"What are the most important priorities for skin surgery and skin cancer research and why?"

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Key:

ABBREVIATION	MEANING
DS	Dermatological surgery/surgeon(s)
SC	Skin cancer
MH	Mental health
PPE	Personal protective equipment
RCP	Royal College of Physicians

Introduction:

DS is an inherently challenging vocation dealing with a variety of complex conditions which have several treatments and therapies [1]. This results in constantly changing priorities which are determined by factors such as the needs of patients, resources, contextual reasons (e.g., COVID-19 [4,5]), etc. This essay will cover what I believe are the most important priorities for DS and SC such as determining the causes and effects of delays on SC care, how we can meet the psychosocial needs of patients, and what are some interventions that can be used to improve MH outcomes.

Delays in skin cancer diagnosis:

Cause of delay	Notes
Anxiety	[8]
Belief that lesion does not require surgical removal	Patients commonly ignore lesions (especially when they've had previous skin cancers), until there is a notable change (e.g., colour, shape change) [8,10]
Common misconceptions of cause	E.g., some believe that only certain races (e.g. caucasians) get skin cancer [8]
Belief that lesion was not dangerous (denial)	[8,10,31]
Lack of partner	A partner could visually identify lesions, encourage seeking medical attention, as well as a source of general social support [7]
COVID-19 pandemic	Minimisation of elective procedures, lack of referrals, lack of PPE, etc. [4,5,32]
Doctor error	Misdiagnoses, unnecessary referrals (benign lesions, e.g., seborrheic keratoses), waiting for lesion changes, etc. [10,34]

Table.1: Some causes of delays in seeking or receiving SC treatment.

What are the consequences of delays?

Diagnostic delays have been observed with worse outcomes for melanomas including increased mortality, due to an increased propensity for growth, differentiation and metastasis [7,10]. This is vital in terms of DS: e.g. earlier melanoma stages can be treated solely

via surgery [9] and have better outcomes (5-year survival = ~80-100%) [33]; however, later stages (≥stage III) usually require adjuvant treatments like immunotherapy [9] and are associated with worse outcomes (5-year survival = ~30-70%) [33]. However, the effects from non-melanoma SCs were not as obvious, there was an associated increase in tumour size but not an observable difference in survival rates [10].

Economic effects:

Late diagnoses have an economic burden, this is attributed to the different aspects of SC care [11, Table.2].

Cause of cost	*Estimated cost (£)*
GP visit and usual treatment in primary care	30 + 85
Specialist visit(s)	112 (per visit)
Bed (per day)	225
Biopsy	112
Curettage and cautery	137
Mohs Surgery	114
Radiotherapy	2260
Radical lymph node dissection	16,808

Table.2: non-exhaustive list of potential costs for skin cancer care to the NHS [11,12,13]

Late diagnoses merit more specialist care: e.g. a stage-IV melanoma might require an expensive radical lymph node dissection [14] or more follow-up appointments, which might have been avoided if the cancer was picked up earlier [10,11]. This is without considering the wider effects on the economy, such as the loss of working hours due to hospital admission(s) and/or loss of productive life due to a worsened prognosis [15].

How can we avoid delays?

Delays are a multifaceted problem and occasionally are unavoidable. One avenue for reducing delays is stopping the advent of SC at source, i.e., reducing UV exposure [17,18]; such

as by mass-media campaigns. Another method is increasing the supply of doctors, to meet the significant demand of patients needing SC care [23,38,].

Mass media campaigns:

TV programs were implemented in Australia (country with the highest rate of SC [19]) in the late 2000s and early 2010s [20], which focused on advertising measures like regular sunscreen application and discouraging tanning bed use (interventions that significantly reduce cancer rates [21,22]). The effects of these campaigns were positive, translating into 13,174 less cases, and a net benefit of $44.44 million [20]. In the UK, a similar campaign could be set up; although higher efficacy could be observed if newer modalities like social media are incorporated [45]. The importance of primary prevention cannot be overstated, as it can translate into a reduced caseload and fewer mortalities.

Increasing the supply of doctors:

In 2021, there were 659 consultant dermatologists in the UK; thus, there are 101,365 people per dermatologist [23,42]. According to the RCP, the target ratio for consultant dermatologist to the general population should be 1:62500 [40]. This highlights the shortfall of dermatologists within the NHS, which needs to be addressed to match demand. In the 2022 application cycle, dermatology had 41 slots and was again one of the most competitive specialities (ratio=5.46), which perpetuates the shortfall [41]. Research has suggested that the primary method to combat this is to increase the number of available training posts, which should result in greater numbers of dermatologists, and thus, less delays [23].

Meeting the psychosocial needs of patients:

There are several considerations in DS for surgeons like the margins for excision, location, etc [24]. However, the patient's perspective is equally vital because procedures with direct aesthetic consequences are notably associated with psychological disorders including body dysmorphic disorder, anxiety, and depression [24, 25,29]. Thus, it is important to meet psychological needs due to the frequency of MH disorders in SC patients [27], and in those undergoing cosmetic procedures [28].

How can these needs be met?

Minimising the aesthetic consequences of surgeries:

The nature of SC means that there is a significant visual component to the disease, like a facial lesion. This is compounded by surgeries that can result in scars [30], which is a common concern for patients [34,35]. These scars are associated with a reduction in body image, psychological distress, and social stigma [35]. Additionally, patients frequently underestimate the size of post-surgical scars [36,37]. For surgeons, this illustrates the importance of having frank discussions with each patient prior to surgery about the potential characteristics of the scar(s), employing surgical techniques that achieve the best cosmetic outcome (while maximising clinical efficacy), and adequately explaining the best methods to maximise post-surgical wound healing.

What are some methods that can be used to improve mental health outcomes?

Interventions	Notes
Ensuring that we meet the information needs of patients	Skin cancer patients who are not well-informed about information like the risk of recurrence and further treatment, are associated with greater rates of psychological problems like anxiety, depression, sleeping difficulties, etc. [43,44]
Behavioural therapies, e.g., cognitive behavioural therapy (CBT)	Limited evidence showed that CBT was found to be a cost-effective intervention in melanoma patients who suffered from significant social distress [46].
Structured group programs	A structured psychiatric intervention in a group setting involving teaching, enhancing problem-solving skills and stress-management techniques, resulted in better "active-behavioural coping" and lowering rates of depression, fatigue, and confusion [48,49].

Table.3: Interventions that can be utilised to meet the psychosocial needs of patients.

Conclusion:

DS and SC research have several priorities, many require immediate attention. The effects of delays, especially the treatment of melanomas needs to be robustly addressed. Public health campaigns and increasing the number of skilled personnel are two of the many avenues through which this can be achieved. Furthermore, it is paramount to improve modalities of psychological support for SC patients, such as by being transparent, and making it easier to access pastoral care. Finally, research must be prioritised to develop newer modalities to address these issues as they are crucial in improving clinical outcomes.

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