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Estimation Methodology relating to General and Personal Medical Services in England workforce statistics

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Purpose of this document

This document explains the estimation methodology used in the forthcoming General and Personal Medical Services in England workforce publication. The release will be classified as provisional and experimental statistics and we welcome comments on the estimation methodology which will be reviewed over the summer in advance of the September 2016 publication of 31 March 2016 data. If you wish to ask any questions or to discuss this further, please email gp-data@hscic.gov.uk

or call GP team on 0113 866 5582

Why these estimates are needed

The reforms set out in the Health and Social Care Act 2012 introduced new arrangements for commissioning healthcare services and a new system through which education and training are planned, commissioned, funded and delivered. The Workforce Information Architecture work stream was established by the Department of Health as part of the reforms to review, improve and test the arrangements for handling the workforce data and intelligence that will be necessary for the reformed systems to operate effectively. The review recommended that a workforce Minimum Data Set (wMDS) be collected from all providers of NHS-funded care. The reforms also presented an opportunity to improve data quality, as well as data coverage and completeness, to support a step change in the effectiveness of workforce planning.

As a result of this review the HSCIC consulted users in 2014 on changes to the way the information used to produce the General and Personal Medical Services statistics are sourced, processed, defined and presented. These changes are intended to give users a better understanding of how General Practice is resourced and allow them to plan for future workforce needs more effectively. Details of the consultation and the final response document are available at http://www.hscic.gov.uk/gp-census.

The consultation also captured users' requirements in respect of the changes following the future implementation of the Workforce Minimum Dataset (wMDS). The wMDS will going forward be the source data for this publication and will predominantly be provided via a web-based tool. The wMDS will replace the current data sources, please see the data quality section of the 27th April 2016 publication for further details. More information relating to wMDS can be found at: http://www.hscic.gov.uk/wMDS.

The new source uses a web based tool named the Primary Care Web Tool (PCWT). Within the PCWT a workforce module was developed to allow practices to enter and save their workforce information. The PCWT was a system in existence that all primary care organisations were already using as part of the contract declaration process, so it would avoid data providers having to get to know a separate system

The PCWT workforce module collects information on the whole of the practice workforce (GPs, Nurses, Direct patient care and Administrative staff) at an individual level.

Prior to 2015 the information was collected as follows:-

For GPs: -

> The NHAIS (Exeter) General Practice Payments System, a computerised payment system of General Medical Practitioners in England, was the main source of General Practice and Practitioner information and includes individual level details for each practitioner.

Additional information about individual GPs not recorded on the system was supplied manually by Clinical Commissioning Groups (CCGs) via secure electronic data transfer.

For other practice staff (Nurses, Direct patient care and Administrative staff):-

Aggregated information was supplied manually by Clinical Commissioning Groups (CCGs) at practice level via secure electronic data transfer.

Prior to 2010 aggregated General Practice staff information was collected at Primary Care Trust level with the completeness of such returns at practice level being unknown.

Not all practices provided a response for the September 2015 collection, so information for these practices has been estimated. The estimated values for September 2015 will be included in the information presented at England and CCG level but individual practice level estimations will not be published.

As the Full Time Equivalent (FTE) obtained from NHAIS for GPs is not comparable to figures from the new PCWT collection, 2014 GP FTE information has been estimated on a comparable basis to the FTE submitted via the PCWT.

What will be estimated

The publication of the September 2015 data on 27th April 2016 will use a change of source information throughout the publication.

1. 2015 Estimation for all staff groups

In September 2015, 88% of practices provided a return. For the remaining 12% of practices information will be estimated.

The calculation of the estimates is a straightforward process based upon the data received from the practices which submitted a valid return.

Registered patient population information is known for all practices, including those that did not submit data.

Information is collected for the following job groups:

- General Practitioner
- Nurse
- Direct Patient Care (DPC)
- Administration

Each of these job groups contains sub categories for job role, for example general practitioner job group contains GP job roles of Senior Partner, Partner/Provider, Salaried By Practice, Salaried By Other, Not Known, Registrar F1/2, Registrar ST3/4, Retainer, Locum - Covering Sickness/Maternity/Paternity, Locum - Covering Vacancy, Locum – other.

i. Using the data collected, a national rate of job role per registered patient was calculated, i.e. a rate for each of the 11 GP job role types was calculated.
ii. This figure was then used as a multiplier to derive individual practice level estimates by job role on a pro rata basis for those practices that did not submit data. .
iii. These estimated practice level values were summed and incorporated into the overall England totals.

Since the national rates were used to derive the estimates, when these estimated figures were incorporated into the dataset, the new ratios of practitioner types to registered patient counts remain the same.

Estimates for the other job group types were calculated following the same process.

Worked example

	Count of registered patients	Practitioner type - Partner/Provider	National level rate per patient (Partner/Provider / Registered Patients)
Practices with submitted data	10,000,000	2,578.15	0.0002578

For the practices without submitted data, the calculated rate per patient is used as a multiplier to calculate an estimate.

	Count of registered patients	England level rate per patient	Estimated count of type Partner/Provider (Registered patients * national level rate per patient)
Practice 1	10,667	0.0002578	2.75
Practice 2	9,031	0.0002578	2.33

Finally, these calculated unrounded estimated counts are added to produce an estimated total for each practitioner type.

Total for practices without data	1,200,000	0.0002578	309.38

Then this estimated total for practices without data is added to the submitted data to produce estimates at England level.

Difference between FTE and Headcount estimations

For FTE the methodology is the same irrespective of the level of geography in question, i.e. the results are the same calculating the estimates at individual practice, CCG or at England level.

Headcount is estimated differently, since a staff member may work at more than one practice and in some instances at four or more practices and it is important that they are not counted multiple times. These practices may fall within the same or across several CCGs, with all practices falling within England. E.g. for estimating the headcount figures across CCGs

i. A GP is counted only once within each CCG by removing duplicate entries using the unique identifier across each CCG to obtain headcounts at individual CCG
ii. Sum the CCGs headcounts and calculate the ratio of job role per registered patient for each job role for the submitted data

iii. For each CCG add the known patient count for the missing practices within that CCG.
iv. Then multiplying this by the appropriate ratio to the total patient count for the missing practices for each CCG to produce the estimate.
v. This estimate is then added to the submitted data for each CCG to produce the CCG estimates.

The 2015 estimations have been derived at an overall England and CCG level. To show the robustness in these estimations the HSCIC has produced estimations for different practice characteristics as follows:-

- Based on practice patient population size – to understand if the size of the practice adversely affects the estimations
- Based CCG areas – to understand if CCG regions distorts the estimations
- Based on type of practice. Every practice is classified as urban or rural and dispensing or non-dispensing - do these classifications adversely affect the estimations.

These additional estimation findings will be published in detail in the data quality section of the 27th April 2016 publication,

Alternative Estimation methodology-

Since all practices are contained within NHAIS a potential option is to use NHAIS 2015 data for missing practices. Options considered were:-

a) Use the NHAIS 2015 figures directly for the missing practices. This methodology was rejected due to the inaccuracies in the FTE figures contained within the NHAIS system, as was identified during the validation of the PCWT data. See section 'Estimation of 2014 FTE data for GPs' below for further details.
b) Apply a difference factor to every GP contained in NHAIS for which the practice did not provide a submission via the PCWT. The difference factor is the calculated difference between the 2015 NHAIS FTE and the PCWT submission where the GP is contained within both systems in 2015, by different job role categories. This methodology was rejected as DQ work has indicated that there are a number of GPs included in NHAIS which are not in the PCWT submission. These types of GPs cannot be easily identified for the missing practices.

These options would only apply for GPs as NHAIS only records GPs, therefore would still need an alternative estimate methodology for the other practice staff groups.

2. Estimation of 2014 FTE data for GPs

The change in data source has highlighted that the FTE figures from the PCWT are not directly comparable with FTE figures from the NHAIS and Manual collections due to:-

- NHAIS having a default value of 1.0 FTE whereas the PCWT has no default value.
- NHAIS Individual GP FTE capped at 1.28 (48 Hours) and in the PCWT the cap is 2 FTE (75 Hours)
- NHAIS has instances of GPs working at multiple practices each with the default value of 1, e.g. a GP working at five practices would have an FTE of 5.0 from NHAIS which was capped at 1.28 for the publication.
- NHAIS has instances of GPs on the system recorded against specific practices who no longer work at that practice and their records have not been removed.
- NHAIS FTE field is non-mandatory, PCWT FTE is mandatory and the data provider has to complete in order to pass data quality checks and enable submission of their data.

Due to these FTE differences and to allow comparison, the 2014 FTE information for GPs will be estimated as follows:-

i. Remove from the 2014 NHAIS dataset those records where GPs are recorded against a practice where they are no longer working from the PCWT validation process
ii. For those GPs recorded in both the new PCWT and the 2015 NHAIS and where the GP is included in both the 2014 and 2015 NHAIS data set at the same practice with the same FTE recorded, record the new 2014 FTE as the FTE provided in the 2015 PCWT return
iii. The majority of the 2014 GP information had been sourced from NHAIS. For those records which were sourced in 2014 from the manual CEN1 direct practice collection or directly from the Electronic Staff Record (ESR) system, leave the FTE as provided, as there is no evidence that these sources of data had inaccurate FTE.
iv. **For all remaining GPs**
    a. Calculate the difference between the 2015 NHAIS FTE and the PCWT submission where the GP is contained within both systems in 2015, by different job role categories.
    b. Apply these differences at job role level to the 2014 NHAIS FTE figure for the remaining GPs in the 2014 dataset.

Where will the estimates be used

a) 2015 Estimation for all staff groups

The 2015 estimates will be used to produce all high level information by job role for both FTE and headcount. It has not been possible to estimate for age, gender and country of qualification, therefore estimates are not available for these areas.

b) Estimation of 2014 FTE data for GPs

The 2014 estimate of the FTE for GPs has been applied at an individual level, therefore estimates are available at all current breakdowns, including job role, gender and age.

Provisional Experimental

Due to the changes in the collection tool and the need to produce estimates for all staff groups for the 2015 non submitting practices and the estimation of the 2014 FTE for GPs, the General and Personal Medical Services in England workforce report has been badged ‘Provisional experimental statistics’.

The classification of experimental statistics is in keeping with the UK Statistics Authority’s Code of Practice for Official Statistics. Experimental statistics are new official statistics that are undergoing evaluation. They are published in order to involve users and stakeholders in their development, and as a means to build in quality at an early stage. The UK Statistics Code of Practice states that “effective user engagement is fundamental to both trust in statistics and securing maximum public value…” and that as suppliers of information, it is important that we involve users in the evaluation of experimental statistics.

The UK Statistics Code of Practice can be downloaded from https://www.statisticsauthority.gov.uk/monitoring-and-assessment/code-of-practice/

Given the classification of 'Provisional experimental statistics' the HSCIC would welcome comments and feedback on the methodology applied which will be reviewed over the summer ahead of the September 2016 publication of the 31st March 2016 data. Feedback can be made by emailing gp-data@hscic.gov.uk

For further information

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