In celebration of the 50th anniversary of NMC, I choose a topic focusing on future direction of stroke treatment and care as a memorial essay. It is a major field of neurosurgery and must be developed teamed and shared medicine by multidisciplinary collaboration for patients and people but it's not for hospitals nor doctors.

Stroke commonly occurs in middle-aged and senior adults, many of whom have central roles in society, so the adverse long-term effects may result in high social losses. Progress in micro- and intravascular neurosurgery has allowed major improvements in therapeutic outcomes. Emergency surgery to treat hypertensive intracerebral hemorrhage and subarachnoid hemorrhage caused by the rupture of cerebral aneurysms has markedly improved survival. The after-effects of cerebral infarction, accounting for 60% of cases of stroke, can be reduced by fibrinolytic therapy using tissue plasminogen activator within 3 hours of onset and intravascular thrombolytic therapy within 6 hours of onset, but the number of patients who can undergo such ultra-early treatment remains very limited.

Triage by emergency medical technicians and prehospital medical control by emergency physicians is important for ensuring that patients with cerebral infarction undergo ultra-early treatment and reach hospitals with stroke centers as soon as possible to reduce social losses. Prehospital and acute-phase care, especially surgery, is generally provided by neurosurgeons, but acute stroke involves recovery-phase care, mainly rehabilitation of somatic disorders, and maintenance-phase and home care providing lifestyle guidance and support for those permanently burdened by stroke after-effects. Health management to prevent disease onset, recurrence, and further need for nursing care is essential, and some patients require collaboration between health care and nursing professionals.

In response to these problems, the government must provide an optimized social security system with collaboration and functional differentiation between hospitals. Commercial organizations, the government, and academia must cooperate to develop new health care strategies by working with researchers and clinicians in medicine and engineering. Emergency medical technicians, neurosurgeons, and neurologists must cooperate closely in providing healthcare to achieve multidisciplinary col-
laboration between nurses, rehabilitation staff (occupational therapists, physical therapists, speech therapists), dieticians, pharmacists, and care and case workers, and to provide education and training for such professionals.

New management strategies for lifestyle diseases such as stroke are difficult to establish if progress occurs through changes in separate systems. Therefore, integrated restructuring of all social security, healthcare, and nursing systems is required. One approach involves health care information and communications technology (ICT), also called the digital revolution, as proposed internationally. The core of this technology is rapid sharing of information regarding health, medical care, nursing, and welfare, and the development of technology for provision of computerized and standardized information. Information-sharing networks and communications are also indispensable. Computerization of medical information has started at hospitals. Electronic medical record systems, including individual divisions, medical accounting, ordering, and critical clinical path, has been developed, and in-house electronic medical records (EMRs) have been set up to increase efficiency in hospital workflow.

The next step is to standardize medical information and sharing. A collaborative critical path is needed in hospitals for sharing electronic information in regional EMR services. Regional electronic health records (EHRs) for sharing of computerized lifetime health care information such as specific physical examination/screening findings is being promoted, and such health care ICT ensures wide coverage. The i-Japan Strategy 2015 to implement a public-centered digital inclusion and innovation society was proposed last year with three priority areas, one of which is medicine and health including resolution of the current shortage of local physicians and the establishment of regional EHRs. The development of social security cards for empowering individuals is under way, and transition to a new health, nursing, and welfare system, called personal health records (PHRs), is being studied to focus on the patients and the public, with less reliance on government- and hospital-centered organizations as in the past. Development of a new medical system responding to public requests is desirable for the evolution of neurosurgery in the next 50 years.