



**General Register Office for Scotland**  
*information about Scotland's people*

**Paper NHSCR GB 4/09**

**Using NHSCR For Statistical Purposes**

**June 2009**

1. At its meetings in June 2007 and January 2008 the Board considered and agreed a proposal from GROS for using NHSCR data to improve our demographic statistics. This paper provides a brief update on work undertaken since then and our plans for the immediate future.

2. The main focus for GROS in the intervening period has been on the development of a system which creates and delivers to GROS a periodically updated extract suitable for statistical processing. ATOS Origin, the current NHSCR contractor, was commissioned to develop and deliver a solution. The project experienced difficulties in implementing the solution originally proposed by ATOS and GROS is currently considering alternative options.

3. The opportunity to carry out statistical work has therefore so far been limited. GROS acquired and set up a statistical extract of the full register as of 1 February 2009 and analysis is currently in progress. The initial processing is concerned with establishing how the overall count of persons on the register compares to our population estimates for different areas of Scotland. Any 'oddities' and discrepancies which the statistical team encounters are promptly fed back and discussed with the NHSCR team in Dumfries. We also plan to carry out in the near future an exercise exploring the possibility of the register holding duplicate registrations for some individuals. This work is likely to contribute to the extensive programme of quality work which the NHSCR team is already undertaking. The objective of this stage of the work will be to arrive at the 'best NHSCR estimate' of the population currently resident in Scotland.

4. The next stage of the work will aim to explore data on migration captured by the NHSCR. We will look to assess and improve current data streams which inform our population and migration estimates. GROS is fully involved in the UK-wide programme on 'Improving Population and Migration Statistics' which is led by ONS. This programme of work includes projects which aim to link GP registrations to other data in order to assess how different groups are covered by the register and the resulting statistical implications, so that suitable adjustments can be developed. Data sources that are considered for this kind of work are records of term-time postcode of residence for students in higher and further education and data on migrant workers issued with NI number. GROS is looking to implement such studies for Scotland whenever possible.

5. The results from the types of work described above directly contribute to supporting the 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. We also plan to develop the use of the data in pursuing our longer term objective to explore the feasibility of and eventually develop a new system for producing census type information built on the integration of a range of sources. To this end we are putting in place plans to implement experimental work, first around the time of the Census Rehearsal (2009) and later at the time of the Census itself (2011), to construct a population count from the combination of a range of sources with the NHSCR at the centre, and compare this count to the results produced by the traditional census enumeration method. To achieve the necessary integration of sources we will use probabilistic record linkage techniques, which are an efficient way of identifying records belonging to the same

person that are held on different databases, so that the potential for double counting is minimised when data sources are combined.

6. Record linkage techniques are essential in countries like the UK where no unique person identifiers that comprehensively cover the population are available. They require sophisticated, and costly, IT tools, and this is another area where we have been working to develop our capability. An IBM tool with the required functionality has recently been purchased by the Scottish Government (SG) and we are setting up arrangements to allow GROS to make use of it in record linkage work. This will involve creating a 'bubble' with higher level of security within the Scottish Government IT system which allows GROS and a very small number of SG IT support staff to retain exclusive control of the data. This is similar to the principle on which the GROS IT system operates within the wider SG environment. The objective is to create sufficient level of security to allow us to process data from the Census, the NHSCR and possibly other sources through the record linkage tool. Further details of the arrangements can be made available to the Board if they are of interest.

7. There is a huge potential for work on population statistics using data held on the NHSCR. This is one of the most exciting recent developments in the area of Demography research in GROS. Our plans for future applications continue to develop.

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