Workforce Census 2017: Methodology

1 Preloaded data

1.1 Organisations

- An up-date-list of organisations providing child health was generated prior to data collection, using:
    - Responses to the reconfiguration question from the RCPCH Workforce Census 2015.
    - NHS Digital Organisation Data Service (England).
    - Internet research, including news relating to hospital closure or merger in last two years.

1.2 Doctors

- Doctors were identified who have joined the consultant and SAS doctor workforce since the 2015 census using:
- Certificate of completion of training (CCT) and CESR awards made in 2015, 2016 and 2017 to identify potential new consultants to be added to the census.
- Advisory Appointment Committee (AAC) records to identify new post holders.
- Lists were checked against 2015 census and de-duplicated. Once potential new consultants/SAS doctors have been identified, further research was conducted to establish place of work.
- The GMC LRMP was used to add gender and place of primary medical qualification (PMQ) where unknown.
- Data from the 2015 census matched to the 2017 question set and preloaded to the data collection platform.

2 Data collection

A custom built online data collection system was developed and hosted by Net Solving.

2.1 Prelaunch communication

An email was sent to clinical directors and leads in September 2017 stating that data collection for the census will be launched and asking them to inform us of any contact changes.

2.2 Updates to contact details

Any changes to contact details was made to the contacts database before the final list of census recipients was produced and uploaded to the Net Solving system.

2.3 Launch

On the day of the launch in October 2018, registration details and instructions were sent to recipients (i.e. clinical leads) via the online data collection system.

2.4 Email reminders

A schedule of regular reminders was produced, and emails were sent to incomplete or non-responders via the online data collection system from November 2017 to July 2018.

2.5 Follow up calls

Follow up calls were conducted where response had been started but there was missing data, from April 2018 to July 2018.

2.6 Organisation changes

Information about changes to organisations arose during data collection: the merge of two Manchester trusts into one. Central Manchester University Hospitals NHS Foundation Trust (RW3) and University Hospital of South Manchester NHS Foundation Trust (RM2) were combined into the Manchester University NHS Foundation Trust (R0A).

3 Post-deadline action: Data validation

3.1 Use of other data sources

Submission was closed on 31st July 2018. Where responses were still missing, third party data sources were used to confirm a basic set of information about the workforce and services. These sources included:

- Staffing lists published on organisation websites used to verify staffing at each organisation, and to confirm grade and job type.
- The GMC List of Registered Medical Practitioners was used to add gender and place of primary medical qualification to staff records.
- Organisation websites used to confirm services provided at each organisation – i.e. inpatient service, outpatient service, neonatal service, SSPAU, PED.
- Neonatal network websites used to confirm level of neonatal unit.
- Information about staffing at organisation from job descriptions from RCPCH's AAC team.
- RCPCH membership records.

3.2 Data validation

After missing data were researched, we sent a copy of the researched data to the clinical leads and asked them to validate if it was correct, and amend if not.

3.3 Response rate

There were 191 organisations in total providing paediatric services in 2017. Out of these, 129 (67.5%) submitted complete responses (every question answered). In 156 (80.6%), core hospital and staffing information was completed, or validated by the clinical lead/director.

Where core hospital and staffing questions were not completed by census users or validated by clinical leads, this information was researched by College workforce team from third party sources (see section 3.1) and entered onto the data collection system. Therefore, data relating to hospitals and staff used in census analysis is close to 100% complete.

Responses to individual questions within the census had varying response rates, for example information on the number of unit closure days was difficult to obtain. Response rates to individual questions are indicated in the census reports, alongside the analysis of that data.

4 Data cleaning

Data cleaning was conducted against a data cleaning protocol. System validation criteria at the point of user entry helped to assure sensible responses.

All neonatal unit classifications were validated using neonatal network data from the National Neonatal Audit Programme

5 Data storage

Data was stored in an Access database to provide an organised and documented structure to the data and to enable relationships between tables. A database plan set out the structure of the data tables, the fields within them and the relationships between them.

6 Analysis

6.1 Quality assurance of analysis

The following steps were taken to quality assure census data:

- All data analysis was checked by a member of the team other than the one carrying out the analysis.
- Analysis was undertaken using a combination of Microsoft Excel and Microsoft Excel software.

6.2 Weighting

As mentioned above, we did not receive complete data for all questions in the census. Therefore, when making estimates about frequencies we needed to weight up the data.

As an example, for rota gaps, first we determined the total number of rotas by each nation (e.g. overall for the UK there are 773 rotas at each tier and type). Then we determine the response rate (e.g. overall for the UK, we got a complete response for 466 rotas). In this example, there is a ratio of 1.66 total rotas to valid rotas. Therefore, reported vacancies could be scaled up by a factor of 1.66 to estimate actual overall rates in the UK.

To make this procedure more precise, we calculated weighting factors by nation (England, Scotland, Wales, Northern Ireland), rota tier (tier 1, tier 2, tier 3) and rota type (general paediatric, general/neonatal combined, neonatal). This accounts for different response rates for different nations, rota tiers and rota types.

This method assumes that the responses are representative of the rotas overall and therefore it is valid to generalise more widely based on the data. However, there may be factors that mean non-responding organisations have different vacancy rates than responding organisations. For example, the most understaffed organisations with higher vacancy rates than average may have been least likely to respond as the clinical lead was too busy. On the other hand, we have a lower response rate from larger organisations (as the census response is more labour intensive there), and there tends to be lower vacancy rates at large or tertiary centres as these are attractive places to work. Therefore, on balance, we are happy that weighting up from responses is a valid way to estimate overall rates.

Version 1.1

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RCPCH Workforce Team