



General Register Office for Scotland
information about Scotland's people

**Using NHS Central Register (NHSCR)
For
Statistical Purposes**

July 2010

Using NHSCR For Statistical Purposes

1. This paper updates the Board on progress made by general Register Office for Scotland (GROS) with the use of NHSCR data for statistical purposes.
2. The creation of a periodically updated extract suitable for statistical processing was approved by the Board at the meeting in November 2007. ATOS Origin, the current NHSCR IT contractor, was commissioned to develop and deliver the system for producing this extract. The project experienced difficulties in implementing the solution originally proposed by ATOS but an alternative solution has now been achieved.
3. We have been able to analyse several data scans of the NHSCR, spanning the period between February 2009 and April 2010. This has enabled us to assess the information relating to population stocks, migration flows and aspects of the timeliness of the data. We have established that the number of people registered on the NHSCR exceeds our population estimates for Scotland by around 20%. There is substantial regional variation, with some areas showing a fairly close match between the two sets of estimates. In the coming months, and especially as data from the 2011 Census become available, we will be seeking to understand better the nature of the overcount and develop suitable adjustments so that data from the NHSCR can more readily be used in estimating population stock.
4. We have completed an initial analysis of the data on migration across health board boundaries captured by the NHSCR with a view to assessing and improving current data streams which inform our population and migration estimates. Results so far have been very encouraging. We have been able to understand better various anomalies in the data and identify alternative ways of using the register to produce more accurate migration statistics. We will continue to monitor the alternative data feeds for the foreseeable future and produce an assessment of what impact a change in the current population estimation methodology might have before we move to implement such change. In the near future, we expect to have regular updates of postcode information which will enable us to take the analysis of migration to the postcode level and assess the feasibility of using the NHSCR in place of the Community Health Index (CHI), the current source of these data, and so simplifying the production system considerably.
5. The availability of several data scans from the register has enabled us to study the dynamics of the database and estimate the appropriate time points at which a statistical measure or extract should be taken. The NHSCR is a live system which is constantly changing, both due to the ongoing real movements in the population and to the data cleaning and improvement which is being continuously undertaken by the NHSCR staff. There will be some time before all relevant information has fed through into the database. How long do we need to allow before the database can deliver an answer which is sufficiently reliable? In the case of health board level migration flows our work suggests that it takes up to 8 weeks for the data to become sufficiently stable. This is an issue which may need to be addressed again when other demographic measures are considered.
6. During the past few months we have initiated quality improvement work for the Scottish Longitudinal Study (SLS). The SLS uses the NHSCR as a 'spine' to link census and civil registration records for a sample of the Scottish population. Occasionally the

different data sources disagree and having a statistical extract of the NHSCR has given us the flexibility to undertake in-depth analysis of the extent and nature of such discrepancies. We expect this work to lead to improvements to both the content of the current SLS database and the methodology for updating it in the future.

7. The NHSCR has served as the source of statistics produced for use by the Scottish Government directly. Since 2001-02, the NHSCR has been recording when people with no previous NHS registration in the UK are put on the register. We used this information to estimate the regional distribution of international migrants into Scotland. This was supplied to the Scottish Government to scope the feasibility of conducting a survey of migrants in Scotland.
8. The results from the types of work described above directly contribute to supporting census – by helping build the knowledge base for quality assuring census outputs, developing adjustments where appropriate and identifying areas where additional enumeration effort is needed. The next important stage for us is to begin direct comparison between data from the 2009 Census Rehearsal and the NHSCR and firm up our plans for the work to be carried out alongside the 2011 Census
9. There are strict protocols for the secure transfer of the NHSCR extract to GROS in Ladywell House and its storage. So far, 5 downloads from the NHSCR have been received and made available for analysis. This has been necessary in order to study the changes of the database over time and design a system that appropriately captures relevant updates with the minimum number of data transfers. This development work is not yet complete although we have made significant progress. In the next few weeks we intend to reduce the number of scans actively in use to three and securely archive the remaining. The need to retain the archived data will be periodically reviewed as our confidence in understanding the dynamics of the database increases.
10. The initial work on the NHSCR extract has been very exciting and encouraging. We continue to see huge potential for work on population statistics using this data. Our plans for future application continue to develop.

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