Profile

Basil Hetzel: vanquishing iodine deficiency disorders

The story of Basil Hetzel's fight against iodine deficiency begins in 1964, in the highland villages of Papua New Guinea. A medical scientist with an interest in thyroid disorders, Hetzel had been invited by the country’s Public Health Department to investigate the goitre and cretinism that was prevalent in the mountain communities.

Witnessing the situation first-hand, Hetzel remembers, was unsettling: “I was astounded to see the severity of the problem.” Cretinism had been described in Europe from the Middle Ages but it had declined in the 19th century. Now it was being reported not only in Papua New Guinea but in mountainous regions in other countries, including India and China, and doubt remained as to whether it was related to iodine deficiency. It had recently been shown in Papua New Guinea that an injection of ioddised oil could prevent goitre, but it was not clear if iodine deficiency was actually present, Hetzel recalls. Laboratory studies by his group working with the Papua New Guinea Public Health Department confirmed that there was indeed substantial iodine deficiency and that it could be treated for up to 5 years by one dose of ioddised oil. “We were able to demonstrate very severe iodine deficiency under the conditions in the mountains in New Guinea, where high rainfall leached the soil of iodine”, he says.

In 1966, an intervention trial was undertaken in which families were alternately given injections of ioddised oil or saline, and then followed up for the next 3 years. “This critical [follow-up] phase was undertaken double-blind with great skill and dedication by Peter Pharoah, an experienced Papua New Guinea medical officer who was seconded to this work by the Public Health Department at my request”, Hetzel wrote. After the trial was complete, there was no doubt that giving ioddised oil before pregnancy prevented mental disability. Soon after, an ioddised oil injection campaign that covered about 120,000 people was undertaken for the people in the mountains of Papua New Guinea.

For Hetzel, addressing iodine deficiency became a passion. He led efforts to establish animal models of the condition, and helped reconceptualise the effect of iodine deficiency from goitre to brain damage, as part of a group of disorders that could be prevented by tackling iodine deficiency. On the world stage, Hetzel became a key figure in setting up the International Council for the Control of Iodine Deficiency Disorders, which has worked with WHO and UNICEF to help develop national control programmes.

Hetzel’s dedication to establishing these programmes and his groundbreaking research on iodine deficiency has led to many awards, including the Pollin Prize in Pediatric Research, the Prince Mahidol Prize, and the Companion of the Order of Australia. On awarding him the Pollin Prize, the then President of New York-Presbyterian Hospital Herbert Pardes described how “Dr Hetzel has helped protect an estimated 80 million newborns from needless brain damage—a major public health triumph comparable to the campaigns to eliminate smallpox and polio.”

“There is no doubt that he is an extraordinary person and one of the great figures in Australian medicine in the 20th century”, agrees Professor Creswell Eastman, Vice Chairman of the International Council for the Control of Iodine Deficiency Disorders and Principal of the Sydney Thyroid Clinic at Westmead Private Hospital and Consultant Emeritus to Westmead Public Hospital. “His indefatigable dedication to elimination of iodine deficiency disorders has characterised his professional life. I suspect he will continue with this dedication up until his last breath.” In Eastman’s eyes, one of Hetzel’s great attributes is his ability to influence those in power. “This is what sets him apart from many of his senior colleagues who have performed great work but were unable to translate that into worthwhile outcomes.”

The son of Kenneth Hetzel, himself a prominent clinician and researcher, Hetzel grew up in the city of Adelaide, South Australia, graduating in medicine in 1944. Although he enlisted in the Royal Australian Air Force, a bout of pulmonary tuberculosis in 1945 meant he could not undertake military service. “Of course, many of my school contemporaries did not return [from war service] and I determined that I would do what I could to make the world a better place”, he recalls. After postgraduate education and research in Adelaide, a Fulbright Scholarship took him to New York for 3 stimulating years studying the effects of stress on the endocrine system, followed by time in London training in endocrinology at St Thomas’s Hospital. In 1956, Hetzel returned to the University of Adelaide where he became Michell Professor of Medicine. From 1968 to 1975 he was Foundation Professor of Social and Preventive Medicine at Monash University in Melbourne, and went on to spend 10 years with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) as the first Chief of the Division of Human Nutrition. Tony McMichael, who did a PhD in Hetzel’s department at Monash, describes him as a “progressive and a risk-taker in his medical and public health career”. Hetzel and McMichael, who is now Professor of Population Health at the Australian National University, later worked together on diet, nutrition, and disease at CSIRO, and co-authored a book The LS Factor: Lifestyle and Health. For his part, Hetzel puts much of his success down to chance. “I’ve been very fortunate to have congenial opportunities at the right time”, he says. “I’ve been very, very fortunate. You’ve got to be lucky.”

Stephen Pincock