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General practice study about chest infections in adults

Submission date	Recruitment status	[_] Prospectively registered
30/05/2022	No longer recruiting	[X] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
04/04/2024	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
25/11/2026	Respiratory	

Plain English summary of protocol

Background and study aims
In this study the researchers would like to understand how frequently patients present to primary care (GP practices and out-of-hours providers) with chest infections and worsening of heart failure and, of these, how many could be prevented by vaccinations. They have included worsening of heart failure as this may be caused by infection. The study will help to provide information on how many chest infections could be prevented by vaccinations, if there are certain groups of patients who are at greater risk of such infections and so may benefit more from vaccinations than others, and how people rate their health while they are ill.
A preparatory study called AvonCAP GP1 has been carried out to address how chest infections are recorded in GP records. A GP might suspect that a patient has a chest infection, but they might not record this in a standardised way that allows us to identify these patients. For example, they might record the main problem as ‘cough’ rather than ‘chest infection’. The researchers are therefore working with GPs to make sure that they are recording a diagnosis of chest infections in an agreed way. This is important because it will allow them to identify patients with confirmed or possible chest infections from GP records and accurately estimate the number of patients with respiratory infections. This will allow a better understanding of the burden that this condition has on patients and on the NHS.
The researchers want to understand:
1. What impact these illnesses have on patients and the NHS
2. How many of these illnesses could be prevented by vaccination (e.g. with COVID vaccines and other vaccines that are being developed); and
3. What groups of patients might benefit most from vaccination.

Who can participate?
Adults aged 18 years and over who are registered at one of the six recruiting GP practices who present to their GP practice, out-of-hours primary care provider (Brisdoc) or to the Emergency Department with a chest infection or flare-up of asthma, chronic obstructive airways disease (COPD) or heart failure.

What does the study involve?
The researchers will provide patients with written information about the study (e.g. why we are doing the project and what it involves) and they will be able to discuss any questions or concerns

with the study team.
Those who choose to take part will give consent (permission):
1. To access routinely collected information from their medical records;
2. To answer a survey about their health (including vaccinations they have had and about their long-term medical conditions), quality of life and COVID (a survey called the 'COVID risk behaviour questionnaire');
3. To give samples (e.g. urine, nose/throat swabs, saliva) to find out about the types of germs causing the infections;
4. To fill out a symptom diary (including some questions about types of symptoms, severity of symptoms, quality of life and time off work);
5. To fill out a follow-up diary about quality of life and time off work (only applies to people with ongoing symptoms at 4 weeks; short survey to be completed fortnightly initially then monthly up to 6 months, then 3-monthly up to 12 months)
The survey, samples, symptom diary and follow-up diary are all optional.

What are the possible benefits and risks of participating?
This study will not directly benefit patients taking part but will help to understand more about chest infections and who might benefit most from vaccinations. It is hoped that this will benefit other patients in the future. Taking nose and throat samples can be a little uncomfortable during the collection and can rarely cause a mild nosebleed.
The researchers will be very careful to keep information collected about participants confidential. The study is designed to protect people's privacy and the researchers commit to using their information in an appropriate way. The data will be anonymised – there will be no way of identifying the person from the data. Any identifiable data (e.g. NHS number or date of birth) will be stored securely and kept separate from the other data.

Where is the study run from?
The study is sponsored by the University of Bristol and is recruiting from six GP practices in Bristol (UK)

When is the study starting and how long is it expected to run for?
September 2021 to December 2024

Who is funding the study?
Pfizer (USA)

Who are the main contacts?
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Additional identifiers

Integrated Research Application System (IRAS)
305956

Central Portfolio Management System (CPMS)
51111

Study information

Scientific Title
Establishing the burden of vaccine-preventable acute lower respiratory tract infections in primary care, UK

Acronym
AvonCAP GP2

Study objectives
Vaccines against respiratory pathogens Streptococcus pneumoniae (SP), Respiratory Syncytial Virus (RSV) and Severe Acute Respiratory Syndrome-Coronavirus-2 (SARS-CoV-2) are available or under development. Traditionally, the burden of vaccine-preventable illness is estimated by studying the incidence of severe illness in secondary care. While important in terms of morbidity and mortality, this underestimates the total burden of illness, and therefore vaccine cost-effectiveness, since a higher community incidence offsets the lower costs associated with less severe illness.

Respiratory pathogens like SP, RSV and SARS-CoV-2 may enter the human host via the upper respiratory tract, but they cause more severe illnesses when they infect the lower respiratory tract and, in the most severe cases, become systemic. Typically, people with acute lower respiratory tract infection (aLRTI) present to primary care with an acute cough and symptoms or signs attributable to lower respiratory tract involvement, such as sputum, wheeze or shortness of breath. However, there is also evidence to suggest heart failure and chronic lung diseases may have exacerbations triggered by such microbes in the absence of typical 'infection' symptoms.

Patients recruited from six GP practices which represent the different demographics within the Bristol area will provide data for population-based incidence rates of adults ≥18 years of age presenting to primary care with community-acquired LRTI. This study, along with her sister secondary care study (Avon CAP, ISRCTN17354061) will estimate comprehensively the primary and secondary care burden of acute lower respiratory tract disease (aLRTD; including aLRTI, presumed non-infective exacerbation of chronic lung disease and exacerbation of pre-existing heart failure), overall and for vaccine-preventable infections, including SP, RSV and SARS-CoV-2.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 22/12/2021, Yorkshire and the Humber Bradford Leeds REC (HRA Bristol, Ground Floor Temple Quay House, 2 The Square, Bristol, BS1 6PN, UK; +44 (0)2071048210, bradfordleeds.rec@hra.nhs.uk), ref: 21/YH/0271

Primary study design
Observational

Study design
Observational; Design type: Cohort study

Study type(s)
Other

Health condition(s) or problem(s) studied
Vaccine-preventable acute lower respiratory tract infections

Interventions
AvonCAP GP2 is a prospective cohort study that aims to estimate the incidence and burden of acute lower respiratory tract infection (aLRTI) in adults presenting to primary care in Bristol, including vaccine-preventable SP, RSV and COVID-19-attributed aLRTI. Adults (≥18 years) will be eligible if they present to either their GP practice or the out-of-hours provider with an acute

illness (onset ≤28 days) and symptoms/signs consistent with a clinical diagnosis of aLRTD (including aLRTI, presumed non-infective exacerbation of chronic lung disease and exacerbation of pre-existing heart failure). Adults with presumed non-infective exacerbations have been included in the study as a proportion of these will have an infective cause.

There are two parts to the study: a surveillance study, extracting routinely collected GP record data on patients who meet the eligibility criteria; and an embedded diagnostic study, collecting additional data, including an enrolment survey (including quality of life), symptom diary (including symptoms, time off work and quality of life) and naso-pharyngeal/oropharyngeal, saliva and urine samples. All eligible participants will be invited to participate in both parts of the study. Participants will be reimbursed for taking part in the embedded diagnostic study.

To enable health professionals working in participating GP practices to prioritize clinical care, most study activities will be undertaken by the research team. They will be based within the premises of participating practices and will comprise research nurses, fieldworkers, administrators, and study coordinators. Necessary data-sharing agreements and honorary contracts between named members of the research team and named participating GP practices will be in place. Approval has been provided by the 'Confidentiality Advisory Group' (CAG) for research practitioners and pre-specified suitably trained members of the research team who are not part of the direct care team to screen identifiable information before the planned consent process.

The clinical (direct care) team will be involved in recruiting patients into the study. If a health professional diagnoses an adult patient with an aLRTD, a prompt will appear advising that the patient is eligible for the study, asking the health professional to briefly outline that we are doing some research about chest infections and seek their permission to send a text message about the study and for the research team to follow-up with a phone call (to explain more about the study). Participating practices will be reimbursed for time taken to invite each patient to take part in the study.

The present study will build on interventions (e.g. training, computer prompts and feedback reports) developed and refined during the AvonCAP GP1 (preparatory) study, to optimise the coding of respiratory infections during routine primary care consultations.

Intervention Type
Other

Primary outcome(s)
The incidence of acute lower respiratory tract infection (aLRTI) in adults presenting to primary care and the proportion caused by vaccine preventable infections, including Streptococcus pneumoniae, Respiratory Syncytial Virus (RSV) and SARS-CoV-2. Measured using data extracted from primary care medical records and samples collected over a 30-month period between February 2022 and July 2024.

Key secondary outcome(s)
Collected over a 30-month period between February 2022 and July 2024:
1. The demographic (e.g. age, sex, deprivation), clinical (e.g. symptoms, signs, severity, comorbidities), and microbiological (all respiratory pathogens) characteristics for adults presenting to primary care with aLRTD, overall and by final clinical diagnosis. Demographic and clinical data will be measured at baseline and Day 30 (for a subset of patients) using data extracted from primary care medical records. Microbiological characteristics will be assessed

through sampling data collected through the enhanced diagnostic study arm.
2. The natural history of aLRTD, including patient-reported symptom duration and severity; antibiotic/antiviral consumption; respiratory pathogen isolation; time off work, primary care consultations, hospital admission and quality of life (EQ-5D) initially for up to 28 days after presentation to primary care (and up to a maximum of 12 months for those who have not recovered at 28 days), overall and by final clinical diagnosis. This will be measured using data extracted from primary care medical records, symptom diaries and sampling data.
3. Time trends in population-based incidence rates of aLRTD related to fluctuations in the COVID-19 pandemic. This will be measured using data extracted from primary care medical records at baseline, counting patients presenting to primary care with aLRTD, and sampling data.
4. Mortality rate at 30 days (and up to a maximum of 12 months for those who have not recovered at 28 days) after primary care visit for aLRTD (and its subcategories), overall and by age group and risk group status. Mortality rates will be measured through data extracted from primary care medical records.
5. The pathogen distribution rates of RSV, SARS-CoV-2, and other viral pathogens among adults diagnosed with exacerbation of congestive heart failure, non-infective exacerbation of asthma and non-infective exacerbation of COPD. This will be measured through data extracted from primary care medical records at Day 1 and Day 30, and sampling data.
6. The financial costs of aLRTD from patient and NHS perspectives, overall and by final clinical diagnosis and pathogen. This will be calculated using data extracted from primary care medical records (Day 1 and Day 30), symptom diaries (time off work) and sampling data.
7. The proportion of presumed non-infective aLRTD diagnoses (overall, acute exacerbation of pre-existing heart failure and non-infective exacerbation of pre-existing. chronic lung disease) associated with respiratory pathogens (overall and individually), both overall and stratified by age and severity of symptoms. This will be measured from data extracted from primary care medical records and sampling data.

Completion date
30/11/2025

Eligibility

Key inclusion criteria
1. Aged ≥18 years of age; AND
2. Presenting to primary care with acute illness (i.e., present for 28 days or less); AND
3. Evidence of aLRTD* as guided by the following criteria:
3.1. Evidence of aLRTI (including acute bronchitis, pneumonia and infective exacerbations of chronic lung disease):
3.1.1. Clinical suspicion of LRTI and new/worsened cough with one or more of the following signs /symptoms: sputum production or purulence, chest pain, wheeze, shortness of breath, tachypnoea or abnormal auscultatory findings suggestive of aLRTI; OR
3.1.2. Clinical diagnosis of aLRTI OR
3.2. Evidence of acute exacerbation of pre-existing heart failure with respiratory symptoms:
3.2.1. Clinical suspicion of acute exacerbation of pre-existing heart failure and new or worsening of two or more of the following signs/symptoms: cough (including nocturnal cough), shortness of breath, wheeze, tachypnoea, abnormal auscultatory findings suggestive of exacerbation of heart failure; OR
3.2.2. Clinical diagnosis of acute exacerbation of heart failure with respiratory symptoms OR
3.3. Evidence of non-infective exacerbation of pre-existing chronic lung disease:
3.3.1. Clinical suspicion of presumed non-infective exacerbation of pre-existing chronic lung disease and new or worsening of two or more of cough, shortness of breath, wheeze, tachypnea,

abnormal auscultatory findings suggestive of acute non-infective exacerbation; OR
3.3.2. Clinical diagnosis of non-infective exacerbation

*Acute lower respiratory tract disease (aLRTD) includes acute lower respiratory tract infection (aLRTI) and its subgroups, acute exacerbation of pre-existing heart failure and presumed non-infective exacerbation of chronic lung disease.

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
100 Years

Sex
All

Total final enrolment
2306

Key exclusion criteria
1. Previously enrolled participants within 28 days of the onset of the study qualifying aLRTD illness
2. At the time of enrolment, alternative non-LRTD working diagnosis suspected
3. Presenting to primary care with the same episode of aLRTD for which they have been discharged from hospital
4. Any patient who develops signs and symptoms of LRTD after being hospitalized for ≥48 hours

Date of first enrolment
14/02/2022

Date of final enrolment
31/07/2024

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University of Bristol
Canygne Hall
39 Whatley Road
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BS8 2PS

Study participating centre
Pioneer Medical Group
Ardenton Walk
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BS10 6SP

Study participating centre
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Braydon Avenue
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BS34 6BQ

Study participating centre
Tyntesfield Medical Group
Nailsea Family Practice
Tower House Medical Centre
Stock Way South, Nailsea
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BS48 2XX

Study participating centre
Courtside Surgery
Kennedy Way
Yate
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BS37 4DQ

Study participating centre

Montpelier Health Centre
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BS6 5PT

Study participating centre
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Sponsor information

Organisation
University of Bristol

ROR
https://ror.org/0524sp257

Funder(s)

Funder type
Industry

Funder Name
Pfizer

Alternative Name(s)
Pfizer Inc., Pfizer Consumer Healthcare, Davis, Charles Pfizer & Company, Warner-Lambert, King Pharmaceuticals, Wyeth Pharmaceuticals, Seagen, Pfizer Inc

Funding Body Type
Government organisation

Funding Body Subtype
For-profit companies (industry)

Location

United States of America

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		02/01/2025	17/01/2025	Yes	No
Basic results			25/11/2026	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes