

Editorial

Asbestos Diseases Research Institute – A New WHO Collaborating Center

The Asbestos Diseases Research Institute (ADRI) was established in 2009 by the Asbestos Disease Research Foundation (ADRF), which is a charitable not-for-profit organization. ADRI is a world-unique institute dedicated to researching asbestos related diseases (ARDs) and situated in the precincts of the Concord Repatriation General Hospital, Sydney, Australia. ADRI functions as an independent medical research institute (iMRI); it is managed by the Board of the ADRF and has a loose connection to The University of Sydney. In February 2017, I started as ADRI Director and a Professor of the Concord Clinical School (now Sydney Medical School) at the University of Sydney. Having resigned from the latter position in May 2019, I now hold only the former position and am serving the last year of a 5-year contract with ADRI.

The ADRF Constitution states that the objective of ADRI is to promote research on asbestos and ARDs and to provide leadership and excellence. By embodying the slogan “*to make ARD history*,” ADRI has a high and far-reaching goal. The constitution shows that the founders anticipated a multidisciplinary approach comprised of biomedicine (laboratory research), clinical sciences and public health/prevention. It also implies that these disciplines should be similar in scope, balanced, and with intersections. On the other hand, with a yearly average of 16 staff since its inception, ADRI is one of the smallest (possibly *the* smallest) iMRI in Australia. Thus, ADRI is more of a ‘one-team’ than a composite of specialized teams.

In biomedicine, ADRI researchers apply a variety of molecular biological technologies to biospecimens (tissues, cells and blood) stored in the ADRI Biobank with the goal of developing diagnostic and therapeutic options applicable to clinical practice¹⁻³). The ADRI Biobank, which is a unique repository of biospecimens and clinical data from mesothelioma and lung cancer patients, is supported by a collaborative network of local hospitals. ADRI is the world’s leader for preclinical research into the role of microRNAs in malignant pleural mesothelioma (MPM). It

was the first to report that a certain microRNA family can suppress MPM and is deficient in patients⁴), and holds a patent for the relevant synthetic microRNA. ADRI also pioneered the clinical application of microRNAs as diagnostic markers and potential therapeutics for mesothelioma⁵).

In the clinical area, ADRI aspires to translate laboratory research findings to the clinical setting. Many of our grant applications are integrated in the context of translational research, working to move ideas “*from the bench to the bedside*.” ADRI’s patient support activities have a strong clinical focus, with two professional registered nurses providing clinical knowledge and social support to mesothelioma patients, families, and carers. This activity has gained nationwide recognition and sustained financial support from the Dust Diseases Authority of the state of New South Wales (NSW). It is important to note that ADRI’s patient support activities cut across the area of public health/prevention as well, with an important emphasis on advocacy and increasing awareness towards ARDs.

In the public health/prevention area, it is pertinent to consider the social and historical context in Australia, which currently shoulders one of the world’s highest per capita burdens of ARDs⁶). For example, the annual number of mesothelioma deaths in Australia is about half that in Japan, but the rate is three times higher. This is a direct consequence of Australia being a leading consumer country of asbestos. Australia was also a major producer and exporter of blue asbestos (crocidolite) in the 1960s⁷). Although asbestos was totally banned in 2003, *in situ* asbestos remains abundant in the community, and the government cautions that all houses built or renovated before 1990 may contain asbestos. Scientific evidence and its ability to feed into the biomedical and clinical areas are thus needed to protect the public from exposure to legacy asbestos and support preventive policies.

Before my directorship, ADRI was already making contributions in the public health/prevention area, in terms of epidemiological research, awareness raising and education.

However, I recognized that there was room to do more on this front while keeping biomedicine (laboratory research) at the core of ADRI's research. The challenge was to simultaneously add the new and reinforce the existing. As members of a 'one-team,' our staff are encouraged to boldly cross between disciplines, create viable intersections (*i.e.*, the *interdisciplinary* approach) and effectively collaborate with external partners. ADRI thus set "*from the bench to public*" as a new direction of translational research²⁾ (*vis-à-vis* "*from the bench to bedside*"), as exemplified in efforts to develop less-invasive and more cost-effective biomarkers for screening large populations. Toward this end, ADRI and the National Centre for Asbestos Related Diseases (NCARD) of Western Australia have entered into formal collaboration.

International cooperation primarily operates at the intersection of public health, but it becomes more effective and mutually beneficial when it plays out on a broader base. Since 2017, ADRI has demonstrated leadership and innovation in advocacy, data sharing, training, capacity-building and technical advice on ARDs, such as through projects under an Australian government grant to promote regional collaboration and supported by WHO and ILO. The year 2019 was particularly eventful in this respect, as ADRI led training workshops in the Philippines, Fiji and Indonesia³⁾, where it was joined by government organizations, UN organizations, and partners from academia, industry and NGOs. The sustained contribution of this work to the Asia-Pacific region was recognized by the WHO Western Pacific Regional Office when it recommended that ADRI be designated as a WHO Collaborating Center (WHO-CC). This came to fruition in January 2021, when ADRI became the world's first WHO-CC for the Elimination of Asbestos Related Diseases.

The WHO-CC opening ceremony was held in March 2021 in the presence of Her Excellency, Margaret Beazley AC, QC, Governor of NSW, who began her speech with the remark "*If COVID-19 has taught us anything, it is the importance of public health*" and concluded with the statement that "*Australia can be most proud of your work.*⁸⁾" In a video-taped message, Dr. Naoko Yamamoto, the Assistant Secretary General of WHO, said "*the global campaigns to eliminate ARDs ... requires building capacities in countries to improve knowledge and practices. The commitment of ADRI, its donors and partners, is greatly appreciated.*⁹⁾" Dr. Philip Landrigan, President of the Collegium Ramazzini, commended ADRI by stating that "*in the area of prevention, the institute has been an international superstar.*¹⁰⁾" As a charity, ADRI is fortunate to be generously

supported by an American philanthropist to continue its commitment to international cooperation, including the development of training materials.

Given its small scale, ADRI should not overcommit or overstretch its limited resources³⁾. A feasible strategy is for ADRI to recognize and approach ARDs in their real-world context as occupational diseases that are compounded by a plethora of socio-economic, legal and ethical factors. The concerned disciplines should be willing to step outside their 'silos' to collectively tackle this complex disease using an *interdisciplinary* approach, although this is much easier said than done due to the boundaries of specialties. However, ADRI was established under a constitution that espouses a *multidisciplinary* approach, so it has good potential to serve as a model. In developed countries, there is growing complacency that ARDs may have peaked; however, this is still unproven. Moreover, many developing countries are likely to soon (if not already) be facing the problem on an epic scale. I firmly believe that developed countries have a moral obligation to assist developing countries in preventing the same tragedy from repeating, and that mutual benefits can come from this.

Under the current COVID-19 restrictions, Australia is enforcing a virtual ban on international travel, rendering in-person training workshops impossible. ADRI is thus working on a plan to develop training videos on asbestos/ARDs, compile them in a Toolkit, and deliver on-line training workshops to achieve technology sharing.

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