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ENGINEERS IN THE HEALTHCARE INDUSTRY

By: Prof. Dr Asbi bin Ali

The healthcare industry in Malaysia is one of the major areas of growth. In the world, it is already the biggest industrial sector with a turnover approaching more than RM 700 billion per annum and is expanding at a yearly rate of 7%. It is not surprising therefore that the Malaysian government is giving a lot of interest and priority where the healthcare budget has increased dramatically over recent years. Government expenditure on healthcare as a percentage of GDP was an estimated 2.8% in 2003 and the Ministry of Health estimates that the share needs to rise to around 7% of GDP by 2020 to match developed-country standards. As an Asian nation dominant healthcare issues relate to the control and prevention of infectious diseases like Avian Flu, SARS, Tuberculosis, AIDS / STD among others.

Currently about 80 per cent of healthcare services are provided by the public sector and we can be proud that it is considered one of the best in the region. The public sector focuses on healthcare promotion as well as rehabilitative and curative care while the rapidly-growing private sector offers mainly curative and rehabilitative services. The private healthcare system is expected to be fueled further by the rise of employer-paid private insurance benefits and rising per-capita income

Like other professionals, engineers need to play their respective roles in this healthcare industry, be it in the form of mechanical engineers, process engineers, biomedical/ medical or clinical engineers, or even chemical engineers. In this country, biomedical engineering is a relatively young area of discipline compared with the other more established engineering activities. In the more developed nations, it is an area where there is a tremendous amount of activity in the research & development aspect of the discipline.

Education and training of biomedical engineering include core modules of engineering and basic medicine while specialist modules include biomechanics, biofluids and biomaterials, implant design and artificial organs, rehabilitation engineering, computer and robotic assisted surgery, tissue engineering, physiological measurements, medical imaging and diagnostic techniques, and regulatory issues and medical ethics.

Biomedical engineers can be employed in the industries of healthcare, pharmaceuticals and even biotechnology with companies working on the design, development and manufacture of medical devices, in hospitals working with clinical colleagues in providing non-clinical services, in governmental research institutions, and in government regulatory agencies or become technical advisers for marketing departments. Engineers will see opportunities to get involved in exciting projects like hip replacement surgery, artificial limbs and bionic arms such as powered finger, wrist, elbow and shoulder movements, artificial retina chips, electronic circuits development to restore lost hearing, senses of smell and taste and in projects related to the development of new drugs and medicines.