

Newsletter

Issue 5: Summer 2018



The Respiratory Infection Group (RIG), led by Professor Daniela Ferreira and Dr Andrea Collins conducts pioneering scientific research through the Royal Liverpool and Broadgreen University Hospital Trust and the Liverpool School of Tropical Medicine.

The research focuses on pneumococcal bacteria and the immune responses to this bacteria using the novel experimental human pneumococcal challenge model. One of the key aims is to develop improved vaccines against pneumonia that will benefit the United Kingdom and the wider world.

Opening of the Accelerator Research Clinic

The respiratory infection research team are proud to announce the opening of our own state of the art research clinic following a charitable donation of £40,000 from Unilever®. The clinic was opened earlier this year and we have already completed a large randomised control trial in this new facility.

The Accelerator Research Clinic (ARC) within LSTM's new Accelerator building will build on the success of the research team led by Professor Daniela Ferreira, Professor of Respiratory Vaccines and Infection Immunology. The clinic is managed by Dr Andrea Collins, Senior Clinical Lecturer and Respiratory Consultant (ARC Director) and Sister Angela Hyder-Wright, Senior Research Nurse (ARC Manager).

Professor Daniela Ferreira said: "We are delighted to be able to announce the opening of the ARC, right here in the Accelerator. Having a dedicated clinical space to carry out future developments of our successful pneumococcal colonisation model is fantastic. Our vaccine testing studies using this model will continue at the Clinical Research Unit (CRU) at RLBUHT. Together we will go from strength to strength. We are very grateful to Unilever for their support and for the confidence that they have shown in our research team."



Recently completed studies: all recruited to target and on time!

Flu Study 2015-2017

We investigated if vaccination using the Live Attenuated Influenza Vaccine (Fluenz) increased pneumococcal colonisation and density. Fluenz is given to young children as a spray in their nose. We recruited 497 healthy volunteers aged 18-50 years old.

Results showed:

- The study supports the safety of Fluenz for use in annual childhood immunization programmes.
- This vaccine may lead to a transient increase in the number of pneumococcal bacteria in the nose further research is needed to investigate the significance of this.

Home Samples

In 2017 we established a novel home sampling method which we started to use in the Flu study. The aim of this was to better understand how the body reacts to pneumococcal bacteria in the nose during the first 48 hours.

Preliminary results suggest that:

- The process of becoming a carrier of the pneumococcus bacteria in the nose can take at least 24 hours.
- Some volunteers clear the pneumococcus very quickly which suggests that protection against carriage may be linked to: 1) better clearance by nasal immune cells and/or 2) more efficient clearance by cells in the blood stream.

Asthma Study 2016-2018



We investigated if the immune system of asthmatics (taking daily steroid inhalers) is different to healthy volunteers when they are exposed to pneumococcal bacteria. This study finished in February 2018 with 50 participants completed.

Preliminary results suggest that:

- Asthmatics may carry pneumococcal bacteria in the nose at the same rates as healthy volunteers however, further analysis of the data is still needed before final conclusions can be made.

Over 50's Study 2016-2018



We investigated if the immune system of over 50's is different to younger volunteers when they are exposed to pneumococcal bacteria. This study finished in February 2018 with 64 participants completed.

Preliminary results suggest that:

- Over 50's may carry pneumococcal bacteria in the nose at the same rates as healthy volunteers but their blood immune responses are very different to those of under 50's. Further analysis is still needed before final conclusions can be made.

Hand to Nose Study 2017

We investigated if the hands could transmit pneumococcus bacteria into the nose causing pneumococcal colonization. We recruited 63 healthy volunteers aged 18-50 for this study.

Results showed:

- Hands can transmit pneumococcus bacteria into the nose
- This transmission can lead to colonisation even when the bacteria has dried on the skin

Hand Washing Study 2018

In this study funded by Unilever we investigated if Lifebuoy soap could reduce the transmission of pneumococcus bacteria from the hands into the nose. We recruited 136 healthy volunteers aged 18-50 years old.

The study completed June 2018 with the team completing nearly 700 participant visits in only 4 months!

The data is currently being analysed.

Research Grant Workshop



In March 2018 the RIG team hosted our first research grant workshop which brought together the team in Liverpool with collaborators from all over the world.

During this meeting we were able to showcase the innovative work we have been doing and present findings of our recent studies to influential leaders in the field.

We were also able to hear about the amazing work our international collaborators have been doing using volunteer samples which have been collected from recent studies.



Upcoming Studies- Due to start end of 2018

We are going to investigate if exposure to modified pneumococcal bacteria provides immunity to natural pneumococcal bacteria.

This modification aims to make the pneumococcal bacteria less likely to cause infections so we can explore its use as a nasal vaccine

It will involve around 14 visits over a 6-9 month period



Are you a healthy non-smoker aged 18-50?

Are you a healthy smoker aged 18-50?

We are going to investigate the effect of smoking on colonisation of pneumococcal bacteria and look at immune responses to this bacteria over time.

It will involve around 10 visits over a 6 week period.

Are you aged 50-84 and have mild-moderate COPD?

We are going to investigate how COPD and its treatments effect colonization of pneumococcal bacteria and look at immune responses to this bacteria over time.

It will involve around 10 visits over a 6 week period.

To get involved please contact the team on 07740 410 290 or text 2VOL to 88802 .

You will be reimbursed for your time and inconvenience for all studies.

Team Achievements



Congratulations to our group leader Daniela who has not only just been appointed as the new Head of Department of Clinical Sciences at LSTM but has also been promoted to a Professor last month. Making her the first female professor in the department.

Team Achievements

- ✓ **Dr Elissavet Nikolaou**, Postdoctoral Research Assistant, was awarded the Jean Clayton Award from LSTM in 2017. A collaboration with Sam Leong and Amanda Barolo won the Philip Stell Prize Award at the Spring Otorhinolaryngological Research Society meeting
- ✓ **Dr Hugh Adler**, Clinical Fellow/PhD Student, received the "Best Poster Presentation" award at LSTM's Post Graduate Student conference.
- ✓ **Dr Simon Jochems**, Postdoctoral Research Assistant, and **Elena Mitsi**, PhD Student/Senior Research Assistant, were both awarded Best Oral Presentation award's at the 11th International Symposium on Pneumococci and Pneumococcal Disease.
- ✓ **Dr Victoria Connor**, Clinical Fellow/MD Student, presented the results of the Hand to Nose Study at the American Thoracic Society (ATS) Conference and was awarded an ATS abstract scholarship award. She also won the North West Thoracic Society's Registrar Research presentation prize.
- ✓ **Dr Carla Solorzano-Gonzalez**, Postdoctoral Research Assistant, was awarded a Catalyst Pump-Priming Grant from BactiVac Network to identify novel vaccine candidates against pneumococcus.



Welcome

Samuel Leong, Ear Nose and Throat (ENT) Consultant and CRN Divisional Lead for ENT.

Mr Leong has been collaborating with the team for the last 2 years on novel nasal sampling methods. With the support of the CRN he is now working with us one day a week to extend our partnership.

Thank-You

To all our volunteers over the last year we could not do this amazing work without all of you.

To our funders MRC, Bill and Melinda Gates Foundation, Unilever.

Also to the staff at CRN, RLBUHT, Alder-Hey Hospital and UHA for their continued help and support with all our studies.

For more information or to volunteer for any upcoming studies, please contact the team on:

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