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Increase in GP referral to dermatology: which conditions?

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Key Points

- GP referral to Dermatology increases in a series of step-like changes of around 10% to 20% growth in the space of one to two months, although the magnitude varies by location and the year in which the event occurs.
- The increase occurs as a spatio-temporal spread across the entire UK.
- The increase is specific to particular age groups.
- A time cascade with respect to particular conditions may be involved.
- The herpes virus cytomegalovirus may be involved either as cause (introduction of a new strain?) or via opportunistic re-activation.

Abstract

Over the past 15 years GP referral to Dermatology has increased at a rate 2.4-times higher than expected from demographic change. The reasons behind this are discussed and preliminary evidence is given to show that the changes are condition specific and that a time cascade in conditions appears to occur at key points of high growth.

Introduction

GP referral to outpatient Dermatology has been increasing for many years. In the 15 year interval 1994/95 to 2009/10 there was a 36% increase which is around 2.4-times higher than that expected from demographic change. It is less well known that the increase occurs as a series of step-like, unexpected, rapid and large shifts of 11% to 29% in magnitude, depending on location (Jones 2012a,b) - see Figure 1. This variable magnitude may be especially related to the proportion of those aged over 70 in each location (Jones 2012b). There is very little growth between the step-like

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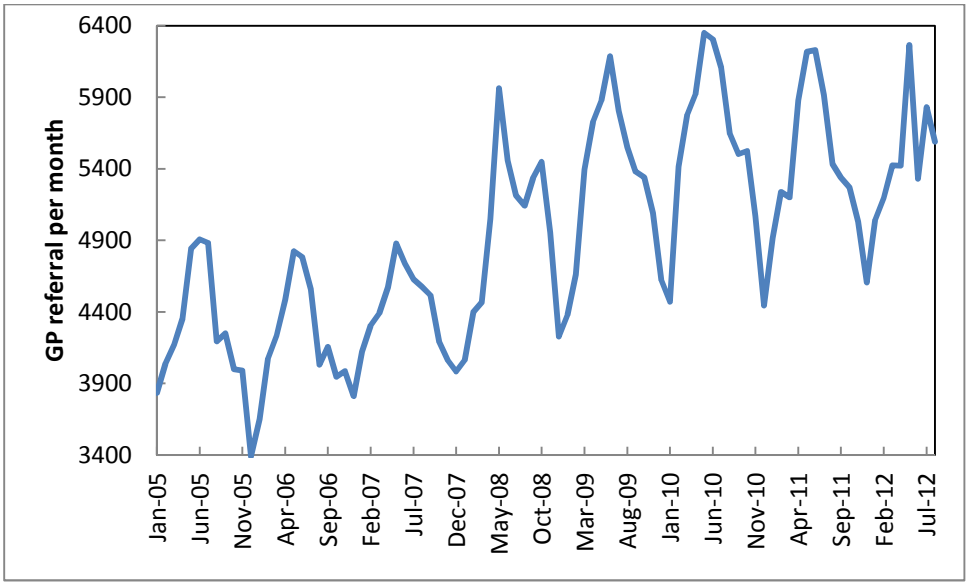
changes with a reduction in referrals after a few years, i.e. Figure 1 shows that the peak in referrals occurred around May 2010.

Figure 1: Monthly GP referrals to Dermatology in Wales



Footnote: Data is from http://www.statswales.wales.gov.uk/ReportFolders/reportFolders.aspx and monthly GP referrals have been adjusted to the equivalent of 22 working days per month.

Given that the expected growth in Dermatology due to demography is only around 1% per annum these shifts inject the equivalent to over 10 years worth of expected growth in the space of a few months and appear to explain the long-term higher than expected (2.4-times) growth in GP referral. Even more curiously, these shifts occur in parallel with an increase in emergency admissions to the medical group of specialties (Jones 2009a,b, 2010a) that is international in scope (Jones2010b, 2011, 2012c) and has a particular age profile which is shared across the different types of patient contacts (2010b, 2012b,d).

A study of this increase shows a curious spatial cascade of increase across the UK which is reminiscent of the spatio-temporal behaviour seen in an infectious outbreak (Jones 2012b,e). Onset also appears to trigger an additional time cascade in GP referral to different outpatient specialties, i.e. to different types of conditions and a parallel spread in increased deaths due to a specific range of conditions (Jones 2012b,e). These recurring events which are spaced between three to eight year apart (most commonly around 5 to 6 years) can be traced back to the 1980's and perhaps even earlier with the latest occurring across the UK between early 2007 (in Scotland) and late 2008 (in England). The point of onset for these step-like increases is most readily determined using a running 52 week or 12 month total of GP referrals. (Jones2010a, 2012b) This approach is required because the volatility in the month-of-year patterns in GP referral to Dermatology can act to obscure the

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point of sharp increase, i.e. referrals in July and October show roughly twice the amount of volatility as other months (unpublished). However as can be seen in Figure 1 the step-like change can be discerned even using monthly data.

Barriers to Identification

These shifts appear to have gone unrecognised for several reasons. Firstly, they appear to contradict the assumption that growth in demand is largely driven by demography. Secondly, there are virtually no studies which look at the long term trends at monthly or even daily level. A shift occurring during the course of a financial year is therefore diluted with that portion of the pre-shift year where referrals are lower. Thirdly the discussion of GP referral is usually mired in arguments around the variation in GP referral rates which occur between GPs and practices. While it is certainly true that the threshold to refer for diverse conditions will always be vary between GPs of different experience this is not the same as a collective step-change. Based on this recent research the author has argued that part of the observed variation in referral rates will depend on the legacy of the step-changes and, hence, when the measurement of GP referral rates are conducted (Jones 2012b). Lastly, the reorganisation of the NHS in England which has occurred almost every four years has disrupted a continuous view of the underlying data and the resulting movement of staff has lost the continuity of a long term view of local trends.

Condition Specificity

The particular diagnoses associated with the increased medical admissions occurring at each step change appear to be related to immune function, i.e. an increase in particular infections and inflammation - in its widest sense (Jones 2010a, 2012c). Given this spectrum of apparently immune-related change it has been tentatively proposed that the ubiquitous herpes virus, cytomegalovirus (CMV), may be involved either as causative agent or via opportunistic re-activation in response to another agent. Even 25 years ago this virus was a known risk factor for a number of dermatological conditions (Swanson and Feldman 1987) and this has been confirmed by a number of reviews (Drago et al 2000, Kano and Shiohara 2000, Resnik et al 2000).

Since 2003/04 the NHS in England has collected the diagnosis associated with outpatient attendance. Unfortunately only around 2% of attendances (from particular clinicians in a just a few hospitals) receive a sufficiently detailed code to enable any type of trend analysis. Using this limited sample of data does, however, suggest that particular dermatological diagnoses may be involved (see Figure 2) and that some form of time cascade with respect to particular diagnoses may also

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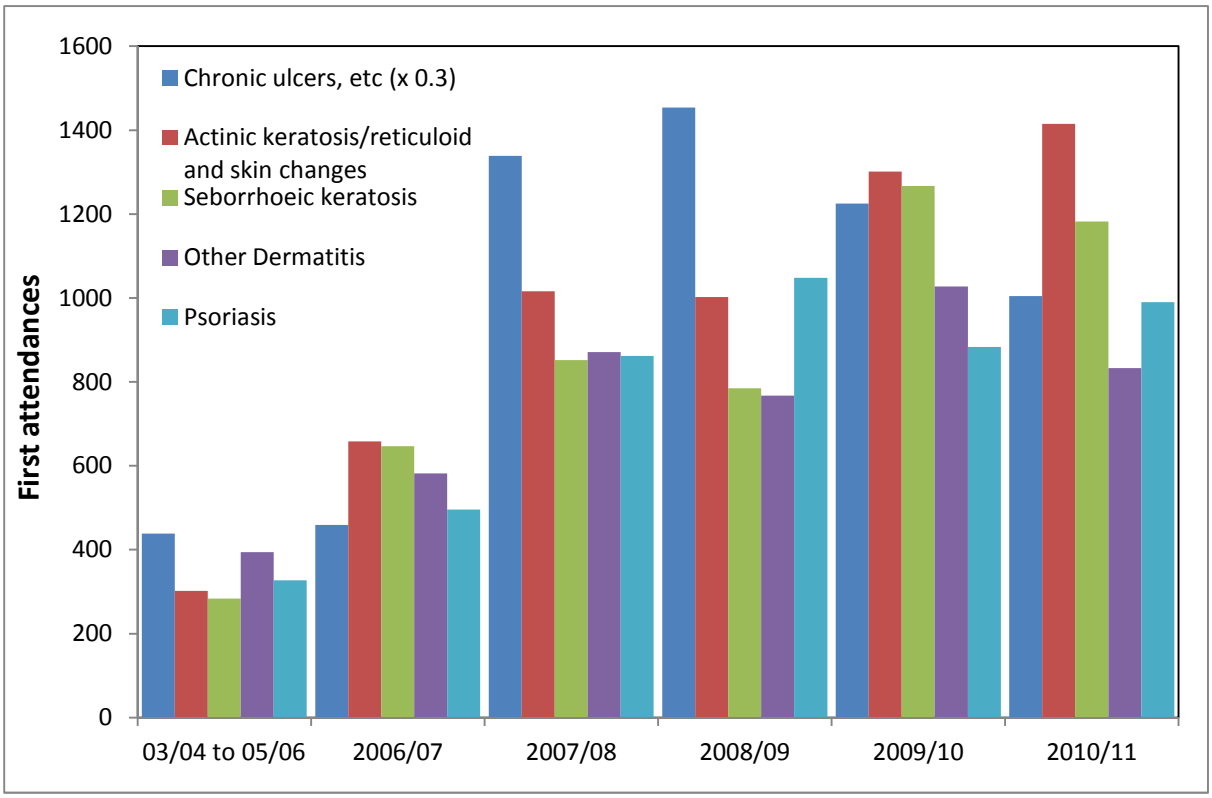
exist (see Table 1). Such preliminary findings require further confirmation using more robust evidence derived from defined locations.

Table 1: Diagnoses possibly associated with the step-increase

ICD Code	Description	03/04 to 05/06	2006/07	2007/08	2008/09	2009/10	2010/11
L21-L25	Allergic Dermatitis	10	40	**716**	627	561	469
L98	Chronic ulcers, other disorders	1461	1529	4462	**4847**	4084	3348
L40	Psoriasis	327	496	862	**1048**	883	990
L92	Granulomas	20	38	59	**74**	66	57
L82	Seborrhoeic keratosis	284	647	852	785	**1267**	1182
L30	Other Dermatitis	395	582	871	767	**1027**	833
L70	Acne	228	231	514	609	**926**	799
L20	Atopic Dermatitis	17	74	367	315	**924**	787
L50	Urticaria	33	56	132	246	**456**	416
L73	Follicular disorders	17	31	69	90	**101**	83
L02	Abscess, furuncle, carbuncle	9	21	36	50	**60**	53
L57	Actinic keratosis/reticuloid, etc	302	658	1016	1002	1301	**1415**
L43	Lichen planus	36	38	85	135	203	**243**
L97	Ulcer of lower limb	13	30	87	65	148	**239**
L08	Infections of skin	47	43	84	57	159	**194**

Footnote: Point for maximum first attendance is in **red bold**. Data for the primary diagnosis of outpatient attendances in England is from http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=896

Figure 2: Trend in high volume diagnoses, England



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Where Next?

Up to the present, this research has been focussed on the operational (i.e. impact on waiting times), capacity (i.e. forecasting inpatient and outpatient activity) and financial consequences of these events. However, detailed clinical audit is now required to tease out the complex time cascades, cause and effect relationships and for alternative hypotheses to be proposed.

In conclusion, Dermatologists across the UK and elsewhere need to be aware that a key biological event appears to be the cause of increased referrals rather than some form of trivial shift in GP referral thresholds. These events are synchronous in particular locations, show a characteristic age profile, and exhibit regular re-occurrence stretching back for many years and are international in scope.

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Conflicts of Interest: The author provides consultancy to health care organisations.

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