Biomedical Sciences in Singapore

The biomedical sciences constitute a field that is rapidly growing and holds much promise for present and future generations in Singapore and elsewhere. The biomedical sciences are a key area for development in Singapore, with the goal of promoting and improving human health and healthcare services in Singapore. Singapore is well suited for the development of biomedical sciences given its strong health care and biomedical sciences research infrastructure - with world-class hospitals, specialised centres, research institutes, and universities. Singapore aims to become a leading hub for biomedical sciences activities, building world-class capabilities that include basic scientific research and development, product and process development, clinical research, manufacturing, and business headquarters operations. The focus on the biomedical sciences is in line with Singapore's intention to be a knowledge-based economy that places a premium on technology, innovation, capabilities and talent.

Development of Bioethical Infrastructure in Singapore

In January 1994, the Ministry of Health (MOH) set up the National Medical Ethics Committee (NMEC) "to assist the medical profession in addressing ethical issues in medical practice and to ensure a high standard of ethical practice in Singapore".
In June 2000, the Singapore Medical Association set up the Centre for Medical Ethics and Professionalism (CMEP) "to promote the art and science of medical ethics and medical practice and their application for the betterment of patient care and public health".

In December 2000, BAC was appointed by the Singapore government to address the ethical issues in biomedical research. The BAC is thus concerned with the ethical implications of research, rather than the implications for clinical settings.

Ethical Governance of Biomedical Sciences in Singapore

In December 1993, MOH directed all public hospitals to set up ethics committees. In June 1998, MOH announced its acceptance of NMEC's recommendations on Hospital Ethics Committees (HECs) for all public and restructured hospitals. The Singapore Guideline for Good Clinical Practice (SGGCP), which is adapted from the International Conference on Harmonisation (ICH) for Good Clinical Practice, was implemented on 1 August 1998 together with the amendment to the Medicines (Clinical Trials) Regulations. The SGGCP ensures internationally acceptable ethical and scientific standards of clinical trials in Singapore. It was revised in 1999. Subsequently, ethics committees were not only set up in hospitals, but also in other institutions including the National Skin Centre, the National Cancer Centre, the Singapore National Eye Centre, as well as the Health Promotion Board.

Clinical trials for drugs are specifically regulated by the Health Sciences Authority (HSA). Prior to approval, a drug trial has to be reviewed by the institution or hospital ethics committee and the Medical Clinical Research Committee, the advisory body to HSA. The HSA issues Clinical Trial Certificates for approved trials.

While non-drug clinical trials are currently not statutorily regulated, the SGGCP is recognised by the MOH as the benchmark for all clinical trials. Therefore researchers and ethics committees are expected to refer to the SGGCP for non-drug clinical trials.

Bioethics Advisory Committee (BAC)
The BAC was established by the Singapore Cabinet in December 2000. It was tasked to address the ethical, legal and social issues arising from biomedical sciences research in Singapore.

Progress in Singapore's biomedical sciences has been rapid. Singapore is building upon a strong public sector infrastructure for the biomedical sciences that comprises hospitals and specialty centres, research institutes, and universities. Activities in biomedical sciences are focussed on healthcare services, pharmaceuticals, medical devices, biotechnology and basic biomedical research. This development has become increasingly internationalised and carries numerous, ethical, legal and social implications.

The rational and responsible management of bioethical issues is integral and critical to the national effort to develop biomedical sciences, and decisions regarding the biomedical sciences and research need to be solidly based on good science and high ethical and legal standards. To this end, the BAC actively gathers information and views from the international and local community, and after careful deliberation, makes recommendations to the Steering Committee on Life Sciences.

The awareness of the Singapore community at large on such issues is also important in the move towards a knowledge-based economy and a high quality of public life. Accordingly, an element of public education is included as part of the remit of the BAC.

The committee comprises of 11 members drawn from a wide range of backgrounds. These include legal and biomedical experts, members of various ministries and the media. The BAC will develop policy recommendations on bioethical issues, and will put these up to the Ministerial Committee.

The BAC has formed sub-committees to address specific issues, such as genetic testing, gene therapy and embryonic stem cells research. Interested parties, including the public, will be invited to share their concerns and provide feedback Setting ethical recommendations for cloning and other genetic research will pose a special challenge for Singapore because of its multi-religious and multi-cultural society.

NUS Centre for Biomedical Ethics (CBmE)
The NUS Centre for Biomedical Ethics (CBmE) was established in September 2006 in the Yong Loo Lin School of Medicine under the Directorship of eminent British bioethicist Professor Alastair V. Campbell, who was appointed as the inaugural Chen Su Lan Centennial Professor in Medical Ethics. The Centre is South East Asia’s first academic centre for biomedical ethics in a medical school, with a dedicated professor supported by a team of researchers.

Under Prof Campbell, CBmE will undertake a major innovation in undergraduate and postgraduate education in medical ethics. Forging interdisciplinary collaborations with other faculties at NUS, including Law, Science, Arts and Social Science, as well as key stakeholders in Singapore's healthcare sector and the research community, it will initiate a wide range of research projects in both clinical ethics and the ethics of the biomedical sciences. The Centre will seek to become a major location for teaching and research in South East Asia and its main focus will be on ethical values in an Asian context.

The objectives of the Centre include:

- Initiating multi-disciplinary research projects in biomedical ethics in collaboration with academics and professionals in the biomedical sciences and in clinical medicine
- Planning and implementing an integrated teaching programme in medical ethics for NUS undergraduate medical students
- Fostering international research collaborations, linking with centres in Asia, the USA, Australasia and Europe
- Collaborating with ethics governance and advisory bodies in Singapore, especially the Bioethics Advisory Committee
- Enhancing public understanding of ethical issues in biomedicine
- Promoting conferences and seminars in biomedical ethics at national, regional and international level