ystadegau ar gyfer cymru statistics for wales

Statistical Article
Erthygl Ystadegol

Llywodraeth Cymru
Welsh Government

Analysis of the outpatient referral dataset

Introduction

Currently, the Statistical Release published by the Welsh Government on referrals for outpatient appointments includes those patients who were referred by a general medical practitioner (GP) or general dental practitioner (GDP). We are planning on extending this publication in future to include other sources of referrals for outpatient appointments, as the data source used includes other sources of referral.

This article describes the impact that including other sources of referrals has, and identifies patterns and trends within the data.

Summary

- GP referrals represent at most around 70 per cent of referrals for first outpatient appointments. However not all other sources of referrals were captured between April 2012 and October 2014.
- This proportion has fallen a little over time, from 72.2 per cent in 2012-13 to 72.0 per cent in the 12 months to October 2014.
- Broadly, between April 2012 and October 2014 GP referrals increased a little. This is also true of non-GP referrals.
- Whilst the rates of GP referrals are broadly similar between most health boards, the rates for non-GP referrals vary much more. This may in part be due to differences in services, but also differences in coding between health boards.
- Not all source of referral codes are captured by health boards and more work needs to be undertaken to understand data quality at a health board level.
- When looking at referrals by treatment function, there is much variation – for example over 90 per cent of referrals for dermatology were from GPs, compared to less than a half for general medicine.
- The pattern of source of referral shows more variation when looking at treatment function. Referrals from GPs for ophthalmology have fallen from 77 per cent of all referrals in April 2012 to 71 per cent in October 2014. Referrals from GPs for rheumatology have increased from 71 per cent of all referrals in April 2012 to 82 per cent in October 2014.

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- From April 2015 we will include information on other sources of referral in the release as an additional section. As quality improves we will expand that section and will keep users informed of any changes.

Background

In October 2012 (for August 2012 data), Knowledge and Analytical Services (KAS) moved from using an aggregate GP referrals collection to using the Outpatient Referrals Dataset (OPR DS) as the data source for GP referrals, with the aim of reduce duplication of data collection within the NHS. As a result, for the first time, we had information on all sources of referral available to us, whereas previously the data only covered GP and GDP referrals. More information can be found in the notes section of that release: http://wales.gov.uk/docs/statistics/2012/121003sdr1652012en.pdf

As referral patterns change and other service providers refer patients to secondary care (for example, optometrists are increasingly making referrals to secondary care), and in response to demand from users, it is appropriate that we consider extending our publication to include the other sources of referral. This is to ensure that it more accurately reflects the services provided, the patient pathway and demand within secondary care.

Any references to GP referrals throughout this article mean both GP and GDP referrals.

1. Introduction to the Outpatient Referral Dataset

The Outpatient Referrals Dataset (OPds) was approved in May 2007 by the Welsh Information Standards and Governance Board (WIGSB, now WISB), full implementation was completed by December 2007 and formal collection and reporting began mid 2008.

Following detailed data quality assessments and reviews of the data, the Welsh Government moved to using the OPRds as the source of the official statistics for August 2012 data onwards and the monthly aggregate GP Referrals data collections were ceased. The reasons for this were:

•Have just one definitive source of data for GP referrals;

•Remove the burden on data providers of supplying data for two similar data sets;

•Remove the confusion for analysts and users which exists by having two similar data sets for GP referrals information, containing different data in some cases; and

•Allow more granularity for research and data mining (the OPRds provides patient level data, whereas the aggregate GP referrals data collection provides high level, summary data).

Whilst the OPRds was set up to capture all referrals, it does not. The table below shows the list of referral sources that were captured between its initial set-up and October 2014:

Value	Meaning
Initiated by the Consultant or Independent Nurse responsible for the Outpatient episode	
01	Following an emergency admission
02	Following a domiciliary visit
10	Following an A&E attendance
11	Other
Not initiated by the Consultant or Independent Nurse responsible for the Outpatient episode	
03	Referral from General Medical Practitioner
04	Referral from an A&E department
05	Referral from a Consultant or Independent Nurse, other than in an A&E department
06	Self-referral
07*	Referral from Prosthetist
08*	Other source of referral
92	General Dental Practitioner
93	Community Dental Service
Added in November 2014:	
*15***	*Referral from an optometrist*

Note: The classification has been listed in logical sequence rather than numeric order.
*- those Source of Referrals that were excluded from the Outpatient Referrals Data Set until November 2014
** - this was added in November 2014

As can be seen from the list above, there are two codes that were excluded – 07 and 08. Therefore, although all referrals were captured by Health Boards, those two codes were not reported when data were returned to the NHS Wales Informatics Service (NWIS), who collate the data. Therefore although the OPRds is more comprehensive than just GP referrals, it didn't include all activity.

The OPRds can be found in the NHS Wales data dictionary: http://www.datadictionary.wales.nhs.uk/WordDocuments/outpatientreferraldatasetoprds.htm

Since November 2014, local health boards have been able to submit data for all of the codes above plus a new code for referrals from optometrists (code 15). The new code for optometrists has been introduced so that referrals for optometry can be separately identified and to ensure consistency across health boards.

Although the most recent data for outpatient referrals covers December 2014, data up to October 2014 has been used throughout, as it has a longer time series and we can use it to describe the impact of non-GP referrals prior to the changes in November 2014.

2. Comparing GP and non-GP referrals

This section presents information on the numbers of non-GP referrals (from sources excluding GPs and GDPs) compared with referrals made by GPs and GDPs (which is currently published). In the following charts and tables, the data are presented as GP and non-GP referrals with the aggregate denoted as 'total referrals'. Two codes have been excluded throughout due to reasons stated above – 07 and 08.

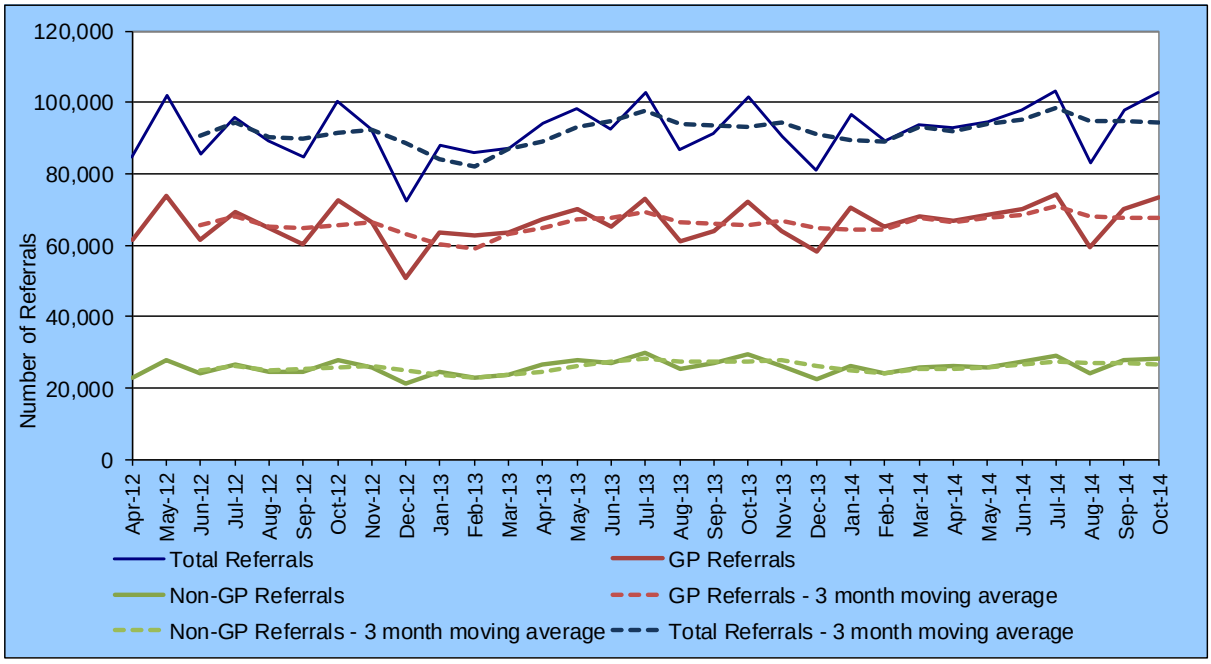
2.1 Outpatient referrals by referral type

Chart 1 shows the breakdown of the outpatient referrals split by GP and non-GP referrals.

GP referrals fluctuate between 60,000 and 70,000 each month, being below 60,000 only three times since April 2012.

Referrals including other sources fluctuate between the 80,000 and 100,000 mark each month, being below 80,000 just once since April 2012.

Chart 1: Outpatient referrals by GP referrals and non-GP referrals



The GP referrals data in isolation shows that, over time, there is a slight increase in the trend. The impact of including the other sources of referral means that this trend is still evident (i.e slight increase over time in referrals for a first outpatient appointment), but the overall volume of referrals is around 40 per cent higher. Note that this may be an underestimate due to the exclusion of codes 07 and 08.

Overall, GP referrals are accounting for a slightly smaller proportion of referrals, falling from 72.2 per cent in 2012-13 to 72.0 per cent in the 12 months to October 2014.

2.2 Referrals by Local Health Board (LHB)

This section considers differences in referral rates by LHB, and the differences in sources of referral between the health boards.

Table 1 gives a breakdown of all referrals per 10,000 population, broken down by local health board of residence.

Rates have been used to give relative context in terms of the population of each region of Wales.

Table 1: Referral rates per 10,000 population by Local Health Board (area of residence) and month

	Total number of referrals during:					Percentage change
Local Health Board	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Sep-Oct14
Betsi Cadwaladr ULHB	270.4	280.8	230.1	268.9	278.9	4%
Powys Teaching LHB	199.3	202.8	164.5	191.2	205.3	7%
Hywel Dda LHB	344.8	354.0	281.6	339.5	346.1	2%
Abertawe Bro Morgannwg ULHB	299.8	321.0	260.1	301.3	317.3	5%
Cwm Taf LHB	447.0	463.2	366.5	461.2	472.9	3%
Aneurin Bevan LHB	326.5	356.1	281.7	326.8	341.7	5%
Cardiff and Vale University LHB	307.0	324.7	268.2	302.6	328.6	9%
Wales	**314.7**	**331.8**	**267.4**	**314.3**	**328.7**	**5%**

(a) Calculations are based on 2013 Mid-Year Estimates. Source:Outpatient referrals dataset

Table 1 shows that:

- Cwm Taf had the highest rate of referral of the 7 health boards on a residence basis, followed by Hywel Dda and Aneurin Bevan. Powys had the lowest rate of referral followed by Betsi Cadwaladr.

Table 2: GP referral rates per 10,000 population by Local Health Board (area of residence) and month

	Total number of referrals during:					Percentage change
Local Health Board	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Sep-Oct 14
Betsi Cadwaladr ULHB	207.3	212.5	174.4	204.9	216.1	5%
Powys Teaching LHB	156.4	157.8	125.0	147.8	163.2	10%
Hywel Dda LHB	227.8	236.7	185.0	226.7	228.2	1%
Abertawe Bro Morgannwg ULHB	249.4	267.1	214.2	251.4	262.5	4%
Cwm Taf LHB	244.9	251.0	197.7	250.2	263.0	5%
Aneurin Bevan LHB	245.4	270.4	210.3	247.4	258.0	4%
Cardiff and Vale University LHB	210.3	224.8	182.9	203.9	226.4	11%
Wales	**226.0**	**238.9**	**190.6**	**225.2**	**237.1**	**5%**

(a) Calculations are based on 2013 Mid-Year Estimates. Source:Outpatient referrals dataset

Table 2 shows that:

- There is much less variation between the Health Boards when considering GP referrals only.
- Cwm Taf, Abertawe Bro Morgannwg and Aneurin Bevan had the highest rates of GP referral, whilst Powys and Betsi Cadwaladr generally had the lowest rates.

Comparing Table 1 with Table 2, month on month and across all health boards, we can see that referrals change at broadly the same rate as GP referrals. However the difference between health boards varies. The largest difference is in Cwm Taf, whose non-GP Referral rate per 10,000 population is twice as large as Cardiff and Vale or Hywel Dda. The smallest difference was in Powys, which was similar to Abertawe Bro Morgannwg and Betsi Cadwaladr. Table 3 below shows the proportion of GP referrals by health board and demonstrates the variation between the health boards (on a residence basis).

Table 3: Percentage of referrals that are GP referrals by health board

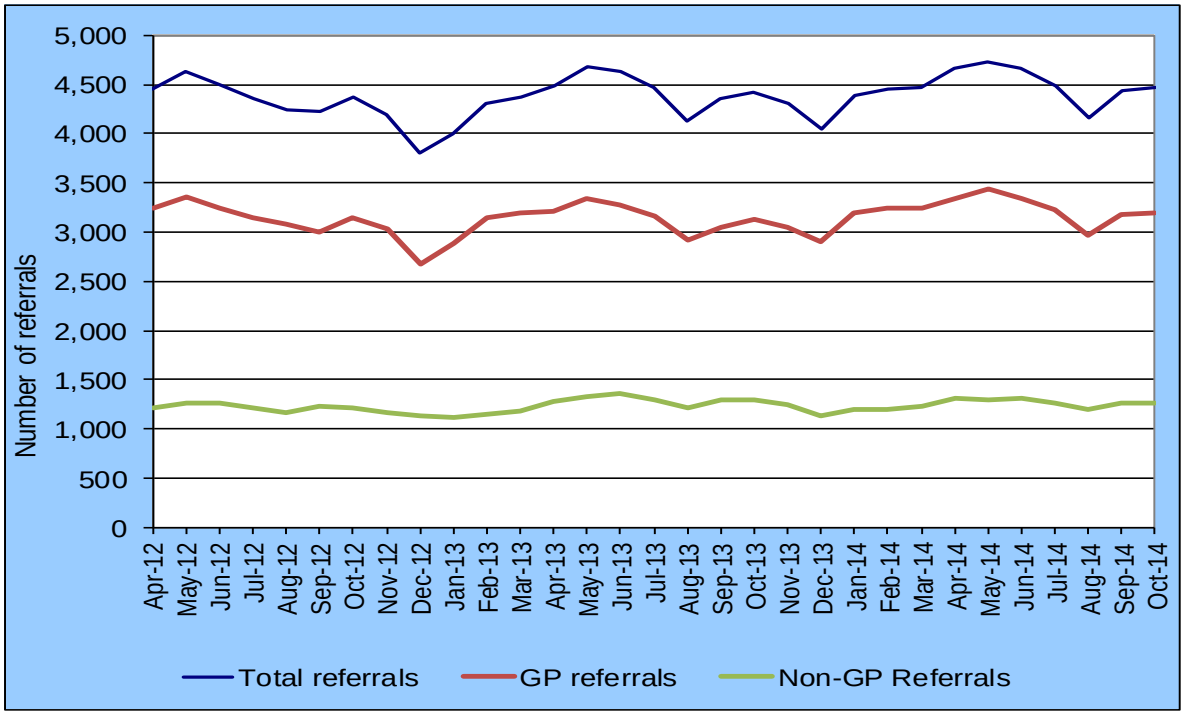
Local Health Board	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14
Betsi Cadwaladr ULHB	76.7	75.7	75.8	76.2	77.5
Powys Teaching LHB	78.5	77.8	76.0	77.3	79.5
Hywel Dda LHB	66.1	66.9	65.7	66.8	65.9
Abertawe Bro Morgannwg ULHB	83.2	83.2	82.4	83.4	82.7
Cwm Taf LHB	54.8	54.2	53.9	54.2	55.6
Aneurin Bevan LHB	75.2	76.0	74.7	75.7	75.5
Cardiff and Vale University LHB	68.5	69.2	68.2	67.4	68.9
Wales	**71.8**	**72.0**	**71.3**	**71.6**	**72.2**

Source:Outpatient referrals dataset

2.3 Referrals per working day

This section considers the affects of the number of working days in a particular month and type of referral. The number of working days in a month can be important for monthly comparisons, because more working days in a month generally mean that more activity takes place in that month. Another reason is that GPs don't tend to work on bank holidays, whereas the other referrers can. Therefore, the number of working days is a contributing factor to outpatient referral numbers.

Chart 2: Average number of referrals per working days of the month

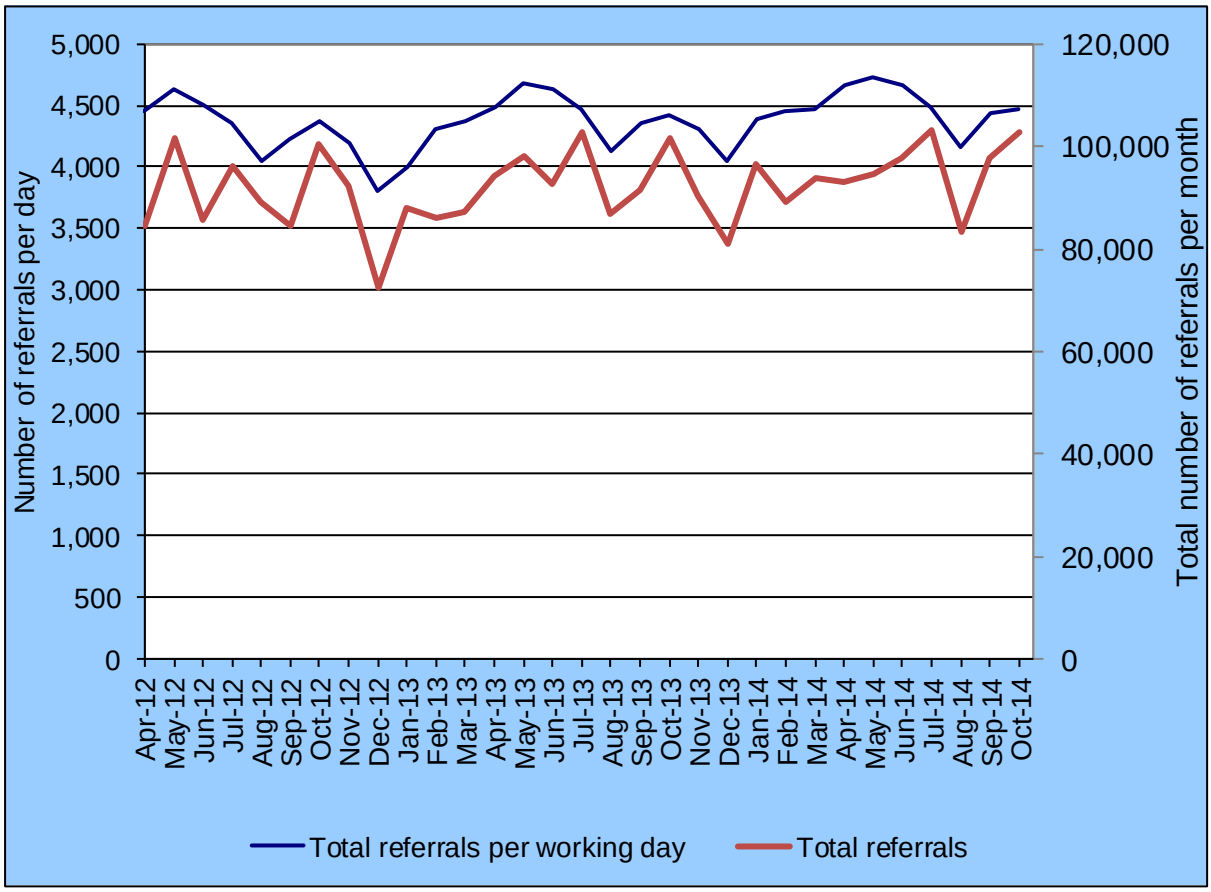


This chart shows that the average number of referrals per working day follows a similar pattern over time as average GP referrals per working day.

- Total referrals were mostly between 4,000 and 4,500 per working day.
- GP referrals were around 3,000 to 3,500 per working day.
- Non-GP referrals were around 1,200 to 1,300 per working day and show less variation than GP referrals.

This analysis shows that the whilst the average number of referrals, GP referrals and non-GP referrals follow a similar pattern over time, GP referrals fluctuate more than non-GP referrals. Chart 3 below compares the total number of referrals with referrals per working day. The trend is the same, however the series per working day is far less volatile.

Chart 3: Comparison of average number of referral per working day and total referrals



2.4 Referrals by treatment function

This section analyses differences in referrals by treatment function. This table shows the 10 largest treatment functions in October 2014 (and the same treatment functions for April 2012). These account for 71 per cent of outpatient referrals.

Table 4: Proportion of treatment functions by source of referral, April 2012 and October 2014

	April 2012		October 2014	
Treatment function	GP Referrals	Non-GP referrals	GP Referrals	Non-GP referrals
Trauma & Orthopaedic	48%	52%	53%	47%
General Surgery	82%	18%	83%	17%
ENT	87%	13%	85%	15%
Gynaecology	85%	15%	84%	16%
Dermatology	93%	7%	92%	8%
Opthalmology	77%	23%	71%	29%
Cardiology	73%	27%	71%	29%
Urology	75%	25%	75%	25%
General Medicine	54%	46%	46%	54%
Oral Surgery	68%	32%	59%	41%

Source:Outpatient Referrals Dataset

For October 2014:

- For general medicine and trauma & orthopaedic, GP referrals were around half of all referrals.
- For dermatology, ENT, general surgery, gynaecology, urology and oral surgery the majority of referrals were GP referrals.
- This pattern has been broadly followed since April 2012. However some specialties, such as ophthalmology, show an increasing proportion of referrals for non-GP sources. Whereas other specialties, such as rheumatology have seen an increase in GP referrals since April 2012.

The table shows that publishing only GP referrals means that for some specialities, much of the activity is not being picked up.

The analysis shows that if non-GP referral codes were introduced, the figures for some specialties would change considerably.

Some of the specialties that have the highest proportion of Non-GP referrals have been analysed further below.

Chart 4: Ophthalmology referrals by month and source of referral

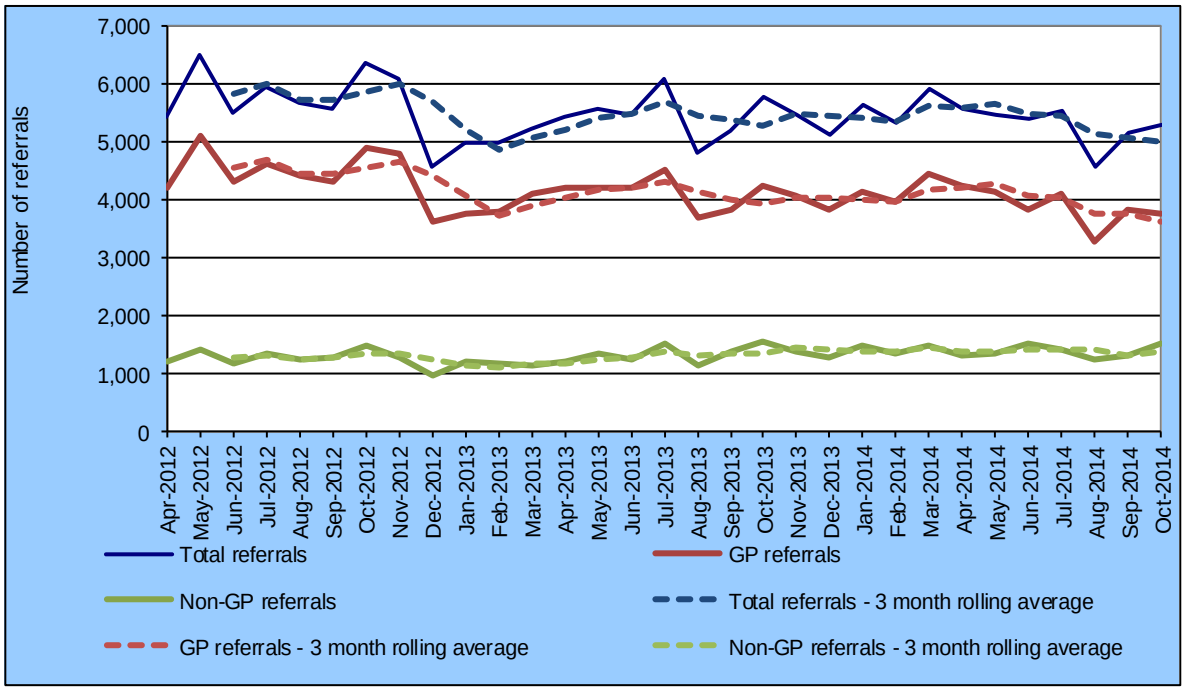


Chart 4 shows that there are consistently over 1,000 referrals not sourced from GPs almost every month since April 2012 and that this number is increasing with time whilst the overall number of referrals is falling.

Chart 5: Trauma & Orthopaedic referrals by month and source of referral

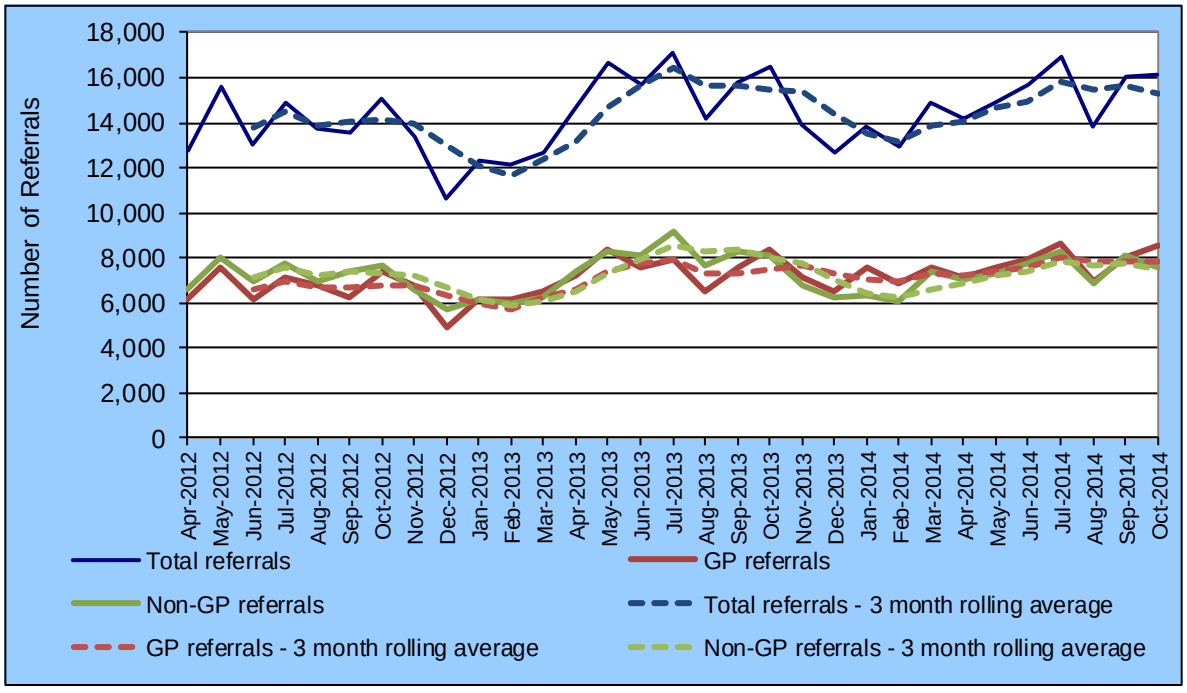


Chart 5 shows that the frequency of non-GP referrals is often higher in a month than GP referrals. This causes confusion in the overall trend.

On the basis of the above chart, inclusion of all referral codes appears to have relevance to reporting of Trauma and Orthopaedic referrals.

The tables below present source of referral breakdowns by organisation provider, with the aim of identifying reporting patterns amongst providers.

Table 5: Proportion of source of referral by organisation provider, October 2014

Per cent

	Local Health Board (provider)						
Source of Referral	Betsi Cadwaladr ULHB	Powys Teaching LHB	Hywel Dda LHB	Abertawe Bro Morgannwg ULHB	Cwm Taf LHB	Aneurin Bevan LHB	Cardiff and Vale University LHB
GP referrals	77.5	87.3	65.9	82.8	55.9	79.3	64.3
Initiated by the Consultant or Independent Nurse responsible for the outpatient episode							
Following an emergency admission	0	0.1	5.6	0	4.7	0	0.7
Following a domiciliary visit	0	0	0	0.1	0	0	0.5
Following an A&E attendance	0	0	0	0	0	0	0.6
Other	0	6.4	12.6	0	7.4	3.6	4.2
Not initiated by the Consultant or Independent Nurse responsible for the Outpatient episode							
Referral from a Consultant or Independent Nurse, other than in an A&E department	16.6	6.0	9.4	16.4	24.8	11.4	16.1
Referral from an A&E department	4.8	0	6.1	0.6	7.1	5.0	7.2
Self-referral	0.9	0.1	0.4	0.2	0.2	0.4	6.4
Community Dental Service	0.1	0	0	0	0	0.3	0
Unknown Source of Referral	0	0	0	0	0	0.1	0

Source: Outpatient Referrals Dataset

Table 5 shows that there are varying proportions of non-GP referrals across LHBs.

In October 2014, Cwm Taf LHB reported that 55.9% of referrals (on a provider basis) were by GPs, the lowest of the LHBs. This is because they have a much higher proportion of referrals from consultant or independent nurse than other health boards. Powys Teaching LHB had the highest (87.3%). The majority of non-GP referrals are classified as being referred from a consultant or independent nurse.

Whilst some of these differences are due to differences in services (for example the higher proportion of self referrals in Cardiff and Vale is due to the emergency and examination clinic for persons in dental pain, which is run through their dental hospital), some of these differences may be due to local coding differences. More work needs to be undertaken to understand this better and ensure the quality of the non-GP referrals is sufficient to be published broken down to this level.

Conclusions

The analyses above show that GP referrals, whilst accounting for a large percentage of referrals, are not the only source of referral that should be factored into outpatient referral analysis. As noted above, more work needs to be done to understand the non-GP referral data and for most health boards there need to be some local systems changes to allow them to utilise the full set of referral source codes.

As the NHS continues to change the way in which patients can be referred into secondary care, it is important that the statistics that we publish best reflect demand and activity.

Next steps

Due to the systems used in the health boards, only two LHBs are currently submitting data for the new optometrist source of referral code. The remaining LHBs will start submitting data once their Patient Administrative Systems has been updated to allow them to specify optometrist sites, or when local data entry / extraction processes have been updated allowing them to report this activity within the OPRds.

Our plans (subject to feedback) are to add an additional section to this monthly release containing all referrals data split by GP/non-GP referrals initially. As we work with health boards to understand this data better and the optometrist submissions start for all health boards we will move to leading with all referrals and will produce more detailed analyses. We will also add more context to the release around policies for outpatient referrals, to provide users with greater understanding of the data.

We plan to start publishing this additional information in our April 2015 release (February data) and keep users informed via the release.

Longer term we plan to include greater analysis within the release; for example referrals by treatment function and improved commentary around longer term trends and trends per working day.

3.0 Feedback

We welcome feedback on this statistical article.

The main questions we are interested in are:

- Is it important to have a breakdown of all referrals/GP referrals?
- How should the information on the additional referrals codes be presented in the release?

We can be contacted at stats.healthinfo@wales.gsi.gov.uk and will use feedback received to influence the future programme of work.

Notes on the use of statistical articles

Statistical articles generally relate to one-off analyses for which there are no updates planned, at least in the short-term, and serve to make such analyses available to a wider audience than might otherwise be the case. They are mainly used to publish analyses that are exploratory in some way, for example:
Introducing a new experimental series of data;

A partial analysis of an issue which provides a useful starting point for further research but that nevertheless is a useful analysis in its own right;

Drawing attention to research undertaken by other organisations, either commissioned by the Welsh Government or otherwise, where it is useful to highlight the conclusions, or to build further upon the research;

An analysis where the results may not be of as high quality as those in our routine statistical releases and bulletins, but where meaningful conclusions can still be drawn from the results.

Where quality is an issue, this may arise in one or more of the following ways:
being unable to accurately specify the timeframe used (as can be the case when using an administrative source);

the quality of the data source or data used; or

other specified reasons.

However, the level of quality will be such that it does not significantly impact upon the conclusions. For example, the exact timeframe may not be central to the conclusions that can be drawn, or it is the order of magnitude of the results, rather than the exact results, that are of interest to the audience.
The analysis presented does not constitute a National Statistic, but may be based on National Statistics outputs and will nevertheless have been subject to careful consideration and detailed checking before publication. An assessment of the strengths and weaknesses in the analysis will be included in the article, for example comparisons with other sources, along with guidance on how the analysis might be used, and a description of the methodology applied.
Articles are subject to the release practices as defined by the release practices protocol, and so, for example, are published on a pre-announced date in the same way as other statistical outputs.

Missing value symbols used in the article follow the standards used in other statistical outputs, as outlined below. ..	The data item is not available
.	The data item is not applicable
-	The data item is not exactly zero, but estimated as zero or less than half the final digit shown
*	The data item is disclosive or not sufficiently robust for publication