7. Situations and Trends of Technology

7.1 Technology Development

Advances in technology have been rapidly made resulting in innovations being developed and having an impact on health development as modern technologies have been used freely in the treatment and prevention of diseases, namely:

7.1.1 Information and communication technology (ICT). For health programmes, ICT has been used for medical and health consultation including diagnosis and medical treatment with telemicine and diagnostic imaging technology.

7.1.2 Genetics and biotechnology. Rapid developments have been made in this area such as digital-genomics convergence that integrates computer technology into biology. This might be a new dimension of curative care, moving from treatment towards prevention: adding disease-prevention elements to food, soap or cosmetics, rather than taking medication orally for treatment of illness: organ transplantation (such as for bone marrow); stem-cell treatment for patients with heart disease and leukemia; using recombinant DNA, polymerase chain reaction (PCR) and genomics for producing a new vaccine and medicine; and farming of genetically modified plants.

7.1.3 Material technology. New materials have been produced in response to needs in a more efficient manner. In the field of public health, the technology has been used in producing medical materials and equipment such as artificial bones, legs and feet for more efficient medical care of patients which also helps improve their quality of life.

7.1.4 Nanotechnology. A more active role has been played by this kind of technology which is believed to be used in producing a molecular machine comprising atoms to be inserted into the human body for destroying cancerous cells or eliminating blood vessel-clogging lipids without surgery, or in producing a small particle for carrying medication to the diseased part of the body without affecting other parts.
Such technological changes have resulted in Thailand freely importing medical and health-care technologies with no limitation or any mechanism for screening or inspecting the appropriateness of imported high-cost technologies. Moreover, policy-makers lack evidence-based information for making decisions on various technologies resulting in a lack of suitable selection process. And there is no law related to the monitoring and control of the appropriate use of medical and health technologies, causing a rapid rise in health-care spending, particularly for curative care for hospitalized patients. It was found that the costs of medical supplies/equipment imports rose from 2,493.2 million baht in 1991 to 22,654.3 million baht in 2009.

7.2 Utilization Efficiency, Diffusion and Equality, and Access to Technology

The weakness of the public sector in controlling the use of high-cost technologies in a cost-effective manner results in doctors prescribing diagnoses and treatments without due consideration for their worthiness which negatively affects professional ethics and clients’ confidence. Moreover, an investment is needed for personnel development and monitoring of the adverse effects of the utilization of high-cost technologies. Unequal distribution of medical devices has also been noted, mostly clustered in major cities and more in the private sector, not the public sector (see Chapter 6, section 3 on health technologies). This has affected the access to high-cost health technologies of the poor and uninsured.