



Research facilities @NCID

By Dr Barnaby Young, Consultant at NCID & Head of NCID Research Office (Clinic)

From understanding how and why infections make us sick, to improving our ability to diagnose and prevent infections, and to finding new treatments, research is a key part of the NCID mission to protect the people of Singapore from infectious diseases. Medical research relies on the support of our patients and volunteers who give up their time, blood and other clinical samples to further knowledge that may benefit us all. At NCID three key research facilities have been built to support this work: the Research Clinic, the P.H. Feng Research Ward and the Infectious Disease Research Laboratory.

NCID Research Clinic

The NCID Research Clinic is located at Basement 1 of NCID. The clinic has four consultation rooms and three procedure rooms. The clinic supports investigator-initiated and industry-sponsored studies from NCID, other institutions within the National Healthcare Group, and the wider infectious disease community in Singapore.

An adjacent room to the main clinic space provides an area for storage and preparation of investigational products on site, while the connected fully-functional satellite laboratory allows for immediate processing and storage of clinical samples.



P.H.Feng Research Ward



The P.H. Feng Research Ward is named in memory of Professor Feng Pao Hsii (1936–2015), the visionary medical leader who established the Tan Tock Seng Hospital Clinical Research Unit in 1997.

Located at level 2 of NCID, the Research Ward is intended to support researchers with clinical trials of new medications where study participants may need to stay for the whole day or even overnight. The Research Ward has a broad mandate to support researchers within NCID and the National Health Group. Beyond infectious diseases, the Research Ward currently has ongoing studies in the fields of dermatology and oncology.

Infectious Disease Research Laboratory

The Infectious Disease Research Laboratory (IDRL) provides intellectual and infrastructural support with state-of-the-art facilities for clinician researchers and scientists to conduct their infectious disease laboratory-based research. IDRL integrates research activities in the area of infectious diseases with interactions and collaborations and provide avenues for multi-disciplinary activities.

Studies initiated in this laboratory include research on Mycobacterium tuberculosis, Human Immunodeficiency Virus (HIV), Dengue Viruses, Influenza Viruses and various bacterial pathogens. This facility will encourage the translation and application of research findings, as well as raise public awareness of infectious disease research.



Investigators of ongoing and new studies – whether at grant application or implementation stage – who are interested in using our facilities can contact the team at researchclinic@ncid.sg for more information and a feasibility review.



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On behalf of my entire team at NCID, I am pleased to share that NCID was officially opened by Minister for Health, Mr Gan Kim Yong on 7 September 2019. The event was graced by many senior leaders including the Permanent Secretary and Director of Medical Services at the Ministry of Health, Chairman and Group CEO of the National Healthcare Group, CEO of Tan Tock Seng Hospital, and close to 200 key partners, stakeholders and colleagues. Alongside the opening event, we organised a Community Open House aimed at engaging the community in building resilience against emerging infections. Booths managed by NCID staff with different themes were set-up for interactive learning through fun and games.

The mission of NCID is to protect the people of Singapore from infectious diseases through an integrated approach of patient care, public health, training and research. This unique integrated structure was tested when we received and successfully managed Singapore's first case of Monkeypox virus infection in May last year. We also successfully handled the mass screening and vaccination of over 600 close contacts of measles cases last June.

In 2020, we remain committed to our mission. To this end, we will continue to build NCID as a referral and reference centre for public and private healthcare providers.

To boost outbreak readiness and to be able to mobilise national defense effectively against emerging infections, NCID will continue to establish clinical networks involving clinicians in Infectious Diseases, Intensive Care, Emergency Medicine, Epidemiology, Primary Care and other relevant partners.

Increasing antimicrobial resistance remains a critical global challenge. We are pleased to bring you an update from our Antimicrobial Resistance Coordinating Office on Singapore's One Health approach to tackle this increasingly serious threat to human health. Through the commentary on why you should not take antibiotics for cold and flu, we hope to raise awareness and continue to work with the community to fight against AMR. We also feature NCID's clinical research and research laboratory facilities as we focus on growing our research landscape to greater heights this year.

Produced twice a year, NCID News brings you the latest developments in infectious diseases. Our next issue will be in July 2020. Look out for it.

PROFESSOR LEO YEE SIN
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For more information on NCID, visit www.ncid.sg
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Why shouldn't I take antibiotics for cold and flu?

By Associate Professor David Lye, Senior Consultant and Director of the Infectious Disease Research and Training Office at NCID

The World Health Organization has declared antibiotic resistance a global health threat. But why is it an issue to reach for antibiotics every time you have a cold or cough?

“I'm having the flu and I need some antibiotics, doctor. My phlegm is yellow. Every time this happens, I ask for antibiotics from my GP, take them and I get better in a few days.”

I have been seeing Mr Tan, a man in his mid-30s, for a chronic medical condition for several years. He has the occasional cough and cold every few months for which he takes antibiotics he has kept from previous visits to his doctors.

Many doctors would have encountered similar requests from patients who see us for the common cold and influenza, also known as upper respiratory tract infections (URTI), which are primarily caused by viruses. Viruses and bacteria belong to different classes of microorganisms and do not share the same characteristics. Antibiotics are only effective against bacteria but not viruses. Taking antibiotics for URTI do not treat these viral infections or hasten the resolution of your symptoms.

A common misconception is that the colour of your phlegm or mucus predicts if the infection is viral or bacterial. Having yellow or green phlegm does not mean you are having a bacterial infection and therefore require antibiotics.

“But what's wrong with taking some antibiotics, doctor? I get better after taking them.”

Symptoms of URTI generally improve in 3-5 days and may take 1-2 weeks to completely resolve. Patients often start taking antibiotics after 3-5 days of symptoms which is when their illness is about to improve. This leads to the mistaken belief that antibiotics cure URTI.

When used to prevent or treat bacterial infections, antibiotics are powerful life-saving medicines. However, antibiotics are not harmless. Common side effects include abdominal discomfort and diarrhoea. Some patients may develop allergic reactions or drug interactions with other medications.

Another major problem is antibiotic resistance. Antibiotic resistance occurs at accelerated pace when antibiotics are overused or inappropriately used. Taking antibiotics when you do not need them increases the chance of you carrying bacteria that common antibiotics do not work on. Worryingly, the antibiotic resistant bacteria can spread to your loved ones.

The development of new antibiotics has not kept up with the emergence and spread of antibiotic resistance. In extreme cases, bacteria have developed resistance to all currently available antibiotics, resulting in untreatable infections. According to a global review, if left unchecked, antibiotic resistance will lead to millions of deaths and loss of trillions of dollars globally by 2050.

“Sounds so serious, doctor. So no antibiotics for me?”

Trust your doctor to assess you and decide if you need antibiotics. If the benefits of taking antibiotics outweigh the risks, then you should still be taking them.

If you have URTI, taking over-the-counter medications such as decongestants or paracetamol may relieve your symptoms. Washing your hands frequently with soap and water can reduce the spread of infection. Staying home when sick can minimise transmission to others. Vaccinations can also lower the risk of influenza infections.

“But doctor, the last time I took the flu vaccine, I had the flu immediately!”

Flu vaccines are usually administered once to twice a year, depending on how well matched the vaccine is to the circulating flu virus strain. The flu vaccines available in Singapore are inactivated vaccines which cannot give you the flu. The cold and sniffles that you have after getting the flu shot may be caused by cold viruses that the flu vaccine does not prevent against.

The influenza vaccine is especially recommended for adults if they have underlying medical conditions such as asthma and other lung diseases, diabetes, heart disease and kidney disease.

Why is antibiotic resistance our problem?

By Dr Lee Tau Hong, Lin Yueh Nuo, Astrid Khoo, Ng Hui Min and Lim Xiao Wei, Antimicrobial Resistance Coordinating Office at NCID

Antimicrobial agents, such as antifungals, antivirals and antibiotics, are drugs that are used to prevent or treat infections. Today, antimicrobials are losing their effectiveness. Common infections once again threaten us as antimicrobial resistance (AMR) spreads. Treatment of these infections may be more complicated with limited options available. In extreme cases, there may be resistance to all available antimicrobials, resulting in an untreatable infection.

Antibiotics are used by humans, animals and in the environment. In many cases, antibiotics are prescribed when they are not needed. However, with the controlled and appropriate use of antibiotics, the development of resistant bacteria could be slowed and the chances of catching antibiotic-resistant infections reduced.

A One Health Approach to Antimicrobial Resistance

The One Health concept recognises that human health is connected to the health of animals and the environment: AMR occurring in any one sector impacts on the health and well-being of people and animals everywhere. Beyond One Health, AMR is also a One World issue, much like climate change. As a global trade and travel hub, Singapore records 18.5 million visitors¹ and over 1.5 million tonnes of fresh food² imports every year from about 160 countries. Combatting AMR in Singapore means reaching beyond our borders.

The One Health AMR working group, comprises representatives from the Ministry of Health, Health Promotion Board (HPB), National Environment Agency, National Parks Board, PUB, the National Water Agency, and Singapore Food Agency. We work together to implement the National Strategic Action Plan (NSAP) on AMR that was launched in 2017. The NSAP sets the framework for a national response to combat AMR, and aims to prevent the emergence and spread of drug-resistant microorganisms through education, surveillance and risk assessment, research, infection prevention and control, as well as optimisation of antimicrobial use.

¹International visitors, Singapore Tourism Board, www.stb.gov.sg

²Total amount of meat, poultry (excluding eggs), seafood, fruits and vegetables imported in 2018; AVA Annual Report 2018/2019, www.sfa.gov.sg

Two years on, some achievements arising from this multi-sectoral collaboration include:

- A nationally-coordinated education campaign on AMR and antibiotic use, targeting the general public, students, farmers, food consumers, human and veterinary health professionals;
- Directives to explicitly ban the use of antibiotic growth promoters and antibiotics of critical importance to human health, such as colistin and carbapenems, in local food-producing animals; and
- Improved data sharing, through joint reporting of AMR in the human, animal, food and environment in Singapore, and antimicrobial consumption in both human and animal sectors.

NCID is central in the coordination of these efforts, through its AMR Coordinating Office (AMRCO). Multi-sectoral engagement is further strengthened in collaboration with ASEAN and the international community in all sectors for a truly One Health, One World approach.

World Antibiotic Awareness Week 2019



World Antibiotic Awareness Week (WAAW) takes place every November and aims to raise global awareness on AMR and the appropriate use of antibiotics.

In 2019, HPB ran a campaign with the key message of correcting the misperception that antibiotics help speed up recovery from flu. To address the misuse of antibiotics, HPB collaborated with AMRCO to develop a resource for primary care physicians to educate patients on appropriate antibiotic use.

All nine of Singapore's public hospitals conducted AMR outreach events throughout November 2019. HPB's Pill Man mascot and ad-walkers made appearances at these events and ran short quizzes to raise awareness on appropriate antibiotic use.

The annual WAAW library event, led by the National University of Singapore, Saw Swee Hock School of Public Health since 2016, was supported by AMRCO last year. The event was held at the Jurong and Woodlands Regional Libraries to raise awareness about appropriate antibiotic use and AMR.