



Profile

Anne Chang: a champion of childhood lung health

At a health centre in Melbourne for Aboriginal and Torres Strait Islanders in the late 1980s, medical student Anne Chang had her eyes opened to Indigenous disadvantage in Australia. “The patients there had diseases not seen in mainstream medicine”, she says. “Pus from the children’s ears and chronic cough with purulent nasal discharge were common.” It was one of many experiences of health inequities that helped drive her passion for improving the health of disadvantaged groups. “People who are worse off should be given the best care”, says Chang, now Professor and Head of the Child Health Division at Menzies School of Health Research in Darwin and Consultant Paediatric Respiratory Physician at Children’s Health Queensland Hospital in Brisbane. “Working in Aboriginal medicine I have the chance to make a bigger difference”, she says.

Chang’s work became prominent in the mid-2000s after codiscovering the common cause of chronic wet cough. “At the time, chronic cough that lasted more than 4 weeks was the most frequent reason children were presenting to respiratory physicians in Australia”, she says. “We were treating these children with antibiotics, but no one had looked at it in a scientific way.” Working with then PhD student Julie Marchant, they found that protracted bacterial bronchitis accounted for 40% of cases. “We were also able to show that the condition could be cured by a 2 week course of amoxicillin-clavulanate. It was a brand new diagnosis and it changed how cough was treated around the world”, she says.

Born in Malaysia, Chang has happy memories of growing up in a Catholic family as one of eight children. Against a backdrop of racial tensions, her mother suggested a move to Australia, and Chang studied medicine at the University of Melbourne. After training in general paediatrics, she embarked on a PhD in respiratory medicine in the mid-1990s, encouraged by mentors Brent Masters and Peter Phelan. “I was trying to elicit whether or not cough was related to asthma”, she says. “It was very controversial. At the time, people used to treat all children who coughed with medications used for asthma—although there were no data to suggest this. We found that children had hypersensitive cough receptors rather than asthma, and that asthma medication made no difference at all.” Soon after, Chang was invited to help formulate the first US and Australian guidelines on cough in children.

After a Masters in Public Health and Tropical Medicine at Australia’s James Cook University in 2001, Chang spent 2 years working with Indigenous populations in remote communities in Alice Springs. “People thought I was crazy”, she says. “I had left a well paid job as a consultant. But I wanted to do something different and make a difference.” There she saw a lot of severe lung disease and started to research bronchiectasis. “It was quite terrible. I saw young children

with lung function of just 30–40%...There was this misguided belief that nothing could be done”, says Chang, who observed that bronchiectasis is potentially reversible if diagnosed and treated early, and produced the world’s first guidelines for managing the condition. With a move to the Royal Children’s Hospital in Brisbane in 2002, Chang’s research continued apace. “At that time people were just using data from African countries to treat Aboriginal children. Even though there are some similarities, there are vast differences”, she says. Chang identified that vitamin A and zinc do not reduce respiratory infections or pneumonia in Indigenous Australian children, and published the first prevalence data showing that one in 68 Indigenous Australian children have bronchiectasis. One of her hopes for a new *Lancet* Series on bronchiectasis in children is that “the Series will raise international awareness of bronchiectasis and ensure that physicians recognise it early and treat it and its preceding conditions appropriately—proposing a paradigm shift of preventing and reversing the early stages. Focusing on ‘treatable traits’ will help clinicians systematically evaluate and optimise treatment.”

“Anne has demonstrated remarkable resilience when championing research in areas of Indigenous health, which has not always received the support it deserves”, says Keith Grimwood, Professor of Infectious Diseases at Griffith University and Gold Coast Health, who has worked with Chang for over two decades. “It is this drive to improve the overall care for her patients, and to one day interrupt the pathobiological pathway leading to bronchiectasis in children that has contributed to the success she has enjoyed in attaining competitive grants, conducting clinical trials, and then translating the results of these trials into clinical practice.”

In 2007, Chang was appointed Head of the Child Health Division at Menzies School of Health Research, where she has established the world’s first international lung project in Indigenous children. There she led the first trial of azithromycin for bronchiectasis that halved the exacerbation rate and reduced the use of other antibiotics. With colleagues in Australia, Malaysia, and New Zealand, she is investigating whether longer courses of antibiotics can reduce the long-term effects of pneumonia in children, and soon hopes to examine what sort of effect maternal vaccination might have on respiratory infections in Indigenous children. “It’s been a team effort”, says the self-effacing Chang. “I have very good people working with me; I could never achieve this on my own.” As Gabrielle McCallum, a colleague at Menzies School of Health Research, comments: “Anne does not seek accolades, and directs every achievement to one more piece of the puzzle to improve lung health outcomes for children.”

Rachael Davies



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