

RCGP Research and Surveillance Centre:

50 years' surveillance of influenza, infections, and respiratory conditions

The Royal College of General Practitioners' (RCGP) programme of influenza and respiratory disease surveillance has been supported by the Department of Health (DH) since 1967. The RCGP 'Weekly Returns Service (WRS)' has published a weekly report since, making it the longest established primary care sentinel network in Europe (<http://www.rcgp.org.uk/clinical-and-research/our-programmes/research-and-surveillance-centre.aspx> [web page includes sign-up instructions]).

In 1953, the College established a Records and Statistical Unit in Birmingham and the Epidemiological Observation Unit in Surrey. The WRS was formed through integration of these units into one. There has been continuity of leadership: from Donald Crombie (1953–1989) and Douglas Fleming (1989–2013).¹ In 2013 Simon de Lusignan became Director and the network name changed to the RCGP Research and Surveillance Centre (RSC).

The RCGP RSC has grown in terms of size, scope, integration of microbiological testing, and data-linkage. Its outputs and impact come from its leading international role in surveillance and research, including the early identification of pandemics and the contribution to the development of what are now standard methods of assessment of vaccine effectiveness. We describe its evolution and its plans for the future.

SIZE OF THE DATABASE, FEEDBACK, AND DATA QUALITY

Between 1967 and 1993 the registered population within the RCGP RSC grew to 200 000 and it comprised 40 practices. By its 30th anniversary the population had risen to 570 000, with electronic links to practices and laboratory data. The network exceeded 1 million in 2015, and has now expanded to 237 practices and a population of 2.4 million.

From the start the network has wanted clinicians to record a diagnosis in each consultation based on their clinical judgement, and only change that diagnosis if it adds to patient care. Diagnoses were originally recorded on paper written with 'f', 'n', or 'o' written after — to designate first, new, or an ongoing problem. This enabled incident and prevalent problems to be differentiated in routine data, vital for surveillance, but also for the Fourth National Morbidity Survey (MSGP4).²

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High-quality data recording was previously encouraged by visits to practices and quarterly feedback; now we apply principles of audit-based education to give practices personalised feedback on their data quality. We also provide use of online learning.

SCOPE OF THE DATA AND REPRESENTATIVENESS OF THE NETWORK

The network has been representative of the national population.^{3,4} Initially, the denominator was based on the practices' own age-sex registers, but more recently this has become electronically validated against national extracted denominators. We provide patient-level socioeconomic status and ethnicity, where recorded. The disease data were recorded in practice-based diagnostic indexes. Computer recording of diagnostic data in the 1990s facilitated expansion of analytical possibilities including trend analysis of secular change in the incidence of common diseases and of chronic conditions. In 2015 the database was extended to collect all Read-coded data on an individual patient basis but pseudonymised.

In collaboration with the Public Health Laboratory Service, the network began collecting respiratory virology samples from patients presenting with acute influenza-like-illness in the early 1990s to enhance influenza surveillance, allowing the onset of the season to be detected, the circulating strains characterised, and the intensity monitored. It has periodically been involved in pilots of chlamydia, shingles, and

gastroenteritis infection. It has also carried out detailed data collections alongside several of the 10-yearly national censuses. Its system of pseudonymisation allows the linkage of RCGP RSC data to other health data, without revealing patients' identities.

MONITORING INFLUENZA

One of the most important outputs is its surveillance of influenza, which is used by the Chief Medical Officer to know when the virus is circulating each year. Age-specific reporting has been particularly important for influenza surveillance: in 1969/1970 it chiefly affected persons of working age; in 1989/1990 children; and in the millennium winter adults, especially older people.⁵ The network had a pivotal role in reporting the 2009/2010 swine flu pandemic.⁶ RCGP RSC also provides a weekly report to the European Centre for Disease Control (ECDC), and participates in a range of European influenza vaccine research consortia.

CONTRIBUTING TO MEASURING FLU VACCINE EFFECTIVENESS

In 1992 the WRS established routine virological investigation of patients with flu symptoms. This combination of clinical and virological data alongside vaccine exposure enabled the estimation of influenza vaccine effectiveness.⁷ The network has collaborated in studies annually since, demonstrating vaccine effectiveness and more recently the population impact of childhood intranasal flu vaccination.⁸ RCGP RSC also has a major role in Europe, supporting pooled analysis and innovative medicines research.⁹

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FUTURE PLANS

The RCGP RSC is constantly looking to collaborate and innovate. We want to build our excellent longitudinal data, combined with microbiological reference laboratory results, to support research that reduces seasonal mortality and morbidity, and their impact on health systems.¹⁰ We are looking to develop a serology databank, in collaboration with Public Health England (PHE).¹¹ We also want to work at the cutting edge of clinical informatics, and to establish collaborations with other national specialty-based colleges and data networks. We have held initial discussions about how we might have an impact on child health and on perioperative health. Additionally, we would like better collaboration between the different UK routine health data sources to monitor treatment outcomes and effectiveness. European and international collaboration will also remain a feature.

We also aspire to collect monitoring data directly from patients. An ambition for our 50-year anniversary is to seek support to improve our data archives and create a continuous 50-year record. The network would like to see the return of the census-linked decennial morbidity surveys.

The RCGP RSC has had a successful first 50 years, but it needs to prepare for the next 50, embracing the changes happening in primary care in a big-data world. We welcome enquiries from practices who wish to become network members.

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