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OXFORD-ROYAL COLLEGE OF GENERAL PRACTITIONERS RESEARCH AND SURVEILLANCE CENTRE



Annual Report

Weekly Surveillance Returns Service

2024-2025







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Glossary of abbreviations

AEI	Adverse Events of Interest
ARI	Acute Respiratory Illness
CMMS	Cambridge Multimorbidity Score
CMR	Computerised Medical Record
COPD	Chronic obstructive pulmonary disorder
DSA	Data Sharing Agreement
DSP	Data Security and Protection
EU	European Union
GDPR	General Data Protection Regulation
GP	General Practice
hMPV	human metapneumovirus
ICD	International Classification of Diseases
ILI	Influenza-like illness
IMD	Index of Multiple Deprivation
ISO	International Standards Organisation (week)
LRTI	Lower Respiratory Tract Infections
NHS	National Health Service
ORCHID	Oxford Royal College of General Practitioners Clinical Informatics Digital Hub
PPIE	Patient and Public Involvement and Engagement
PCSC	Primary Care Sentinel Cohort
PHE	Public Health England (superseded by UKHSA on 1st October 2021)
POCT	Point of Care Testing
RCGP	Royal College of General Practitioners
RSC	Research and Surveillance Centre
RSV	Respiratory Syncytial Virus
SOP	Standard Operating Procedures
SWSAPC	South-West Society for Academic Primary Care
SQuIRE	Surveillance, quality improvement, research and education
TPP	The Phoenix Partnership, providers of the SystmOne CMR system
UKHSA	UK Health Security Agency
URTI	Upper respiratory tract infections
WHO	World Health Organisation

Executive Summary

The Oxford-Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC) has been collaborating with the UK Health Security Agency (UKHSA) on infectious disease surveillance in primary care for over 60 years. In 2024-25, the RSC produced a Weekly Return of respiratory diseases and other disease surveillance, along with an Annual Report summarising network changes and surveillance highlights of the year. This 2024-25 Annual Report covers the activities of the RCGP RSC during the year with specific analyses covering the winter season.

The RSC expanded in both the number of practices joining the network (with 112 additional practices) and participating in its surveillance activities. For surveillance, the RSC continued with its serology and virology sampling programme and publishing weekly reports and dashboards which covered a range of communicable diseases and acute infections. No changes were made to the sampling operating model in 2024-25. However, the RSC focused on encouraging more practices to participate in virology sampling and paediatric serology sampling to maximise available capacity.

Throughout the year, the RSC supported the vaccine effectiveness studies conducted by the UKHSA, particularly focusing on the safety and effectiveness of vaccines during this season. The RSC continued its assessment of disparities in the clinical presentation of diseases (see Appendix A), vaccine uptake and episode typing during this season.

The RSC remained committed to its surveillance work and contributing to public health efforts in England. Key patterns identified in this season included:

- Greater rates of Influenza-like illness (ILI) compared to 5-year average rates
- Rates of COVID-19 continued to remain much lower than the 5-year average rate.
- Higher rates of whooping cough particularly during May 2024
- Greater rates of measles compared to the 5-year average rates likely reflect continued lower vaccine uptake.

1. Introduction

Welcome to the Oxford-Royal College of General Practitioners (RCGP) Research and Surveillance Centre's (RSC) Annual Report for 2024-2025. This is our 58th year of infectious disease surveillance in primary care in England[1]. For over half a century, the RSC has produced a Weekly Return of respiratory diseases and other disease surveillance, along with an Annual Report summarising network changes and surveillance highlights of the year. The network's primary area of interest was the surveillance of influenza, continuing its focus on infectious disease surveillance [2], virology and serology sampling and vaccine effectiveness studies.

The RSC reports the incidence rate of 41 monitored communicable and respiratory conditions in the member practices every week. This surveillance is facilitated by the routinely collected computerised medical records (CMRs) from participating general practices. We detect any abnormal trends in disease incidence, alerting participating practices and the UK Health Security Agency (UKHSA) to the potential risk of a disease outbreak. In addition to disease surveillance supported by CMR, the RSC actively collects virology and serology samples [3] from member practices to enhance its respiratory disease surveillance.

The number of RSC's participating general practices continued to increase this year. RSC maintains a close relationship with member practices and provides a number of benefits to practices for membership in the network. At the beginning of each surveillance season, an annual commissioning letter detailing the activities within the RSC, is shared with all participating practices. And every week, the RSC communicates network updates to member practices through a newsletter. The RSC also provides publicly available virology and serology dashboards [4] to inform member practices of circulating viruses.

We would like to thank all the member practices and their patients within our network. Without the support of our member practices and the use of their pseudonymised patient data, we would not be able to undertake our crucial work of monitoring disease rates, assuring the effectiveness of national vaccination programmes, and participating in other research projects.

This report is based on the clinical data and testing results of the samples collected from 1,902 member practices and brings together the principal elements of our work. It covers the period from the 6 of May 2024 to the 4 of May 2025 (International Standards Organisation (ISO) Week 19 of 2024 to ISO Week 18 of 2025), which includes the entire 2024-2025 winter flu season. We summarise the key surveillance findings of the year and highlight key RSC developments.

2. The Oxford-RCGP RSC in 2024-25

1. The purpose of the RSC

The RSC is an internationally renowned source of information, analysis and interpretation of primary care data. Established in 1957, the RSC is one of Europe's oldest general practice sentinel networks and has been the primary source for disease surveillance in England for over 60 years. The RSC serves as an active research and surveillance unit that now collects pseudonymised data from over 2,000 practices across England.

The RSC is dedicated to ensuring the health and safety of communities by providing comprehensive disease surveillance across general practices in England, and conducting a range of innovative research. The scope of RSC's use of data is for Surveillance, Quality Improvement, Research and Education (SQuIRE) purposes [5].

A nationally representative Primary Care Sentinel Cohort (PCSC) consists of member practices across England, ensuring a wide and balanced geographical distribution. The representativeness of the population is evaluated based on region, age, sex, ethnicity, socioeconomic status (measured by the Index of Multiple Deprivation, IMD), smoking status, obesity status, comorbidities (measured by the Cambridge Multimorbidity Score, CMMS), and frailty in Appendix A.[6]

RSC's pseudonymised patient-level primary care database captures clinical information of patients registered with RSC member practices through the CMR system. We are particularly interested in capturing clinical information on (1) the presentation of symptoms suggestive of respiratory infections such as influenza-like illness (ILI) or acute respiratory illness (ARI); (2) the diagnoses of respiratory infectious diseases, including influenza, COVID-19, and other pathogens; (3) the diagnoses of diseases caused by environmental factors, such as hay fever; and (4) detailed vaccination and some other treatment records of the patients. A subset of the RSC collects virology swabs and/or blood samples for virological and/or serological analysis.

2. Key developments for the RSC in 2024-25

The RSC continued to proactively recruit new member practices into the network with the addition of 112 practices in 2024-25, to achieve a total 1,902 member practices across England.

A number of improvements were made to the communication and marketing strategy for the RSC as well as a significant increase in the volume of digital assets to help promote and recruit additional practices to the network, including a new professional engagement (https://orchid.phc.ox.ac.uk/surveillance/professional-engagement) and patient and public involvement and engagement webpages (https://orchid.phc.ox.ac.uk/surveillance/rsc_ppie_group). Assets included digital and hardcopy leaflets, and website and social media content. Improvements were also made to patient-facing communication documents for member practices to display on-site regarding data processing and surveillance sampling.

The RSC continued to operate a Patient and Public Involvement and Engagement (PPIE) Group which was invaluable for consulting with patients and professionals for informing research funding applications, designing research studies, and developing the RSC offer.

3. Monitoring disease incidence

The RSC is commissioned by the UKHSA to provide surveillance services, and this partnership enables the continuation of a successfully operating surveillance programme [7]. The RSC is UKHSA's principal primary care surveillance system, working in collaboration with other sources of health service data. The RSC is recruited to be nationally representative by key demographics including age, sex and region. (Appendix A).

Our data feeds into UKHSA's surveillance system, providing early warning of epidemics or unusual patterns of disease. Our monitoring alerts health services to seasonal events that place pressure on resources, such as the start of seasonal influenza epidemics and allows services to be planned accordingly.

In the 2024-25 season, we monitored on a weekly basis the incidence rates of 41 communicable and respiratory diseases specified by UKHSA (

Table 1). The incidence rates were based on the diagnoses recorded by general practitioners in our member practices during the week.

The legal basis of our work with UKHSA is The Health Service (Control of Patient Information) Regulations 2002 which allows data to be disclosed for public health purposes without patient consent in England. Our surveillance work with UKHSA is enabled under Regulation 3. The specific projects, including the extension to conduct COVID-19 surveillance, were individually approved by the UKHSA Caldicott Guardian, and are renewed on an annual basis. All other studies obtain their own ethical approval.

Table 1. The 41 conditions / groups of conditions monitored by the RSC network and their mappings to the World Health Organisation's (WHO) International Classification of Disease version 10 (ICD-10)

Condition Name	**ICD-10**
1. Water and Food Borne Disorders	
Intestinal Infections	A00-A0
Viral Hepatitis	B15-B19
Non-infective Enteritis / Colitis	K50-K52
2. Environmentally Sensitive Disorders	
Acute Respiratory Infections	Through algorithm
Asthma	J45-J46
Conjunctivitis	H10-H13
Hay fever / Allergic Rhinitis	J30
Infected Insect Bites	T14
3. Respiratory Infections	
Acute Bronchitis	J20-J21; J4
Laryngitis / Tracheitis	J04
Respiratory disorders	J00-J99
Tonsilitis / Pharyngitis	J02-J03
Infectious Mononucleosis	B27
Common Cold	R05 - R07; R09
Pleurisy	R091
Acute Sinusitis	J01
Upper Respiratory Tract Infection	J00-J06
Lower Respiratory Tract Infection	J20-J22
Influenza-like illness	J09-J11
Pneumonia / Pneumonitis	J12-J18
Strep throat / peritonsillar abscess	A38; J020; J36
Pertussis	A37
Acute Otitis Media	H650-H651; H660; H669
ECLD – Asthma exacerbations	J45

ECLD – COPD exacerbations	J44.1
COVID-19 infection	U07
4. Vaccine Sensitive Disorders	
Measles	B05
Mumps	B26
Rubella	B06
5. Skin Contagions	
Bullous Dermatoses	L10-L14
Herpes Zoster	B02
Skin symptoms	R20-R23
Chickenpox	B01
Skin / subcutaneous infection	L00-L08
Impetigo	L01
Herpes Simplex	B00
Scabies	B86
6. Disorders Affecting the Nervous System	
Peripheral Neuropathy	G50-G64; G70-G72
Meningitis and Encephalitis	A170-A171; A390; A83-A85; A87; G00-G05
Musculoskeletal symptoms	R25-R29
7. Genitourinary System Disorders	
Urinary Tract Infection	N30; N390

4. Collecting virology and serology samples

A subset of RSC practices collect virology swabs and/or blood samples for virological and/or serological analysis [8]. Only virological results are reported back to practices and the patient, although it must be stressed that this is not a diagnostic service. Practices are reimbursed for each virology and serology sample they submit for laboratory testing. Both virology and serology samples are transported to UKHSA reference laboratories where they are analysed and stored in dedicated biobanks for onward research. The maximum capacity for 2024-25 sample testing was 30,000 virology and 18,000 serology samples.

Virology samples were collected randomly from throat swabs taken from patients presenting with ILI, ARI (including upper respiratory tract infections (URTI) and lower respiratory tract infections (LRTI)) and suspected COVID-19 in RSC participating practices. This is to identify organisms with epidemic or pandemic potential and analyse the details (i.e. sequencing) of the circulating viruses, especially in winter seasons. Virological samples collected in RSC participating practices were analysed in UKHSA's respiratory virus reference laboratory in Colindale, London. The analysis of viruses in the 2024-25 season includes COVID-19, influenza, respiratory syncytial virus (RSV), human metapneumovirus (hMPV), adenoviruses, rhinovirus, enterovirus and other coronaviruses.

Serology samples were obtained opportunistically from volunteer patients attending routine blood tests at sampling practices within the PCSC [8]. These patients may be having blood tests as part of an acute illness or chronic disease management or prevention, leading to an overrepresentation of risk groups. These samples are primarily used to estimate population exposure to COVID-19 [9]; however, serological surveillance has also been successfully applied to monitoring levels of population exposure to influenza and diphtheria [8]. From time to time, samples may also be used for testing antibody levels for other communicable diseases which may be circulating in the community for the

effectiveness of associated vaccines. Serology samples are managed by UKHSA's Vaccine Evaluation Unit in Manchester.

5. Measuring vaccine effectiveness

RSC contributes crucial clinical data for vaccine effectiveness studies carried out by the UKHSA. UKHSA regularly evaluates the effectiveness of influenza vaccines before the COVID-19 pandemic to inform its vaccination policy [10]. During 2024-25, the vaccines that were evaluated using RSC data were the influenza vaccine and the COVID-19 vaccine [9]. RSC provided patient clinical data and vaccination records to support vaccine uptake studies in both general and target populations and vaccine effectiveness studies on circulating viruses, especially influenza.

6. Helping to develop clinical practice

The RSC relies on practices agreeing to share pseudonymised patient data and, in return, their aggregated data provides evidence for research that is used to improve clinical practice and patient outcomes. Practices have access to practice-level dashboards to help them track their weekly sampling volumes and infections rates. The regional-level dashboard data and weekly returns reports help practices to monitor weekly infection rates in their areas for capacity and demand planning.

We want to provide benefits for our practices beyond their altruism in supporting public health. We fund practices for the time involved in taking specimens and provide a range of feedback to practices to improve engagement with our work [11], and the quality of data collected. This includes the weekly newsletter and access to real-time dashboards for practices to see the number of microbiological samples they have provided in comparison to the whole RSC network, which is useful data to inform workforce and appointment planning. We continue to encourage high-quality clinical records, such as primary care CMR and vaccine exposure data, to support vaccine effectiveness studies for COVID-19 and influenza vaccines. Member practices also have the opportunity to participate in research studies.

In the 2024-25 season, we focused on studying vaccine coverage [9] and vaccine benefits and risks [12]. We expanded our virology sampling from patients presenting with influenza-like illness (ILI) only to include those presenting with ILI, ARI (including URTI and LRTI) and suspected COVID-19. We continued to develop a phenotype to improve ARI recording, which was implemented in subsequent seasons [11]. We also continued to utilise an episode typing algorithm, removing reliance on clinician-entered data in the computerised medical records to enable more powerful reporting to practices and UKHSA. The algorithm uses disease specific interval between relevant observations to distinguish new and ongoing episodes [13].

3. The Oxford-RCGP RSC Dataset

1. Our data extraction process and information governance

We have a Data Sharing Agreement (DSA) with our RSC member practices which enables the provision of pseudonymised data for "SQuIRE" purposes [5], namely surveillance, quality improvement, research and education. Patients who have withheld consent for data sharing, for any

reason, are excluded from our analyses. These patients are identified through an 'opt-out' code, which the automatic extraction process uses to exclude these health records.

Data from member practices is extracted using a pseudonymised NHS number as the unique key linking identifier on a weekly basis. Data are pseudonymised (this is a process that scrambles any strong identifiers such as name, NHS number, and date of birth) as close to the source as possible, this varies between brands of computer systems, for example, Egton Medical Information Systems (EMIS) and The Phoenix Partnership (TPP) SystmOne. All data transfers are encrypted.

The pseudonymised NHS numbers and pseudonymisation algorithm for data linkage enable us to link data to other data sources at an individual level, without knowing the identity of these individuals. This includes linkage to results held by UKHSA, hospital and death data, and other disease registries.

Additionally, we can link to other data collected from individually consented patients. All of the data were handled following the Oxford-RCGP RSC Data Management Standard Operating Procedures (SOPs). This met NHS Digital's Data Security and Protection Toolkit (DSPT) requirements.

The Oxford Royal College of General Practitioners Clinical Informatics Digital Hub (ORCHID) is compliant with Data Protection Legislation, which relates to the protection of individuals with regard to the processing of personal data. The ORCHID database is compliant with Article 6(1)(f) (legitimate interests) under the UK General Data Protection Regulation (GDPR).

When personal data from ORCHID is processed for our specific research projects, we do so in accordance with Articles 6 (1e) and 9(2)(j) of the UK GDPR, which allows for this processing as a means to perform a task in the public interest (research). We are also permitted to process special category data as it is necessary for research purposes under Article 9(2)(j) of the UK GDPR. These legal bases (public interest/research) also apply to researchers from other entities when they access the ORCHID database for their research projects. In those instances, they act as the data controller for their own projects.

2. The dataset used for the RSC Annual Report 2024-25

The dataset used in this report was extracted from the ORCHID database in late 2025. This report covers the period from 6 May 2024 to 4 May 2025 (ISO Week 19 of 2024 to ISO Week 18 of 2025). It includes 19,820,161 registrants from 1,778 practices in week 19 of 2024 and 20,174,288 registrants from 1,902 practices in week 18 of 2025. This includes all patients who were registered with one of the RSC member practices for at least one week during the reporting period. The datasets for swabbing results and vaccine effectiveness were defined differently for the specific purposes of the end-of-influenza season report.

For the week-by-week disease incidence graphs, we include episodes of disease in the numerator if the patient was registered with a practice within the RSC network at the time of the episode. The denominator includes all registered patients for that particular week.

3. Representativeness of the RSC sample population

Our goal is to ensure that the RSC database is as representative as the national population, thereby minimising sampling bias in studies conducted using our data. This section presents the demographic (age and gender) breakdown of our sample population for the 2024-25 season and compares it with that of England as a whole. The geographical distribution of the RSC practices is also presented in this section. The sample population includes all patients who were registered with an RSC member practice for at least one week during the reporting period.

The RSC sample population has increased after an additional 112 practices joined our network (compared to 99 additional practices in the previous year). The network remains generally representative of the national population in terms of age and sex distribution. However, individuals under 18 years old are slightly under-represented (Figure 1). A detailed age-sex breakdown of the RSC network across NHS regions is presented in Appendix A.

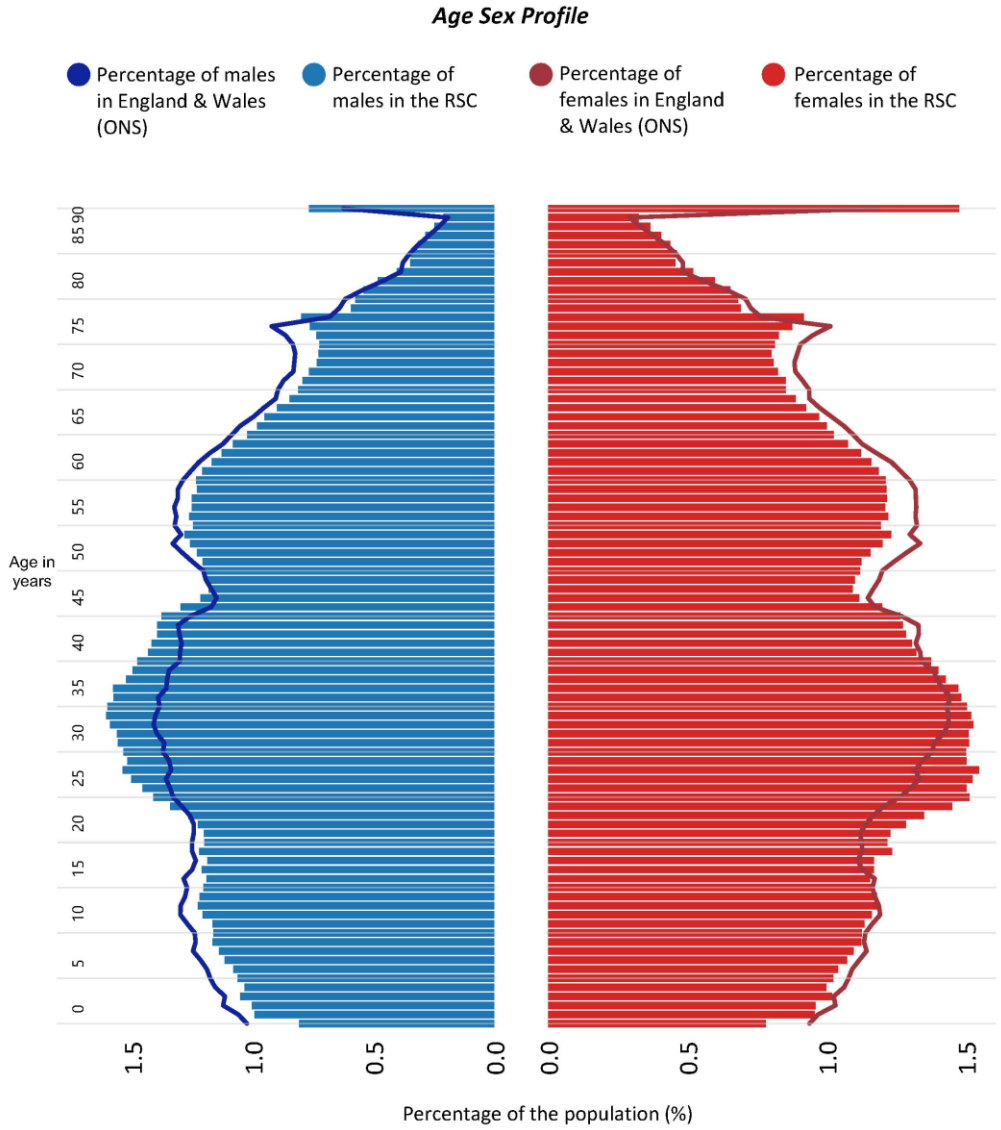


Figure 1. The age-sex profile of the RSC sample population compared with the England national population in the 2024-25 season

Note: the bars show the number of patients within our dataset, by gender and age band, and the lines show the distribution of the corresponding population of England as a whole.

We aim to maintain a balanced geographical distribution of the RSC member practices by varying our priorities for recruitment. The distribution of the RSC member practices in the 2024-25 season is presented in Figure 2.

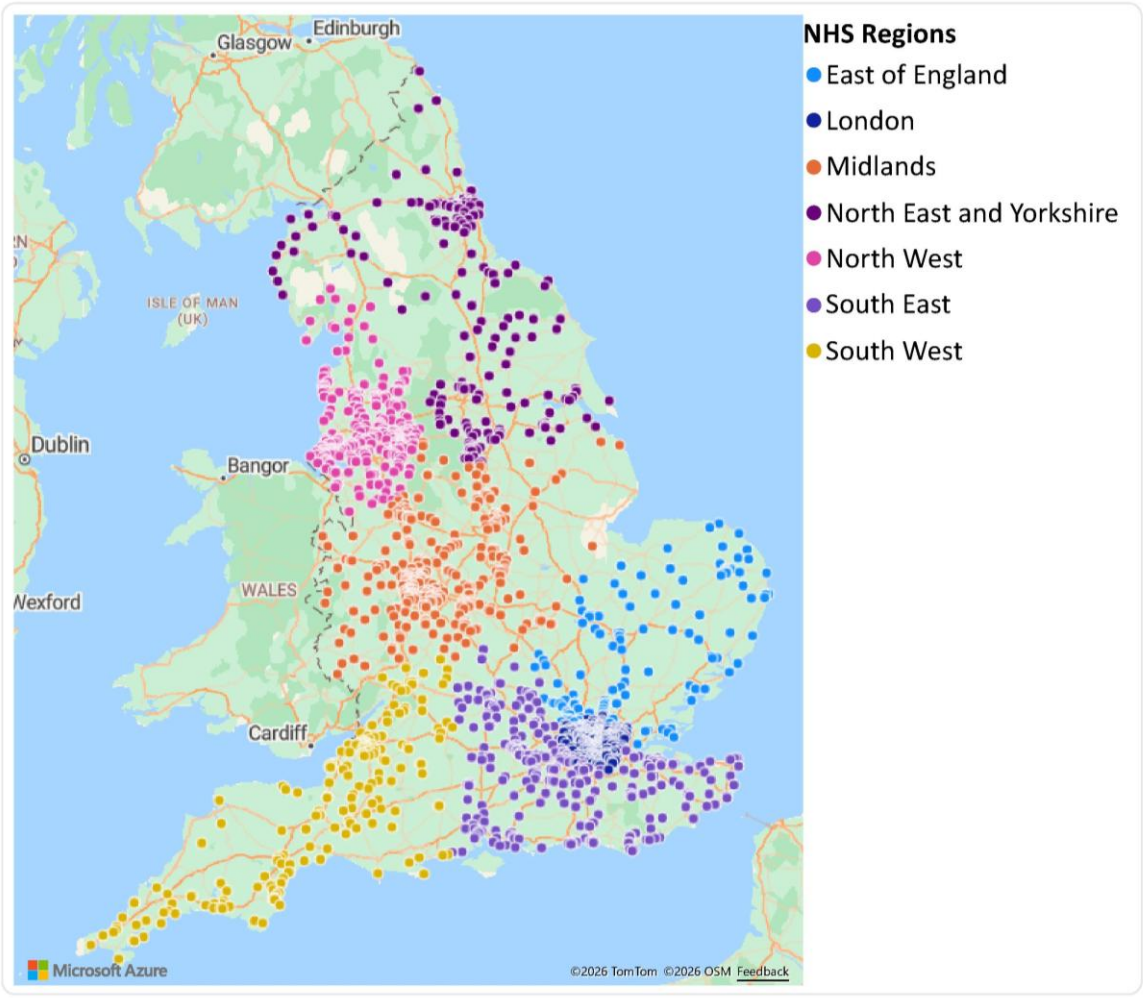


Figure 2. Distribution of RSC member practices among NHS regions in England in the 2024-25 season

4. Key Surveillance Priorities for 2024-25

Work on COVID-19 and influenza was the central part of the RSC's surveillance activity in the 2024-25 season. In addition to surveillance of the weekly incidence of influenza-like illness, we conducted a programme of serological and virological swabbing throughout the flu season and analysed vaccine uptake and effectiveness.

1. Serology sampling programme

In the 2024-25 season, a total of 12,750 serology samples was collected, of which 11,624 was linkable to the RSC's primary care data (Table 2). Most of the samples were taken from the adult population and the target of 12,000 samples was achieved. Whilst practices were encouraged to collect samples from younger age groups, the numbers collected were lower than in older age groups (Table 2). For the 2023-24 season, a total of 51,644 serology samples were collected; this is a significantly higher volume which was reduced to a maximum of 18,000 samples capacity for all age groups in 2024-25 after budget revision by UKHSA.

Table 2. Number of serology samples collected in the 2024-25 season

Age Band	Number of Samples Collected	Number of Samples Matched
1-4yrs	15	13
5-14yrs	142	125
15-24yrs	367	340
25-44yrs	1,623	1,486
45-64yrs	4,145	3,770
65-74yrs	3,004	2,716
75-84yrs	2,759	2,533
85+yrs	695	641
Total	12,750	11,624

2. Virology sampling programme

In the 2024-25 season, virology testing for a range of viruses undertaken. A total of 27,451 virology samples were collected in RSC in the 2024-25 season (Figure 3), with an increase of 3,567 samples collected compared to the previous season.

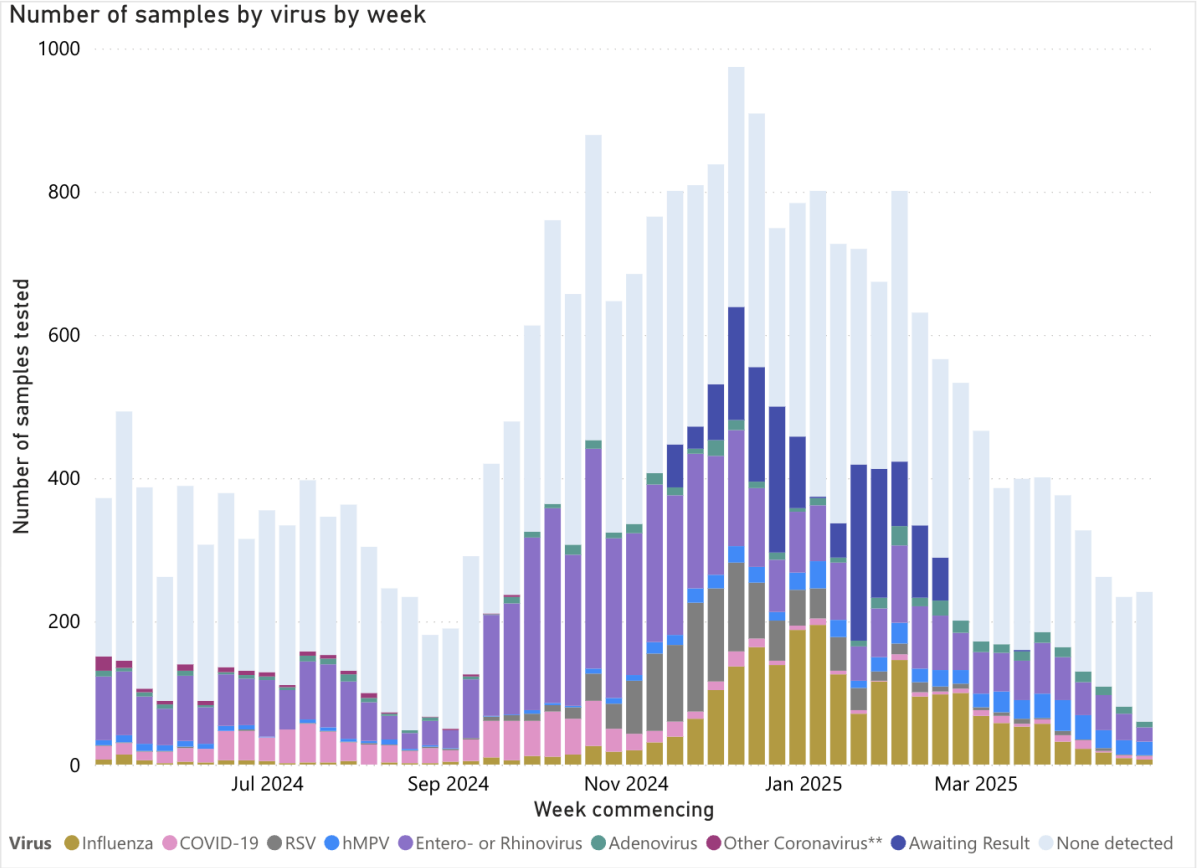


Figure 3. RSC's RSV, Influenza and SARS-CoV-2 Virology Swab Surveillance 2024-25 by viral strain

3. Vaccine uptake

The RSC monitors the uptake of the influenza vaccine in the population groups outlined in the flu vaccination programme as commissioned by UKHSA[14]. The extended flu vaccination programme was continued this season to include clinical risks for specific age groups and health conditions. This included patient groups; residents in a care home for older adults, all adults aged 65 years and over.

In the 2024-25 season, the influenza vaccine uptake in the over 65 years group was 74% (2,776,129 of eligible population: 3,744,399), while the uptake was comparatively low in pregnant women (15%; 13,599 of 93,313), children aged 2-3 (43%; 177,567 of 413,302), children aged 4-15 (46%; 1,187,260 of 2,578,476).(Table 3). These are similar to the uptake rates from the 2023-24 season.

GP records are of high quality for vaccinations carried out in primary care. However, where vaccinations are carried out outside primary care, data about these may not reach the primary care CMR [15].

Table 3. Influenza vaccine uptake in the RSC practices 2024-25 season

Eligible group	Total eligible population	Vaccine coverage
Adults aged 65+	3,744,399	74%
Children aged 2-3	413,302	43%
Children aged 4-15	2,578,476	46%

Other	10,871,524	5%
Pregnant women	93,313	15%
Risk group patients	3,624,314	34%
All patients	21,325,328	28%

* The “other” group tend to be carers and health workers. Risk group patients include those with clinical vulnerability.

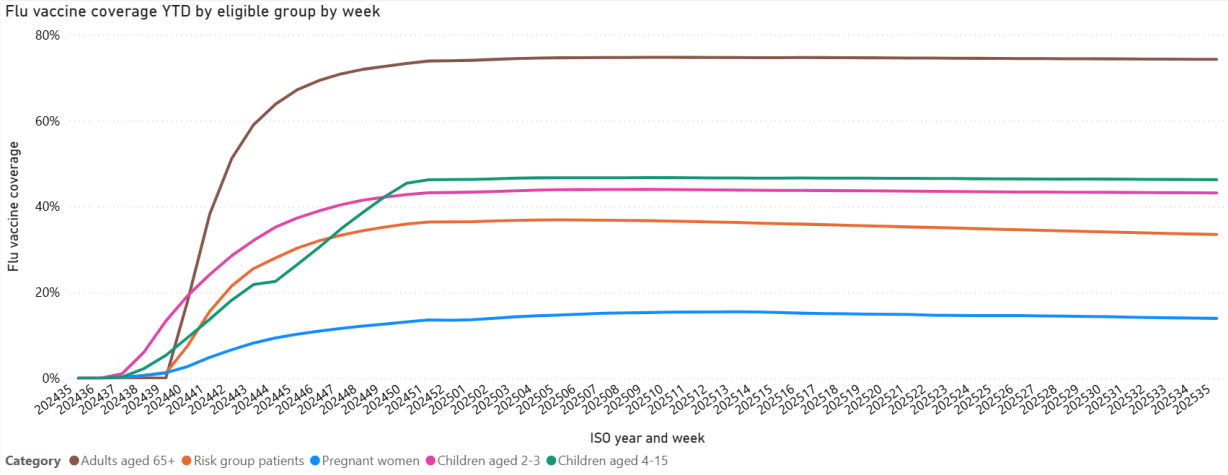


Figure 4: Influenza vaccination uptake 2024-25 by eligible group category.

4. Vaccine effectiveness and uptake

RSC data was one of the primary data sources for UKHSA’s evaluation of influenza vaccine effectiveness published May 2024. In this study Influenza vaccine effectiveness across primary care and hospital settings was investigated during the 23/24 influenza season. The study evaluated 5 influenza vaccine types: live attenuated influenza vaccine (LAIV), cell-grown quadrivalent influenza vaccine (QIVc), egg-grown quadrivalent influenza vaccine (QIVe), recombinant quadrivalent influenza vaccine (QIVr) and adjuvanted quadrivalent influenza vaccine (aQIV). The authors reported: vaccine effectiveness against all influenzas ranged from 63% (95% confidence interval 46 to 75%) to 65% (41 to 79%) among children aged 2-17, from 36% (20 to 49%) to 55% (43 to 65%) among adults 18-64 and from 40% (29 to 50%) to 55% (32 to 70%) among adults aged 65 and over[16].

Other studies published this season using RSC data focussed on evaluations of vaccine uptake and associated disparities. These included evaluations of COVID-19 and Influenza vaccine uptake in pregnant women[17] and disparities in uptake of Shingrix vaccines[18].

5. Key Surveillance Trends for 2024-25: Disease Incidence

The RSC monitors and reports the incidence of 41 conditions in our weekly disease surveillance reports and within a range of other regular reporting to UKHSA i.e. quarterly, annual and ad-hoc. Weekly reports are published here; https://www.rcgp.org.uk/representing-you/research-at-rcgp/research-surveillance-centre/public-health-data

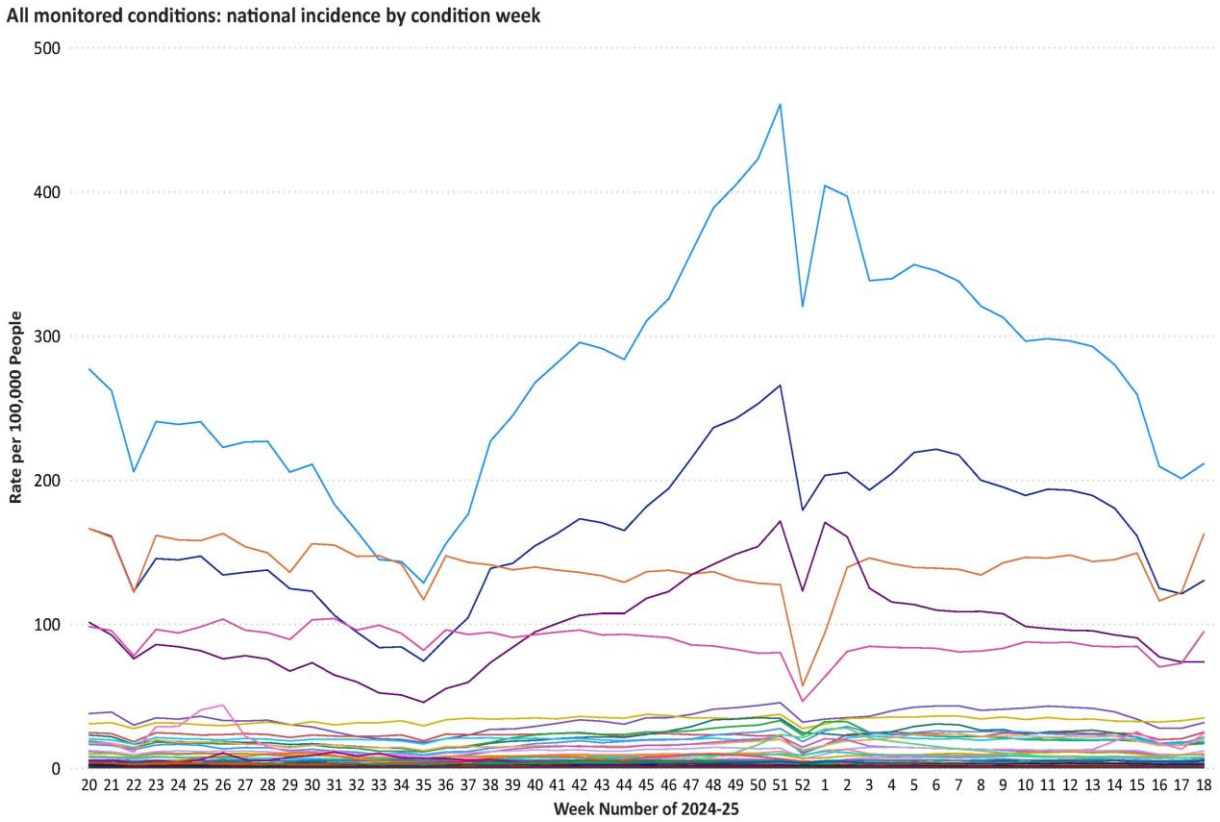


Figure 5: Summary of key conditions monitored; x axis shows represents ISO week.

Incidence rates of the 41 conditions are presented by region and age band and are also compared with our 5-year average. Graphs showing the weekly incidence of all monitored conditions in the 2024-25 season are included in Appendix B. These graphs follow the same format as those in the RSC weekly surveillance report but are presented as an annual amalgamation. The 5-year average presented in the graphs was calculated using data from the 5-year period prior to the start of the season.

The data are presented in this report by disease priority, key points are summarised as follows:

1. Respiratory infections

The incidence of acute respiratory infections (ARI), the umbrella category covering all respiratory infections, showed typical seasonal patterns, with lowest incidence observed during the summer before gradually rising through the autumn to peak in the winter. The ARI incidence peak was observed at ISO week 51(16 – 22 December 2025) with a rate close to 500 per 100,000.

Seasonal patterns of exacerbations of chronic lung disease closely mirrored ARI incidence; national rates of Asthma exacerbations were consistently above the 5-year average rates, throughout the year; whilst rates of chronic obstructive pulmonary disorder (COPD) remained similar to 5-year average rates.

Influenza-like Illness (ILI) peaked at ISO weeks 1 and 2 (30 December 2024 – 12 January 2025), with rates at the peak being higher compared to the 5-year average rates. Incidence rates of COVID-19 were substantially lower than the 5-year average.

Differences in respiratory infections based on age group were evident in the 2024-25 season. Greatest incidence of respiratory infections overall was seen in infants (<1 year) and children aged 1–4 years (peaking at approximately 2,500 and 1,900 per 100,000 children respectively); (see Appendix B, p22, top graph). For ILI, incidence was greatest in the oldest age group (85 years and over), with a rate of over 80 per 100,000 people at its peak in this age group (Appendix B, page 22, bottom graph). Regional variation was also evident, with the North-West often having the highest incidence of both ARI and lower respiratory Tract infections (LRTI); respectively Appendix B p1 top graph, and p4 top graph). In contrast, incidence rates were typically lower in London, lower than the national average (e.g. see Appendix B, LRTI graphs, p4).

2. Water and food-borne disorders

Rates of water and food borne disorders were mostly similar to the 5-year average in this season, (see Appendix B, p30, top graph). Greatest rates were seen in the <1s, where the rate remained close to or greater than 50 per 100,00, followed by 1-4 years age group, where the rate was consistently over 25 per 100,000 compared to the national rate which was under 5 per 100,000 (see Appendix B, p30, top graph). Rates of intestinal infections in London and the Northwest regions were consistently higher than the national rates (see Appendix B, p9, top graph).

The incidence of viral hepatitis was also consistently higher in London compared to all other regions; greatest incidence was seen in age groups: 25 – 44 years and 45-64 years, where rates were consistently higher than the rate across all age groups (see Appendix B, p10 top graph). Overall, the incidence of non-infective enteritis/colitis and viral hepatitis mostly aligned with the 5-year average.

3. Environmentally-sensitive disorders

Rates of asthma were similar to the 5-year average rates; by region rates were typically lowest in London as compared to the national rate and 5-year average (see Appendix B, p11 top graph). Asthma rates were greatest in the over 85s and lowest in the <1s (see Appendix B, p32 top graph).

The national incidence of conjunctivitis, and the incidence in most NHS regions appeared to be lower than the 5-year average, the exception being in the North West England, which saw the greatest rates amongst all regions and more closely tracked the 5-year average. Rates were greatest in the two youngest age groups. (Appendix B, respectively p11 and 32, bottom graphs)

The incidence allergic rhinitis (hayfever) largely followed seasonal patterns but rates were slightly lower than the 5-year average incidence rates, and the peak was also slightly later than the peak observed in the 5-year average. (Appendix B, page 12, top graph)

Incidence of infected insect bites also appeared to be lower than the 5-year average, however, there was a notable peak in ISO week 26 (late June 2024), with the greatest peak in the Northwest at this time. Rates were lowest in London compared to other NHS regions.

4. Vaccine-sensitive disorders

There was a nationwide surge of pertussis (whooping cough) in England in May 2024[19], which is reflected in the higher than usual incidence rates. There was also regional variation, with the highest rate observed in the South-West: 4 per 100,000 compared to the national rate of under 2 per 100,000, and the 5-year average rate which is close to 0 per 100,000 (Appendix B, p13)

There was slightly greater incidence of measles compared to the 5-year average. Incidence was greatest in the two youngest age groups (<1s and 1-4 years). Incidence was notably greater in London at ISO weeks 23 and 28 (3-9 June and 8-14 July 2024): 0.8 per 100,000, whilst the national rate at this time was 0.2 per 100,000.

Rates of mumps were slightly lower than the 5-year national average, whilst rates of rubella were similar to the 5-year average.

5. Skin contagions

In line with 5-year average rates, greatest incidence rates within skin contagions category were in observed in skin and subcutaneous symptoms, where the rate was typically around 150 per 100,000, while skin and subcutaneous infections peaked at roughly 100 per 100,000. For skin and subcutaneous infections incidence was greatest in the youngest and oldest age groups, for example ISO week 42 (14-20 October 2024): a peak of approximately 300 per 100,000 in <1s and in 2-4s was observed; in the oldest age group (>85s) the rate was close to 200 per 100,00; at this time the national rate across all age groups was approximately 100 per 100,000.

Incidence of herpes zoster (shingles), herpes simplex remained similar to 5-year average rates throughout the year with national rates of 5 to 6 per 100,000 (herpes zoster) and 4 per 100,000 (herpes simplex) and approximately 3 per 100,000 (Scabies) respectively throughout the year.

Regional variation was evident, with the North-West region consistently having the highest incidence for most skin contagions, except for chickenpox, as compared to the national rates. The highest incidence of skin contagions by age group was observed in the youngest and oldest age groups, particularly for chickenpox and impetigo. In contrast, herpes zoster incidence was highest 85+ age group.

Incidence rates of chickenpox were lower than 5-year average rates particularly during ISO weeks 19 – 26 (May – June 2024); whilst rates of scabies were slightly higher than 5-year average throughout the year.

6. Disorders affecting the nervous system

Rates of peripheral neuropathy, meningitis/encephalitis and musculoskeletal symptoms closely followed the 5-year average patterns with no major deviations from the 5-year average incidence rates. Some regional variation was evident for peripheral neuropathy and musculoskeletal symptoms; both were seen to have the lower incidence rates London as compared to the 5-year average and compared to all other NHS England regions.

7. Genitourinary system disorders

The national incidence rate of urinary tract infections was similar to the 5-year average in the 2024-25 season. Incidence rates in London appeared to be lower than the national average, and to the 5-year average. Incidence rates were highest in the North-East and Yorkshire region. Urinary tract infections incidence rates were highest in the oldest age group (over 85s).

6. Oxford-RCGP RSC Research Projects in 2024-25

Table 4 below summarises research projects supported by the RSC in the 2024-2025 season.
Key examples of ongoing projects included: ObservatARI, which used Point of Care Testing (POCT) to better understand the clinical presentation of Respiratory Syncytial Virus (RSV in adults presenting to Primary Care. Participant recruitment was completed in January 2025, with a total of 4,300 participants recruited across 21 practices. The third study of Infectious Intestinal Disease in the UK IID3 study was also ongoing with participant recruitment taking place across all 4 UK nations.

Table 4 Research projects launched or ongoing during season 2024-25

Project Name and Description	**Funder**	**Study Webpage/ Documents**
Audit-based education to implement NICE Do-Not-Do recommendations in people with cardiometabolic multimorbidity (MONITORY): a cluster randomised trial	NIHR Applied Research Collaborations (ARC)	Protocol
Oxford-RCGP RSC quinquagenarian (QQG) practice network. Creating a longitudinal linked sentinel database of 50 years clinical and virology data and prospective research	Wellcome Trust	Webpage
IID3 - The third study of Infectious Intestinal Disease in the UK	Food Standards Agency	Webpage Publication
HEALD – Hepatitis A vaccination coverage among people with chronic liver disease in England	National Institute for Health and Care Research (NIHR)	Protocol
Bristol Medicine Review Toolkit Study (BRISMED) – review of prescribing toolkit use	National Institute for Health and Care Research (NIHR)	Study webpage
COMBI KID –Retrospective observational database cohort study assessing the effects on renal endpoints of combining SGLT2 inhibitor and GLP-1 RA therapies compared to SGLT2 inhibitor therapy or GLP-RA monotherapies, in the routine management of type 2 diabetes	Merck Sharp & Dohme Ltd. (MSD)	Study webpage

ObservatARI - clinical presentation of RSV disease in adults and use of point of care testing within a general practice setting	Moderna	Study webpage
Phased In – Development and feasibility of a pharmacy package using decision-making tools and POCTs to share the management of acute infections in primary care.	National Institute for Health and Care Research (NIHR)	Study webpage
SAFER: screening for atrial fibrillation with ECG to reduce stroke	National Institute for Health and Care Research (NIHR)	Study webpage
SHADE – Target trial emulation study using English primary care sentinel network database – the Oxford-Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC), investigating the reduction in risk of incident dementia after shingles vaccination	National Institute for Health and Care Research (NIHR) Oxford Health Biomedical Research Centre (OH BRC). / GlaxoSmithKline (GSK plc)	n/a
STANdardisation of respiratory Definitions and OUTcomes using Real World Data (STANDOUT)	AstraZeneca	Study Webpage
FluSNIFF – Clinical trial investigating whether the live-attenuated nasal spray flu vaccine currently approved for children aged two and over, can be safely extended to younger toddlers aged 12 to 23 months	National Institute for Health and Care Research (NIHR)	Study webpage

7. Oxford-RCGP RSC Publications and Conferences 2024-25

There were 68 publications for studies that involved the use of RSC data in the 2024-2025 season, these included collaborations with the UKHSA, and academic and industry partners, these are listed below.

1. Ordóñez-Mena JM, Gu X, Joy M, Fan X, Meza-Torres B, Hinton W, Wimalaratna R, Jamie G, Forbes A, Kar D, Byford R, Anand S, Ferreira F, Mather L, Lee A, Hobbs FDR, Layton D, de Lusignan S; Assessing the association between COVID-19 vaccination and thrombotic thrombocytopenia syndrome (ATTEST Study): Analyses of English data, 2020–2022; International Journal of Infectious Diseases; 10.1016/j.ijid.2025.108289
2. Russell MD, Bechman K, Gibson M et al. Comment on: Risk of venous thromboembolism in people with rheumatoid arthritis: a population-based study in the UK: reply; Rheumatology; 10.1093/rheumatology/keaf494

3. Ordóñez-Mena JM, Kar D, et al. Epidemiology of Thrombotic Thrombocytopenia Syndrome 2011 to 2022: English Sentinel Network Cohort Studies; Drug Safety: The Official Journal of the International Society of Pharmacovigilance; 10.1007/s40264-025-01566-1

4. Tzortziou Brown V, Bhatti O, Bharakhada N, Lyon-Maris J, Power R, de Lusignan S; Clarity of healthcare roles in electronic health records; British Journal of General Practice; 10.3399/bjgp.2025.0308

5. Grigoroglou C, Hann M, Hodkinson A, Zghebi SS, Kontopantelis E, Ashcroft DM, Chew-Graham CA, Payne RA, Little P, de Lusignan S, Zhou AY, Esmail A, Panagioti M; Associations between burnout and career disengagement factors among general practitioners: a path analysis; Frontiers in Public Health; 10.3389/fpubh.2025.1547102

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7. Sankatsing VD, Hak SF, Wildenbeest JG, et al, Network OBOTRC, van Summeren J; Economic impact of RSV infections in young children attending primary care: a prospective cohort study in five European countries, 2021 to 2023; Eurosurveillance; 10.2807/1560-7917.es.2025.30.20.2400797

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9. Williams P, Gage et al. Team climate, job satisfaction, burnout and practice performance: results of a national survey of staff in general practices in England; BMC Primary Care; 10.1186/s12875-025-02780-7

10. Jamie G, Fan X, Ordóñez-Mena JM, et al. Targeted Interventions to Improve the Systematic Collection of Acute Respiratory Infection Clinical Data from Primary Care Computerised Medical Records.; Studies in health technology and informatics; 10.3233/shti250328

11. Price CA, Mold F, de Lusignan S, Smith NAS, Winn M, Lemanska A; Sociodemographic Profile of People with Diagnosed Pancreatic Cancer in the UK: Retrospective Sentinel Network Cohort Study.; Studies in health technology and informatics; 10.3233/shti250563

12. Haddad T, Kumarapeli P, de Lusignan S, Barman S, Khaddaj S; Healthcare Data Quality Language (HDQL): Streamlining the Translation of Healthcare System Requirements into Software Quality Attributes.; Studies in health technology and informatics; 10.3233/shti250456

13. Okusi C, Kumarapeli P, Jamie G, et al. Developmental Insights from Modelling the Digital Maturity of the Oxford-Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC); Studies in Health Technology and Informatics; 10.3233/SHTI250580

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16. Kar D, Byng R, Sheikh A, Nath M, Zabeen B, Kar S, Banu S, Sarker MHR, Khan N, Acharjee D; Correction: Navigating the complexities of end-stage kidney disease (ESKD) from risk factors to outcome: insights from the UK Biobank cohort; BMC Nephrology; 10.1186/s12882-025-04151-x

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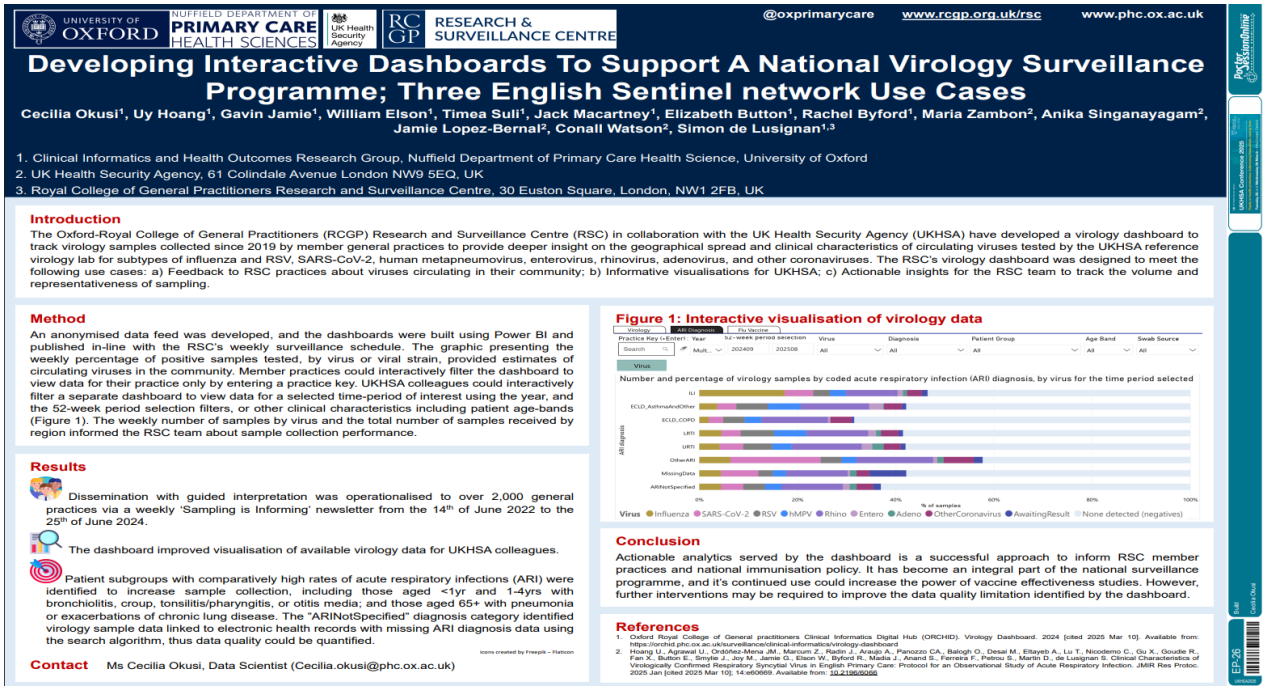
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Conferences

Members of the RSC team attended several conferences throughout the season, examples of posters presented at the UKHSA conference (March 2025) and the South-West Society for Academic Primary Care SWSAPC (March 2025) are provided below.



Developing Interactive Dashboards To Support A National Virology Surveillance Programme; Three English Sentinel network Use Cases

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Introduction

The Oxford-Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC) in collaboration with the UK Health Security Agency (UKHSA) have developed a virology dashboard to track virology samples collected since 2019 by member general practices to provide deeper insight on the geographical spread and clinical characteristics of circulating viruses tested by the UKHSA reference virology lab for subtypes of influenza and RSV, SARS-CoV-2, human metapneumovirus, enterovirus, rhinovirus, adenovirus, and other coronaviruses. The RSC's virology dashboard was designed to meet the following use cases: a) Feedback to RSC practices about viruses circulating in their community; b) Informative visualisations for UKHSA; c) Actionable insights for the RSC team to track the volume and representativeness of sampling.

Method

An anonymised data feed was developed, and the dashboards were built using Power BI and published in-line with the RSC's weekly surveillance schedule. The graphic presenting the weekly percentage of positive samples tested, by virus or viral strain, provided estimates of circulating viruses in the community. Member practices could interactively filter the dashboard to view data for their practice only by entering a practice key. UKHSA colleagues could interactively filter a separate dashboard to view data for a selected time-period of interest using the year, and the 52-week period selection filters, or other clinical characteristics including patient age-bands (Figure 1). The weekly number of samples by virus and the total number of samples received by region informed the RSC team about sample collection performance.

Results

Dissemination with guided interpretation was operationalised to over 2,000 general practices via a weekly 'Sampling is Informing' newsletter from the 14th of June 2022 to the 25th of June 2024.

The dashboard improved visualisation of available virology data for UKHSA colleagues.

Patient subgroups with comparatively high rates of acute respiratory infections (ARI) were identified to increase sample collection, including those aged <1yr and 1-4yrs with bronchiolitis, croup, tonsilitis/pharyngitis, or otitis media; and those aged 65+ with pneumonia or exacerbations of chronic lung disease. The "ARINotSpecified" diagnosis category identified virology sample data linked to electronic health records with missing ARI diagnosis data using the search algorithm, thus data quality could be quantified.

Icons created by Freepik – Flaticon

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Figure 1: Interactive visualisation of virology data

Number and percentage of virology samples by coded acute respiratory infection (ARI) diagnosis, by virus for the time period selected

Conclusion

Actionable analytics served by the dashboard is a successful approach to inform RSC member practices and national immunisation policy. It has become an integral part of the national surveillance programme, and it's continued use could increase the power of vaccine effectiveness studies. However, further interventions may be required to improve the data quality limitation identified by the dashboard.

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Figure 6. Example of a poster presented at UKHSA conference

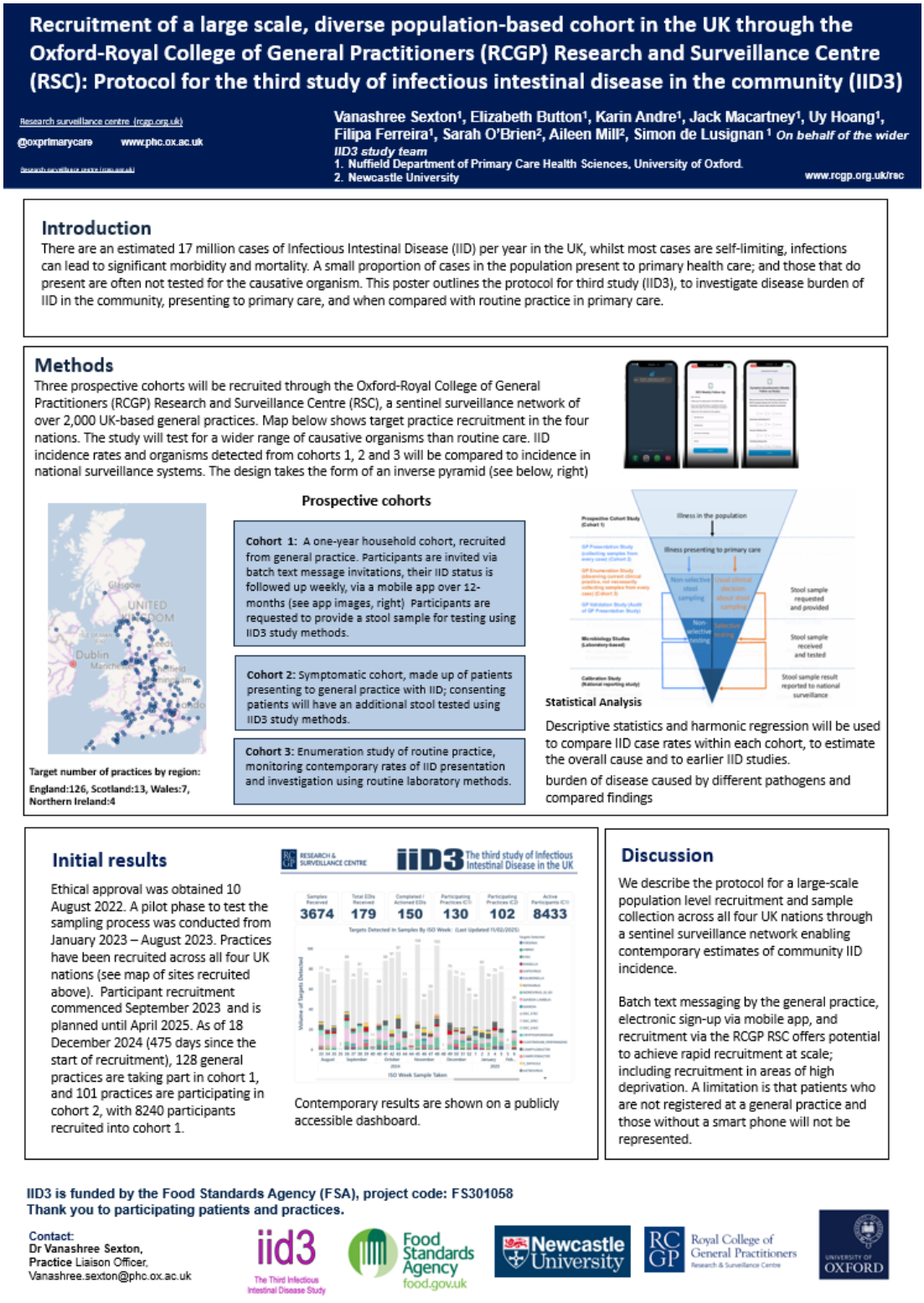


Figure 7. Example of a poster presented at the South-West Society for Academic Primary Care SWSAPC

8. 2024-25 Annual Report Contributors

The University of Oxford provided the data, graphics and analyses in this report. Data was provided from the ORCHID database; https://orchid.phc.ox.ac.uk/

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