

# Who should look after genital skin disease in the 21<sup>st</sup> century?

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## **Introduction:**

Over the past few decades, there has been a shift in how we deliver healthcare to our patients. The factors underlying this shift are complex and inter-linking. Importantly, demographics have shifted the pattern of disease, new technologies have changed the way we deliver care and, crucially, patient autonomy and empowerment have led to a change in our role as doctors. In this essay, I provide an overview of one such group of patients and their journey through our ever-changing healthcare system – those with genital skin disease (GSD).

A wide range of infectious, inflammatory and neoplastic disorders affect genital skin. Some conditions are specific to the genitals (e.g. lichen sclerosus), whilst other 'genital manifestations of cutaneous disease' affect genital skin in a unique way (e.g. eczema or psoriasis) [1, 2]. Many specialties could be referred patients with GSD for diagnosis and management, reflecting the wide range of aetiologies of these conditions.

The list is long – dermatology, gynaecology, urology and genitourinary medicine – and there is a lack of clear guidance as to who should manage what.

Below, I explore each main specialty's involvement in the care of patients with GSD. Additionally, I consider a new '21<sup>st</sup> century' approach to consultation and how, with a clearer view of specialty involvement, these can be incorporated into consistent guidelines for management of GSD.

### **The changing face of dermatology:**

There is no doubt that dermatological practice has changed drastically over the past quarter-century [3]. New referrals from both general practice and other hospital specialties have risen by 67%, confirming the demand from both primary and secondary care for a specialist dermatology service. Every year, over 800,000 people are referred to secondary care dermatologists, making up 4.6% of all hospital outpatient activity in 2006/7 [4]. Whilst many common dermatological conditions have genital manifestations, it is unclear what proportion of these referrals relate to a skin disease affecting the genital area specifically.

The reason for the rise in demand is multifactorial. First, the epidemiological profiles of some dermatological conditions are changing (for example, the incidence of benign and neoplastic lesions of the skin is rising) [5]. Second, the relative lack of diagnostic accuracy and education in non-dermatologists means that cases are often referred unnecessarily [6]. The changing workload of dermatologists requires us to consider other contexts in which GSD patients may be looked after.

## **Managing GSD in a general practice setting:**

The majority of patients with GSD will be diagnosed and managed in one of two places – their general practice (GP) or their local genitourinary medicine (GUM) clinic. In the UK, efforts are being made to limit access to specialist care by placing a greater emphasis on healthcare delivery by primary care doctors [7, 8]. Implicit here is an assumption that GPs can provide quality healthcare at a lower cost than specialists.

### *General practitioners' abilities in dermatology:*

Around 24% of a GPs workload is skin related, highlighting the importance of this field of medicine in primary care [9]. In several un-blinded and retrospective studies comparing preliminary diagnoses of dermatologists and GPs to final histological diagnosis, considerable disparity was demonstrated, even in the most common diseases [10, 11]. These findings are strengthened by a large systematic review of studies from the United States, where dermatologists (93% correct) performed better than family practice doctors (48% correct) ( $P < .001$ ) when asked to diagnose skin conditions based on colour images [12].

Does the difference in diagnostic ability affect the *quality* of care that patients receive, in terms of outcome? Whilst difficult to assess retrospectively due to selection bias (clearly, sicker patients get referred), many studies have found GPs inferior in the management of dermatological conditions when compared to dermatologists [13]. Of course, this is unsurprising given dermatologists receive more training and encounter a greater number of patients in their daily practice. Whether these findings extend to GSD

is unknown; more research is needed to assess whether we can draw the same conclusions for this area of dermatology.

*Improving primary care dermatology:*

The need to improve quality of primary care dermatology has been identified before. In the UK, the GP with special interests (GPwSI) scheme was introduced and promoted in the NHS plan in 2000 [14]. Dermatology is a popular choice in the scheme [15]. One randomised control trial evaluating the scheme found that although outcomes were similar, patients referred to a GPwSI were seen sooner, thought it was more accessible than a hospital and were more satisfied with consultations and facilities compared to regular GPs [16].

The ability of the GPwSI group to recognise and manage patients with GSD is unknown, but this group may represent a good middle ground between management in general practice and management in hospital-based dermatology. Whether the scheme is economically viable is another question, and has been widely debated in the literature [17, 18]. It could be argued that seeing outpatients in concentrated hospital settings provides an 'economy of scale', something which the GPwSI scheme does not provide.

More generally, if the majority of GSD is looked after in primary care, the deficit in medical education needs to be addressed. Many studies have examined the adequacy of medical school education in dermatology and found room for improvement. Indeed, there is a recognised need for increasing exposure to dermatology (and GSD) for students and doctors early in their training [19 – 21]. Specifically, doctors with an

interest in genital dermatology can attend special courses organised by the British Association for Sexual Health and HIV (BASHH) [22].

### **Managing GSD in a GUM setting:**

Arguably, the doctors most experienced in genital examination are GUM specialists [23]. It is clear that there are some groups of patients whose demographics and clinical history may suggest certain diagnoses for which a GUM-centric approach to management is more appropriate. If a sexually active patient presents with genital skin pathology (for example, recurrent genital HPV infection, which has a 1% incidence amongst sexually active 15-25 year olds), it is accepted that the most appropriate course of action would be referral to GUM, particularly with the increased availability of walk-in GU services [24, 25]. In these services, healthcare providers will be well-versed in the diagnosis, management and further prevention of common conditions.

It is unrealistic to manage *all* GSD in a GUM setting. Most patients who present to a sexual health clinic with mild symptoms and signs may not see a doctor at all, being managed primarily by nurses or health advisors trained to recognise and treat sexually transmitted disease. There are mechanisms in place in most of these clinics to recognise non-responders and ensure they benefit from expert advice, at which point they may see a consultant, who may go on to refer to another specialty if appropriate [23].

Non-infectious dermatological conditions do constitute a proportion of presentations to sexual health clinics, however. In one prospective study on 467 male patients attending a public sexually transmitted disease (STD) clinic, a proportion of patients presented with pathological conditions unrelated to sexual health (for example,

balanitis in 9.6%, eczema in 2.1%, traumatic ulcers in 2.1%, amongst others). It is clearly important for GUM doctors to recognise, diagnose and appropriately refer these patients, but it would be inappropriate for them alone to provide long term management of these conditions, many of which would require therapies that are not readily available in a GUM setting.

### **Complex cases need specialist input:**

It is widely accepted that specialist genital dermatology clinics are required for difficult cases. Additionally, guidelines exist as to what diseases comprise a 'difficult' case [26]. These state that difficult male dermatoses (with an estimated incidence of 2 per 10,000) should be referred where there is persisting concern regarding sexually transmitted disease unresponsive to treatment, impaired sexual function, urological morbidity or a risk of cancer. Referral guidelines for difficult female dermatoses, although not as common, are somewhat clearer. These include complex cases of lichen planus, lichen sclerosus, pre-malignant disease, vulvodynia unresponsive to treatment and vulval involvement of other diseases.

It is well known that an MDT approach decreases the risk of inadequate or incorrect treatment, facilitates communication between specialties and provides a one-stop service for patients. For women with complex or rare vulval skin disease, for example, the Royal College of Obstetricians and Gynaecologists recommend referral to a MDT clinic with dermatology, genitourinary, gynaecology psychosexual medicine input. The value of this approach has been widely recognised in the literature [27 – 29]. Similarly, for males, there are examples of penile dermatoses clinics, in which clinical diagnosis is improved and formal management plans created and shared between a

small number of specialist consultants before patients are discharged back to general practice [30].

Perhaps the most common MDT link is between GUM and dermatology. A recent survey of the management of patients with GSD in 73 different GUM clinics in the UK found that 91% manage GSD in-house and 42% hold dedicated GSD sessions, of which two-thirds have multidisciplinary team (MDT) clinics. Eczema was the most common condition seen (47.5% cases), followed by lichen sclerosus (25.5%), psoriasis (8%) and chronic pain (8%), with miscellaneous diseases accounting for 9.5%. Only 1.5% of cases were diagnosed as premalignant or malignant diseases. Notably, only 11% of respondents had postgraduate qualification in dermatology, and only 25% has guidelines or protocols dealing specifically with GSD [31]. Another GUM/dermatology co-led clinic focussing on male GSD found that overall, only 36% of diagnoses by the referring physician matched that of the consultant dermatologist and were not as confident in the use of potent steroids [32]. These are only preliminary surveys, and do not provide reliable comparison to the other models of patient care available. However, they do reflect the significant variability of training in GSD and importantly, highlight the lack of uniform provision for GSD within sexual health clinics in the UK.

Additionally, whilst a cost-benefit analysis is beyond the scope of this essay, it is clear that such joint clinics are resource- and cost-intensive. However, these costs may be offset by patients requiring fewer visits or transfers between specialties. Therefore, there seems to be real added benefit for these types of services, particularly for complex patients.

## **Linking services in the 21<sup>st</sup> century with teledermatology:**

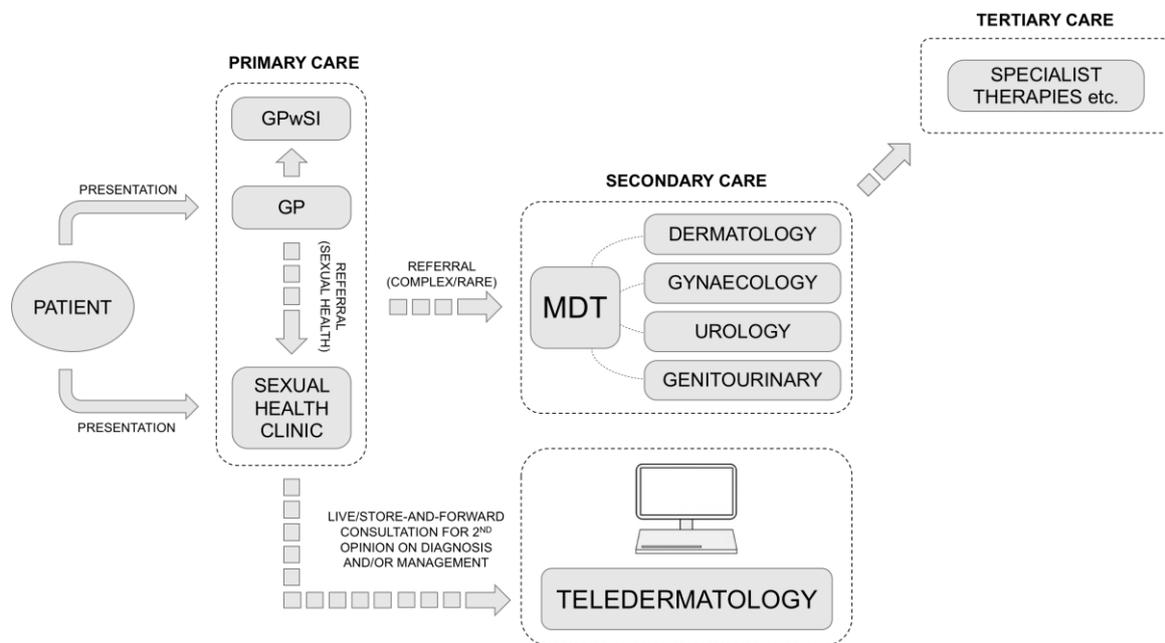
So far, I have discussed a variety of contexts in which a patient with GSD may be looked after. Clearly, for an economically sustainable system to prevail, a balance needs to be struck between primary and secondary care. Whilst it is unrealistic to manage *all* patients with GSD in a secondary care context, outcomes for patients would surely improve if there was a mechanism to allow for *some* specialist input in primary care consultations.

A relatively novel technology in healthcare consultation is teledermatology, a form of consultant supervision and support for the management of skin disease in primary care introduced to the literature in 1995 [33, 34]. Teledermatology is the application of telemedicine, the delivery of healthcare by use of information and communication technology, in the field of dermatology [35]. Where it is available, a GP has the opportunity to consult a dermatologist for a second opinion *via* the internet in order to prevent a face-to-face referral. Teledermatology may be conducted by ‘store-and-forward’ methods, where transmitted digital images are submitted with a clinical history, or in real-time with videoconferencing equipment.

Multiple studies have reviewed the accuracy and reliability of teledermatology compared with face-to-face dermatology [36]. The advances in the field in the two decades after its conception were recently illustrated in a large study suggesting that it to be cheaper and faster than referral to secondary care [37]. Moreover, the technology has been shown to have similar reliability and accuracy than face-to-face dermatology, and reduces the number of referrals to dermatologists [38 – 40]. In one clinic in Wales, for example, 80% of referred patients are managed entirely in primary care since the commissioning of a teledermatology service [38]. In terms of patient satisfaction, no

significant difference between teledermatology and face-to-face consultation has been demonstrated [41]. Finally, teledermatology has the added benefit of acting as an educational tool to training doctors and medical students [42]. As of yet, there is no research on the efficacy of teledermatology for genital skin disease, specifically.

**Concluding remarks – towards an integrated model for GSD:**



**Figure 1:** Proposed model for the uniform management of GSD in the UK

This essay has focused on several approaches to the diagnosis and management of genital skin disease. The majority of patients with GSD will be diagnosed and managed in either a general practice or genitourinary medicine setting. In general practice, there is a need to improve the quality of care that patients receive. Due to a lack of human resource, it is unrealistic to manage all GSD patients in a genitourinary medicine setting. The most successful examples of complex and rare genital skin

diseases are successfully managed in a secondary care, multidisciplinary team setting, but these services are not equally distributed around the country.

Crucially, a balance needs to be established between easily-accessible primary care doctors and the quality of diagnosis and management provided by specialists. The above diagram (**Figure 1**) aims to illustrate a potential model for the management of GSD in the UK. Teledermatology, which has been extensively regarded as an organizational solution in the literature, may represent a platform which addresses the issues set out above. The teledermatology model keeps patients in primary care and allows quick access to specialist review. It may also have the added benefit of identifying the most complex or rare cases earlier for in-hospital multidisciplinary management, avoiding unnecessary referrals.

More research needs to be conducted to establish whether teledermatology can be applied to genital skin disease specifically. With advanced technology readily available in the 21<sup>st</sup> century, the only limiting factor of nationwide service provision in teledermatology may be cost. With the shifting services from secondary care into community settings, however, this may represent the most cost effective and reliable method of accessing expert advice quickly and effectively, thus maintaining high standards of quality in healthcare.

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## **Bibliography:**

1. David N, Tang A. Efficacy and safety of penile biopsy in a GUM clinic setting. *Int J STD AIDS*. 2002;13(8):573-6.
2. Hillman RJ, Walker MM, Harris JR, Taylor-Robinson D. Penile dermatoses: a clinical and histopathological study. *Genitourinary medicine*. 1992;68(3):166-9.
3. Benton EC, Kerr OA, Fisher A, Fraser SJ, McCormack SK, Tidman MJ. The changing face of dermatological practice: 25 years' experience. *The British journal of dermatology*. 2008;159(2):413-8.
4. Schofield J, Grindlay D, Williams H. Skin conditions in the UK: a health care needs assessment. Centre of Evidence Based Dermatology, University of Nottingham. 2009.
5. Leiter U, Eigentler T, Garbe C. Epidemiology of skin cancer. *Advances in experimental medicine and biology*. 2014;810:120-40.
6. Kownacki S. Skin diseases in primary care: what should GPs be doing? *British Journal of General Practice*. 2014;64(625):380-1.
7. Greenaway D. Securing the future of excellent patient care: Final report of the independent review, 2013.
8. Department of Health White Paper: Our health, our care, our say: a new direction for community services. DoH. London. 2006.
9. Schofield J, Williams H, Grindlay D. SKIN CONDITIONS IN THE UK: a Health Care Needs Assessment. Centre of Evidence Based Dermatology, University of Nottingham, 2009.
10. Sellheyer K, Bergfeld WF. A retrospective biopsy study of the clinical diagnostic

- accuracy of common skin diseases by different specialties compared with dermatology. *Journal of the American Academy of Dermatology*. 2005;52(5):823-30.
11. Tran H, Chen K, Lim AC, Jabbour J, Shumack S. Assessing diagnostic skill in dermatology: a comparison between general practitioners and dermatologists. *The Australasian journal of dermatology*. 2005;46(4):230-4.
  12. Federman DG, Concato J, Kirsner RS. Comparison of dermatologic diagnoses by primary care practitioners and dermatologists. A review of the literature. *Archives of family medicine*. 1999;8(2):170-2.
  13. Federman DG, Kirsner RS. The abilities of primary care physicians in dermatology: implications for quality of care. *The American journal of managed care*. 1997;3(10):1487-92.
  14. Department of Health: *The NHS Plan: a plan for investment, a plan for reform*. DoH. London. 2000.
  15. Jones R, Bartholomew J. General practitioners with special clinical interests: a cross-sectional survey. *The British Journal of General Practice*. 2002;52(483):833-4.
  16. Salisbury C, Noble A, Horrocks S, Crosby Z, Harrison V, Coast J, et al. Evaluation of a general practitioner with special interest service for dermatology: randomised controlled trial. *BMJ : British Medical Journal*. 2005;331(7530):1441-6.
  17. Salisbury C, Noble A, Horrocks S, Crosby Z, Harrison V, Coast J, et al. Evaluation of a general practitioner with special interest service for dermatology: randomised controlled trial. *BMJ*. 2005;331(7530):1441-6.
  18. Coast J, Noble S, Noble A, Horrocks S, Asim O, Peters TJ, et al. Economic evaluation of a general practitioner with special interests led dermatology

- service in primary care. *BMJ*. 2005;331(7530):1444-9.
19. McCleskey PE, Gilson RT, DeVillez RL. Medical Student Core Curriculum in Dermatology Survey. *Journal of the American Academy of Dermatology*. 2009;61(1):30-5.e4.
  20. Stratman EJ. Commentary: Exploring more dermatology education for medical students. Who, what, where, when, why, and how? *Journal of the American Academy of Dermatology*. 2009;61(1):36-8.
  21. Hansra NK, O'Sullivan P, Chen CL, Berger TG. Medical school dermatology curriculum: are we adequately preparing primary care physicians? *Journal of the American Academy of Dermatology*. 2009;61(1):23-9.e1.
  22. BASHH Genital Dermatology Course 2015 [Available from: [http://www.bashh.org/BASHH/Education/BASHH\\_Training\\_Courses\\_and\\_Meetings/Meetings/5th\\_BASHH\\_Genital\\_Dermatology\\_Course.aspx](http://www.bashh.org/BASHH/Education/BASHH_Training_Courses_and_Meetings/Meetings/5th_BASHH_Genital_Dermatology_Course.aspx)].
  23. Tang AL, Edwards S, Bates C, Nathan M, Pritchard J, Bansal D, et al. Importance of genitourinary and urology colleagues working in harmony. *BMJ*. 2013;347.
  24. Royal College of General Practitioners: Sexually Transmitted Infections in Primary Care. London. 2013.
  25. Dillner J, Meijer CJ, von Krogh G, Horenblas S. Epidemiology of human papillomavirus infection. *Scandinavian journal of urology and nephrology Supplementum*. 2000(205):194-200.
  26. NHS England: Standard Contract for Specialist Dermatology Services (All Ages). London. 2013.
  27. Royal College of Obstetricians & Gynaecologists: The Management of Vulval Skin Disorders. Green-top Guideline No. 58. London. 2011.
  28. Bhaduri S, Jenkinson S, Lewis F. Vulval Crohn's disease-- a multi-specialty

- approach. *Int J STD AIDS*. 2005;16(7):512-4.
29. Sullivan AK, Straughair GJ, Marwood RP, Staughton RCD, Barton SE. A multidisciplinary vulva clinic: the role of genito-urinary medicine. *Journal of the European Academy of Dermatology and Venereology*. 1999;13(1):36-40.
30. Pearce J, Fernando I. The value of a multi-specialty service, including genitourinary medicine, dermatology and urology input, in the management of male genital dermatoses. *Int J STD AIDS*. 2015;26(10):716-22.
31. Sashidharan PN, Goorney B, Cassell J, Edwards S, Maw R, Kell P. Survey of the management of patients with genital dermatological problems in genitourinary/sexual health clinics in the UK. *Sexually transmitted infections*. 2011;87(5):414.
32. Hartley AJ, Hourihan M, Paige D, Williams A. Are specialist-led genital dermatology clinics a valuable and necessary part of sexual health service provision in the UK? *Sexually transmitted infections*. 2013;89(5):379.
33. Perednia DA, Brown NA. Teledermatology: one application of telemedicine. *Bulletin of the Medical Library Association*. 1995;83(1):42-7.
34. Motley RJ. Teledermatology is the answer. *BMJ*. 2012;345:e6593.
35. Strode SW, Gustke S, Allen A. Technical and clinical progress in telemedicine. *JAMA*. 1999;281(12):1066-8.
36. Bashshur RL, Shannon GW, Tejasvi T, Kvedar JC, Gates M. The Empirical Foundations of Teledermatology: A Review of the Research Evidence. *Telemedicine journal and e-health : the official journal of the American Telemedicine Association*. 2015;21(12):953-79.
37. Landow SM, Mateus A, Korgavkar K, Nightingale D, Weinstock MA. Teledermatology: key factors associated with reducing face-to-face dermatology

- visits. *Journal of the American Academy of Dermatology*. 2014;71(3):570-6.
38. van der Heijden JP, de Keizer NF, Bos JD, Spuls PI, Witkamp L. Teledermatology applied following patient selection by general practitioners in daily practice improves efficiency and quality of care at lower cost. *The British journal of dermatology*. 2011;165(5):1058-65.
39. Gilmour E, Campbell SM, Loane MA, Esmail A, Griffiths CE, Roland MO, et al. Comparison of teleconsultations and face-to-face consultations: preliminary results of a United Kingdom multicentre teledermatology study. *The British journal of dermatology*. 1998;139(1):81-7.
40. Knol A, van den Akker TW, Damstra RJ, de Haan J. Teledermatology reduces the number of patient referrals to a dermatologist. *Journal of telemedicine and telecare*. 2006;12(2):75-8.
41. Collins K, Walters S, Bowns I. Patient satisfaction with teledermatology: quantitative and qualitative results from a randomized controlled trial. *Journal of telemedicine and telecare*. 2004;10(1):29-33.
42. Boyers LN, Schultz A, Baceviciene R, Blaney S, Marvi N, Dellavalle RP, et al. Teledermatology as an educational tool for teaching dermatology to residents and medical students. *Telemedicine journal and e-health : the official journal of the American Telemedicine Association*. 2015;21(4):312-4.