

Executive summary

Policy planning strategies for data production and management in health care for evidence-based health care policy making: The case of secondary databases

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□ Introduction

With increase in the level of Korea's medical technology and advancements in health care, there is an escalating need and interest for evidence-based health care policy making.

In general, the national health care statistics and data are baseline information in health care policy making and provide support and evidence for development of public health promotion programs, distribution of health care resources and health care industry. Therefore, various data collection systems are established to produce statistics in accordance with occurring demand.

According to Korean Statistical Information Service, Korea operates a compromised system which is rather dispersed, and statistical data are produced under accountability of each institution to carry out its peculiar work and enable utilization of sectional expertise for prompt development of statistics in line with demand for statistical data. Yet, it is difficult to compare data due to the low consistency among results of statistics and lack of linkage between data collection systems. Furthermore, as there is a limitation in

reproduction of pre-existing statistics, dissemination of statistical data to the government and public is inadequate.

As health care statistics reflects socio-demographic characteristics in nature, new statistical data should be produced through periodic identification of the status and understanding of change in trend. Therefore, it is urgent to examine items in health care statistics systems in international organizations and developed countries to compare and analyze them against the national health care statistics to propose a constructive direction for developing indicators for Korea's health care statistics.

□ Method

The overall research performance system is composed of consideration of current issues, investigation of the national and international status, development of strategies, collection of experts' opinion, conclusion and proposal. The detailed contents for each stage are as follows.

1. Policy planning strategy for production and management of statistical data for policy making decisions in health care

1. The study summarizes statistical data sets produced and managed by health care institutions.
2. The study considers issues in health care statistical data, summarizes and analyzes contents published on websites that provide health care related statistical data which are operated by institutions that produce and disclose health care statistics, 'Yearbook of Health and Welfare Statistics,' 'White Paper on Health and Welfare,' 'New Year Report on Affairs,' 'List of Budget Programs' to investigate the status of national health care statistics. Moreover, the study investigates items in health care statistics published by international organizations(WHO, OECD) and developed countries(Japan, US, UK, Australia) to compare and analyze how international health care statistics are managed.

Finally, it describes the case of HSCIC(Health and Social Care Information Centre) in the United Kingdom.

3. The study presents problems in the most basic health care related

statistical data, the Ministry of Health and Welfare's 'Yearbook of Health and Welfare,' and proposes strategies for enhanced production and management of health care statistics.

II. Analysis of Korea's health care research

1. As preceding research on Korea's health care research management was inadequate, the study focuses on the status of health care research management in other countries, including NIH's 'RePORT' of the United States, NHIR's 'HS&DR' and UKCRC's 'HRCS' of the United Kingdom.
2. The category in accordance with research system for analysis of health care area's researches was established through expert consultation.
3. To investigate the status of Korea's health care research, research reports of National Cancer Center, National Evidence-based Healthcare Collaborating Agency, Korea Health Promotion Foundation and Korea Centers for Disease Control and Prevention published during the past five years have been collected and classified in terms of research system.

□ **Research Status**

1. Status of domestic and foreign health care statistics and development strategies

Korea approves and manages major statistical data that have critical impact on policy making and public's decision making as national statistics, and according to Statistics Korea, as of June 2013, 387 institutions published 910 statistical data on health care. Among those, there are 184 kinds of data related to health, society and social care, accounting for approximately 20.2%. Survey statistics includes Korea National Health and Nutrition Examination Survey and Korea Health Panel Survey, with the largest share with 137 data.

There are 44 reporting statistics, transmitted from local public health centers to the relevant department in the Ministry of Health and Welfare through Welfare & Health Bureaus in city/provincial government for usage and storage. Finally, derived statistics, production of new indicators based on data received by the government, is composed of three types- Construction of Korean

National Health Accounts, Death Statistics and Life Table.

The Statistics Division in the Ministry of Health and Welfare operates a website which provides health care related statistics. the Ministry of Health and Welfare's online statistics portal(<http://stat.mw.go.kr>) provides 16 data sets on health, including tuberculosis, sanitation management, Korea National Health and Nutrition Examination Survey, Korea National Oral Health Survey, Survey on Sudden Cardiac Arrest in Health Care category and 12 categories in Health Care/Medical Treatment such as Annual report on the notified HIV/AIDS, National Medical Care Resources and Utilization Survey, Construction of Korean National Health Accounts. From 2006 the Statistics Korea has been integrating national statistics that are produced by statistical organizations as to establish an integrated national statistics database, and Korean Statistical Information System was launched in July 2007. It provides 31 health related indicators and 902 data on health insurance, tuberculosis, sanitation management, Korea National Health and Nutrition Examination Survey, Korea National Oral Health Survey, Construction of Korean National Health Accounts, Report on National Notifiable Disease, Hospital Management, Public Health Center Management. e-National indicators, operated by Statistics Korea, provides all sorts of national statistics and information derived from administrative data. There are 18 indicators in total; four related to health promotion, one on health care industry, six on general health, one on food, and six on disease. Health and Welfare Statistic website operated by the Korea Institute for Health and Social Affairs(KIHASA) provides raw data on certain panel data, including patient survey and health panel survey conducted by KIHASA, thus enables production of diverse statistical indicators.

Yearbook of Health and Welfare Statistics published by the Ministry of Health and Society since 1955, contains 145 statistical data on medical affairs, disease control, pharmaceutical affairs, relief, welfare of women and children, labor, population and others, 2011 Yearbook of Health and Welfare Statistics(2012) provides detailed statistical indicators on population, public health, health care workforce and facilities, health care industry, social care services, public assistance, social insurance, living conditions, finance,

international statistics.

The White Paper published by the Ministry of Health and Welfare provides information on the state of policies in health care sector, and consists of five chapters on health insurance, health care policy, health program policy, public health promotion policy, Korean Medicine policy. It further contains approximately 80 detailed policies and enables readers to identify the annual change in key policy measures. The Ministry of Health and Welfare's new year report for 2013 divides policy implementation plans in accordance with generation(young adults and middle-aged, elderly) and health care to provide specific objectives. The ministry's budget outline is organized with its focus on policies and programs where the budget is spent. Health care policies are further segmented into 12 areas(expansion of public health care, promotion of health care programs, Korean medicine research and policy development, health behavior, support for cancer and rare diseases, management of mental disorders, support for dental health program, support for health care services, support for Sorok Island Hospital, support for Korea Centers for Disease Control and Prevention, operation of National Health Insurance, special audit).

Among health care related statistics published by international organizations, United Nations and OECD provides national statistics on issues such as health and health care performance indicators for international comparison. UN Statistic Division's health care related topic is 'Health and Disability,' and includes birth rate and death rate. UN also shares data with other UN agencies such as World Health Organization(WHO) on topics such as disease and conditions, health workforce, vaccination, reproductive health. The Joint United Nations Programme on HIV/AIDS, UNAIDS, collects data on trend and prevalence of HIV/AIDS. OECD collects and publishes a variety of statistical data from 34 member countries(as of 2013). Health related statistics are divided into 776 items, including health status, health care resources, health care utilization, long-term care, social protection, pharmaceutical market, non-medical determinants of health.

In the Ministry of Health, Labor and Welfare of Japan, Statistics and Information Department is under Minister's Secretariat. The department has

the central role in managing statistics and information issues, and conducts and analyzes several surveys to support policy planning. Moreover, it is involved in planning and development of necessary systems for promotion of informatization of administrations within the Ministry. With regard to statistics and information, the department conducts a nationwide statistical surveys on items including demographics, households, health, social welfare, employment and wages. The National Center for Health Statistics of the United States(NCHS) is the nation's principal health statistics agency which provides data on health to help guide public health and health policy decisions, part of the Centers for Disease Control and Prevention(CDC). Furthermore, it documents the health status of the U.S. population, identifies disparities in health status by race/ethnicity, socio-economic status, other population characteristics and geographic region, monitors the change in health status, provides data to support public policies and programs and tracks impact and effectiveness of health care policies and other major policy initiatives.

Australian Institute of Health and Welfare(AIHW) announces and publishes statistical data upon consultation and approval of Australian Bureau of Statistics. It deals with report statistics, including alcohol and other drugs, cancer, children, mortality, functioning and disability, chronic diseases, public hospital's morbidity, general practice and cost. The United Kingdom's Health and Social Care Information Centre(HSCIC) annually publishes Health Survey for England, Ambulance Services, England, Breast Screening Programme, England, Cervical screening programme, community social protection(Community Care Statistics: Social Services Activity, England, Data on written complaints in the NHS, General Ophthalmic Services activity statistics, Prescription related statistics, NHS Contraceptive Services, NHS Immunization Statistics), personal social services(Personal Social Services: Expenditure and Unit Costs, England, Prescription Cost Analysis), Smoking, Drinking and Drug Use among Young People in England, Statistics on Alcohol, Drug Misuse as official statistics designated as National Statistics. In particular, HSCIC's key role is collecting data from diverse health and social protection organizations and securely processing it, maintaining personal information on

medical treatment and social protection data to create the maximum value, ensuring public transparency in policy development, enhancing service and research in public health care sector to provide requested data material to researchers, public, decision makers and interest groups.

II. Analysis of domestic and foreign health care research performance status

The study establishes a classification system for health care research progress for analysis of Korea's health care research status to enable a systematic and efficient investment in Korea's dispersed health care research development support system.

The study further proposes the objectives and functions for institutions that conduct health care researches, including Health Insurance Review and Assessment Service, National Cancer Center, the Ministry of Food and Drug Safety, Korea Health Promotion Foundation, Korea Centers for Disease Control and Prevention, Korea Health Industry Development Institute, National Evidence-based Healthcare Collaborating Agency.

The process in successful research classification systems in other countries are standardized in simple terms and possess consistency, relevance and flexibility to respond to different situations as major common characteristics. ① NIH(US) : RePORT[Research Portfolio Online Reporting Tool] is a website which contains data and analysis related to NIH's research(<http://report.nih.gov/index.aspx>), including NIH's expenditure and information on research results related to NIH. RePORT is categorized into by Research Area, Disease and Condition, and composed of 235 subcategories.

It uses sophisticated text data mining process using words and phrases for categorization. ②NIHR(UK): The aim of Health Service and Delivery Research(HS & DR) programme is to provide relevant evidence on the quality, access and organization of health services, including costs and outcomes. HS & DR programme allows projects to be browsed by Research Theme, Investigator, Contractor, Organization, Health category, Research Activity Code, and divides 48 codes into 8 code groups. ③UKCRC(UK): Established by the government to construct a strong network between public and private sector,

UKCRC developed HRCS(Health Research Classification System) to recognize the importance of conducting analysis on status of health care research and creation of new classification system, and include entire areas in UK's medical and health care research. HRCS is recommended as the most appropriate classification system for comparison and analysis of health care research portfolio, and is used in Ireland, Sweden, Norway, the National Medical Research Council of Singapore and Canada. HRCS is a two dimensional framework, consisting of Health Categories and Research Activity Codes.

III. Results on the status of Korea's health care research

Ten institutions that implement and place orders for health care related research in Korea conducted 5,052 researches from 2007 to 2012 and 3,729 researches(67.7%) were obtained in original format. In the area of medical research, the fundamental and translational researches conducted by National Cancer Center, the Ministry of Food and Drug Safety, Korea Centers for Disease Control and Prevention accounted for 64.9%, 95.0%, 82.3% respectively. Only National Health Insurance Service, Korea Centers for Disease Control and Prevention, Korea Health Promotion Foundation, Korea Institute for Health and Social Affairs conducted base study, policy study including planning and development research and performance evaluation, and each accounted for 4.2%, 4.3%, 2.7%, 11.1% respectively.

□ **Conclusion and Policy Proposal**

I. As health care statistics indicators change with socio-economic development and environmental changes, they are not fixed. The statistical yearbook published by the Ministry of Health and Welfare since 1954 does provide key health care indicators of the era, yet there has not been any major changes in items for the past 10 years. This is a deviated phenomenon from the ministry's policies that responded promptly to shifts in the government policies.

Furthermore, it is considered the ministry may be hindered from formulating evidence-based policies using indicators. This study provides the following three-step strategy for production and management of statistical data in health

care.

The first step is revision of the current statistical yearbook published by the Ministry of Health and Welfare. By updating the contents, the linkage amongst detailed indicators should be strengthened, the repetitive indicators and indicators of low importance and relevance should be deleted, repetitive contents should be integrated, and indicators which have lost their significance due to the stream of time or present context should be removed or simplified.

The second step is re-arranging the structure of the statistical yearbook in terms of implemented programs to produce indicators that reflect major changes in policies and enable systematic and sustainable management. If the yearbook may provide statistical indicators identical to the contents in the Ministry of Health and Welfare's White Paper through such improvements, it would be possible to assure the evidence material for policies and capture a comprehensive view of Korea's health care through the progress, policy direction and time series data.

The third step is establishing a specialized institution which manages and integrates/collects raw data on health care in the process of statistical data production, creates data for policy-making upon request and performs quality control. Under current system, all the data are scattered and managed by each institution and as data have been sporadically produced upon request of the government and the parliament at the absence of a central institution which integrates and manages data, the substantiality of the indicators has declined and its future use became difficult. Therefore, there is an urgent need for a organized system which operates and manages overall production of statistical indicators, and the study suggests that a specialized agency under the Ministry of Health and Welfare take charge of these functions.

II. Due to insufficient survey and management on health care research status in Korea, there is a need for systematic classification of research results and systematic management strategies for review of issues such as repetition and insufficiency. In developed countries, they operate systems that classify outcomes of government-funded researches and utilize them as a separate

research data. In Korea, however, the outcomes are uploaded as simple reports and the process on further classification and report is absent. Since it is difficult to identify in advance whether a research is repetitive in nature or belongs to an over-funded area, prevention of budget overlap and/or over-funding is challenging. Therefore, survey on user demand with regard to research outcome should be conducted and a system for multi-dimensional classification of research outcome should be established. Furthermore, more systematic and scientific classification system should be proposed to address diverse social needs and construction of a database structure and a website for sustainable research outcome management is crucial.