Maxillofacial surgery, <i>n</i>	12	2	1	6	8	29
Ophthalmology, <i>n</i>	2	2	–	–	1	5
Oculoplastics, <i>n</i>	–	–	1	–	–	1
Plastics, <i>n</i>	1	–	2	–	2	5
Mohs surgery, <i>n</i>	–	–	–	1	–	1
Patch test, <i>n</i>	–	1	–	1	–	1
MDT referral, <i>n</i> (%)	0 (0)	5 (0.7)	8 (0.87)	0 (0)	2 (0.2)	15 (0.3)
Repeat photos, <i>n</i> (%)	43 (3)	4 (0.56)	40 (4.38)	25 (4.6)	69 (6.9)	181 (3.9)
Direct to surgery, <i>n</i> (%)	342 (24)	52 (7.3)	121 (13.25)	116 (20.7)	181 (18.1)	812 (17.7)
Total diverted from FTF review, <i>n</i> (%)	1307 (93)	551 (78)	761 (83.3)	492 (88)	849 (84.9)	3960 (86.3)
FTF clinic review, <i>n</i> (%)	102 (7)	156 (22)	152 (16.7)	68 (12)	151 (15.1)	629 (13.7)

F2F, face-to-face; LES, Locally Enhanced Service; MDT, multidisciplinary team.

were booked directly for surgery, again freeing up FTF clinic appointments. A small percentage (3.9%) was booked for teledermatology follow-up with repeat photos in 12 weeks to monitor lesion progression. Some of the variation in directing patients for FTF clinic versus surgery resulted from clinic setup, as some of our FTF clinics are also see-and-treat clinics. Therefore, patients were often booked in with the expectation of having a procedure that day.

Interestingly, we noted a high degree of concordance regarding discharges across all members of the consultant team, which we would suggest is a reliable indicator of a high-quality service. The British Association of Dermatologists (BAD) Quality Standards for Teledermatology⁶ suggests that pigmented lesions should be referred via teledermatology as an alternative to FTF only when accompanied by teledermoscopy. We strongly believe the added value of high-resolution, professionally taken teledermoscopy images gives us the ability to confidently diagnose skin lesions in most cases. This allows us to appropriately discharge benign skin lesions and obviates the need for most patients to attend FTF, increasing clinic capacity for those who need it the most and freeing up clinician time. In our teledermatology clinics, 24 patients are reviewed per session, in keeping with BAD recommendations⁷ and adjusted for Wales (each session lasting 3.75 h). This is double the number seen in a traditional FTF session and is presently nearly halved, due to social distancing from COVID-19. In a qualitative survey, patients reported a high degree of satisfaction with our teledermatology service, with 92.9% strongly agreeing they were satisfied overall.⁸ A detailed cost comparison by our finance business intelligence team, of patients seen through medical illustration rather than FTF, demonstrated savings of £43/patient when seen by medical illustration, translating to financial savings of approximately £170 280 for 2019. Although this was not our original aim the resulting cost savings from an improved service are a bonus.

We see our teledermatology service as providing a local teledermoscopy test in a community setting, with the benefits of being capacity-releasing, cost-effective, efficient and accurate, reducing travel time for patients and resulting in a high degree of patient satisfaction.

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COVID-19-associated herpetic gingivostomatitis

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A 46-year-old man with hypercholesterinaemia and coronary heart disease presented to the emergency department with a 3-day history of fatigue, dry cough and fever. He was febrile with a temperature of 39.5 °C and an oxygen saturation of 91% while breathing ambient air, with a respiratory rate of 16 breaths/min.

Laboratory tests showed elevated levels of C-reactive protein (13 mg/dL; normal < 0.5 mg/dL) and interleukin-6 (125 pg/mL; normal < 5.9 pg/mL). White blood cell count was normal, but he had eosinopenia (< 1%; normal range 1–4%). An oropharyngeal swab for COVID-19 testing was positive. Chest computed tomography showed bilateral ground-glass opacities.