# "Is British Dermatology better in or out of Europe?"

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## Introduction

On the 23rd June 2016, the UK voted to leave the EU. Coming as a shock to many, it was not until the reality sunk in that people were forced to examine how this may impact their life and work. Few people voted with the fate of British dermatology at the front of their minds, yet even a scientific devotion to the skin can not escape the realities of the political and social climate in which it operates. On a topic so emotive and full of uncertainty, it is impossible to pretend that a comprehensive, reasoned and balanced answer to the title question can be provided in any amount of words. Furthermore, as Britain has not been simultaneously in and out of the EU, there is no evidence base to make it possible to ground a two-sided debate in facts rather than conjecture. As such what follows instead lays out what I see as the most pertinent and interesting points, initially examining how a discipline such as dermatology has never obeyed national boundaries and cannot be 'in' or 'out' of Europe. Then taking 'Europe' to signify the European Union, I look at some of the more concrete consequences of a separation between the institutions of the UK and the EU.

## A history united

From a historical perspective, the notion of separating 'British' dermatology from Europe is troublesome. Our knowledge of dermatological conditions today relies on foundations set by individuals elsewhere in Europe. While the history of the discipline can be traced back to Hippocrates in Ancient Greece, modern Dermatology emerged after the Age of Enlightenment from intellectual exchange among the doctors of Europe. It was English and French dermatologists, such as Robert Willan and Alibert, who pushed for a scientific approach to dermatology.[i] The torch then passed to the so-called Vienna School of

Dermatology in the late nineteenth century.[ii] This loose association counted among its members names that are today known by all who have studied medicine, such as Kaposi and Auspitz. These individuals, connected by their affiliation with the University of Vienna, described and categorised many symptoms and syndromes which are today seen as the bread and butter of the discipline. It was the students of these German and Austrian founders who then went on to establish modern dermatological research in the USA, giving birth to the vast corpus of knowledge that emerged from America over the course of the twentieth century and that has fed back into practice in Britain. It is, therefore, clear that from a historical perspective dermatology in Britain does not exist as an isolated entity; it is intimately entwined in a shared intellectual meshwork within which Britain and its European neighbours cannot be forced apart.

## Institutional independence

While this historical perspective can be enlightening, its appeal to idealism does not address the question of the practical implications of any UK-EU divorce proceedings. In light of this shared European heritage, there is no obvious reason to believe that there is any threat to membership or affiliation with pan-European dermatological societies, which themselves have little connection to EU institutions and have a global reach. Britain will remain part of a 'European school' of thought. There are, however, many areas in which the unpicking of EU and UK regulatory institutions will impact the future of dermatology in Britain.

## Research funding

While British involvement in societies such as the European Society for Dermatological Research will carry on as normal, there will be greater repercussions for the establishment of research projects and clinical trials in the UK. Outside of clinical practice and industry, the direction of dermatological research is in part dictated by the priorities of the handful of

relevant organisations with substantial financial resources. One area which is particularly vulnerable to swings in financing decisions is that of rare diseases. Any one rare disease affects very few people, with the European Union definition stating <5 in 10,000, yet considered together they affect one in seven people at some point in their lives.[iii] With each disease affecting less than 0.1% of the population, there is often little incentive for pharmaceutical companies to fund research into novel treatments as the financial return from this small market would fail to cover costs. Likewise, individual governments are unlikely to allocate substantial resources to diseases which affect few people in their populations. Conditions which affect a substantial portion of us thus struggle to get any funding whatsoever.

The only way such research becomes economically viable is when there is a vast grouping which shares the costs, often in partnership with not-for-profit organisations. Such economy of scale can be approached by a Europe-wide approach, as countries pool their small contributions to coordinate investment, sharing in the reward. With this goal in mind, the field of rare diseases has received a boost from the EU's Framework Programmes, which fund research in the European Research Area (ERA). In 2007-2013 alone, over 620 million euros were granted by these programmes to investigate rare diseases.[iv] Beneficiaries include research into the development of an immunoreactive skin mimic, enabling research previously limited by a lack of test subjects with a rare disease.[v] Another beneficiary was GENEGRAFT, a clinical trial conducted by a team including UK scientists, which received 4.9 million euros to trial gene therapy treatment for recessive epidermolysis bullosa.[vi]

The ERA is an institution of the EU and therefore requires either EU status or single market membership as a prerequisite to admission.[vii] The UK is the second biggest beneficiary of this funding[3] and as such leaving the EU and the single market means a

great loss of finance. While these consequences for research did feature widely in the media, it is rare disease research which will struggle more than most to find alternate sources of funds.

This loss of funding may hit dermatology particularly hard, as it is said the skin is host to the greatest number of separate diseases of all organs.[viii] While there are many conditions which can be considered common, dermatology's over 2000 skin diseases include hundreds that are considered rare. While British dermatology will still reap the rewards of the discoveries of EU countries, it may cease to become a pioneer of research into rare diseases in its own right. The only way to avoid this would be to establish a radical new economic framework to incentivise funding into these diseases; after decades of trying and failing this is a prospect that can be faced with no immediate optimism.

## Medication Approval

Another cause for concern in the splitting of the UK and the EU is the restructuring of the government approval of medications. Currently roles are divided, with the European Medicines Agency (EMA) responsible for the approval of medications for a variety of disease groups particularly pertinent to dermatology including auto-immune disorders, cancer, and HIV/AIDS. Like the ERA, the EMA is an EU institution from which the UK will have to withdraw unless they remain in the single market. At that time, such powers would presumably move to the Medicines and Healthcare products Regulatory Agency (MHRA). The problem with this short migration lies in the reality that drug companies prioritise approval in the biggest and wealthiest markets. Different regulatory bodies require different trial designs and the process requires vast sums of money,[ix] and so pharmaceutical companies focus their efforts in order of profitability. Anne Gulland in the BMJ makes the point that after 'Brexit' the more lucrative approval would be that of the EU rather than the UK.[x] Approval by the EMA would allow them to sell to 443 million people,

vastly outnumbering the UK's 64 million. As such the UK could see a longer time between medications being developed and coming to market, as medications become available in the EU before crossing the Channel.

One way in which the MHRA could reduce these delays is by requiring the same process for drug approval as the EMA. This has often been suggested as a potential way to reduce the time and expense of setting up separate clinical trials to meet the needs of both the EU's EMA and the USA's FDA.[9] Unlike in the case of the EU and the USA, however, which are of a similar population size and wealth, the UK will again lose out because of its significantly smaller market size. As the EMA is the more lucrative approval, it can set the rules. As a current EU member, the UK has a say in determining the policies of the EMA, but after separation the scientific community in Britain would lose this voice. An alternative would be the MHRA making its policies more lenient and substantially less expensive than the EMA in order to decrease the cost:benefit ratio and thus incentivise pharmaceutical companies to apply for UK approval sooner. This, however, comes with the risk of compromising patient safety.

The repatriation of drug approval powers also has the potential to set politics against patient care. One of the original ideals in creating the EMA was to remove the drug approval process from national interests and thus reduce any national turf wars,[xi] for example between Britain's Glaxosmithkline and Germany's Bayer. The MHRA as a national body, however, will always be pressured by groups to delay approval of 'foreign' medications in order to boost profits for UK-based drug companies; whether it reacts to this pressure today does not preclude the possibility of it occurring in the future, as the structure of national approval bodies puts them as a middleman between government and industry.

This would potentially further contribute to delays in getting existing novel treatments not only into British hospitals, but also to the 37% of the UK population who self-care for skin diseases.[xii] With such a strong market for OTC sales of dermatological treatments, if medications are available in our European neighbours before the UK this could possibly also risk incentivising potentially dangerous 'black market' internet sales of European OTC medications.

## Provision and Profits

Outside of research and the supply of novel treatments, a departure from the EU may also have repercussions on the daily realities of life as a dermatologist. As a small speciality, with 813 specialists in the UK in 2012 according to the British Association of Dermatologists,[xiii] dermatology would be vulnerable to even a small dip in consultant numbers. It would have a significant impact on service provision as the country is already short of 250 dermatology consultants when compared with the Royal College of Physicians' recommended numbers.[xiv] While there is no way to be certain how 'Brexit' will affect employment of EU doctors, any slight reduction caused by the uncertainty would most likely have a significant impact on the provision of secondary care in dermatology.

Market logic may say that fewer consultant dermatologists would increase private practice profits, and there is evidence showing correlations between longer waiting lists and higher private income.[14] It is possible, however, that 'Brexit' may see profits go down. While trailing in the wake of plastic and orthopaedic surgeons, consultant dermatologists on average earn a significant proportion of their income from private practice (supplementing their NHS income by 74%)[xv]. A reasonable portion of this income is from 'medical tourists'. This group accounts for 25% of private income in hospital practice among all specialities, despite accounting for only 7% of private patients.[xvi] In light of the degree of rhetoric surrounding their cost to the NHS, it is foreseeable that there may be some

additional administrative hurdles for EU patients to jump before being able to access treatment. This can only act to decrease their numbers and therefore hit income. While this could be a rather selfish argument, income does have some affect on increasing competition to recruit the best candidates, as well as having a complicated but generally positive relationship, to a limit, with job satisfaction.[xvii]

## The sunny side of Brexit

There are, however, a few hidden bonuses for the UK's dermatological health among the bad news stories. Improvement in diagnosis aside, many argue that some of the great rise in the number of diagnoses of malignant melanoma over the past 40 years can at least in part be attributed to the rise of the package holiday in the sixties and seventies.[xviii] The intervening years have seen mortality from the disease rise by 176%.[xix] Since the referendum of June 2016, however, the value of the pound has plummeted. Consequently, the cost of cheap beach holidays has significantly increased, not only to continental Europe but also to Florida, Australia and the rest of the world. The significant portion of society that can no longer afford to spend as much time in foreign sun can at least rest assured that they as a population may see a reduction in cases of malignant melanoma. While this point may seem tongue in cheek, the effects have the potential to be very real, as the disease kills twice as many people as cervical cancer,[xx] with 42 new diagnoses and 7 deaths per day in the UK.[19]

These same patterns would also apply to non-melanoma skin cancer. With the increase in the cost of foreign travel likely to last into the foreseeable future, the long-term reduction in sun exposure may decrease cases of basal and squamous cell carcinomas. As BCCs and SCCs are thought to be related to prolonged sun exposure, this would require a decrease in time spent in the sun over many years. As BCCs are the most common malignant growth, however, even a small reduction could spare a great number of people from the

disease. It could also save the NHS a great deal of money. With the recent research letter published in the British Journal of Dermatology by a group including the President of the British Association of Dermatologists predicting that BCCs and SCCs will cost the NHS £338 to £465 million by 2025,[xxi] perhaps we should see a ray of sunshine in rediscovering our own cloudy seaside towns. It is, however, clearly not possible to be certain how Britain's holidaying habits will be affected by a departure from the EU.

## Conclusion

It is clear from the points raised that British dermatology is not immune from the repercussions of the UK's departure from the European Union. In many ways, however, the upheavals in research funding and medication approval could feel remote from the daily reality of the clinic, where the changes would have a silent yet present impact, marked by a slightly prolonged absence of new, better treatments for patients.

It may be obvious that the short answer from this essay is that British dermatology is better in Europe, but the one-sidedness of the debate may partly result from the fact that problems are always more apparent and more immediate, while any potential opportunity in 'out' will remain vague and less certain, and will take much longer to reveal itself. These problems are hypothetical, and in the long-term it is possible that time may solve them.

Word Count: 2499

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