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National Health Priorities under the Kim Jong Un regime in Democratic People's Republic of Korea (DPRK), 2012–2018

Bo Kyung Shin,⁹¹ Woo Taek Jeon²

healthcare policy which was most recently announced to

the international community by the Democratic People's

internal and practical perspectives and priorities in the

healthcare sector is difficult. Hence, there is a need to

analyse domestic documents. One such document is the

Sa-seol-a kind of editorial in the first issue of the each

quarterly medical journal published in DPRK. We analyse

journals during the Kim Jong Un regime (2012-2018), and

then classified them in terms of their relevance to each of

12 items presented in NHP 2016-2020. Sa-seol mentioned

the content of 56 Sa-seol published in eight medical

a total of 612 medical and health issues which could

be classified into 12 items based on NHP 2016-2020.

We divided the items into three categories of concern in

the NHP by summarising the total number of mentions:

the areas of the most, medium and least concern. The

and technology) are not directly related to the present

areas of most concern (development of medical science

improvement of health and rather, seem to focus on more

future development. The areas of medium concern focused

on disease control, health systems and social determinants

of health. The areas of the least concern were emergency

This study suggests a two-track approach for healthcare cooperation with DPRK:, a well-balanced approach

or disaster response and reproductive health services.

between 'present' and 'future' needs.

Republic of Korea (DPRK). However, understanding DPRK's

ABSTRACT The National Health Priorities (NHP) 2016–2020 is the

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INTRODUCTION

The Democratic People's Republic of Korea (DPRK) is one of the world's most closed countries. Accordingly, it is difficult to obtain accurate statistics on healthcare in DPRK, and even the internationally reported data do not inspire sufficient confidence in its accuracy and reliability.^{1–3} Indeed, it is not known what healthcare policy is actually in place in DPRK, and this is a cause of confusion when the international community discusses the healthcare sector with DPRK.

Summary box

- To date, there have been no studies on the Sa-seol in the medical journals published (government-written editorials) in the Democratic People's Republic of Korea (DPRK).
- ▶ We analyse the content of 56 Sa-seol published during the Kim Jong Un regime (2012–2018), and then classified them (into areas of most, medium and least concern) based on their relevance to each of the 12 items presented in the National Health Priorities (NHP) 2016–2020.
- The area of most concern has two items, including the development of medical science and technology, especially in DPRK's traditional complementary medicine called 'Koryo Medicine'.
- The area of medium concern has eight items, including disease control, maternal and child health, health system and social determinants for health.
- The area of least concern has two items, including response to emergencies and disasters and reproductive health services.
- Future cooperation of the international community with the DPRK healthcare sector needs to consider a balance between relief support and the development of medical technology.

There are three main ways to understand the national healthcare policy in DPRK. The first is the healthcare policy that has traditionally been proclaimed by DPRK. It is based on the three components of free medical service, preventive medicine and section doctor system (a system in which one doctor is responsible for the primary care of around 130 households).^{4 5} However, due to the persisting economic difficulties, the healthcare policy that DPRK promoted as the pride of the socialist system has not functioned properly since mid 1990s.

The second is the healthcare policy that the government, especially the Ministry of Public Health (MoPH), jointly produces and announces with international organisations

Area	NHP 2004-2008	NHP 2010–2015	NHP 2016–2020
Area	NHP 2004-2008	NHP 2010-2015	NHP 2010-2020
1	Tuberculosis, malaria, HIV/AIDS	Decrease burden of communicable diseases.	To intensify the development of the Juche-oriented medical science and technology.
2	Other infectious diseases (hepatitis B, intestinal infectious diseases and parasitosis)	Delivery of quality medical services.	To establish nation-wide telemedicine system and improve the operational quality.
3	Non-communicable diseases (CVD, cancer, oral disease)	Strengthen household doctor system.	To upgrade the health sector to information oriented one.
4	Tobacco control	Protect and promote maternal, child and elderly health.	To strengthen systems for prevention and surveillance of diseases.
5	Maternal and child health, including immunisation	Strengthen prevention and control of major NCD and risk factors.	To facilitate the modernisation of medicine manufacture, production of Koryo traditional medicine and modernisation of medical tools, production.
6	Food safety	Provide sufficient medicines (essential medicines and OTC medicines).	To provide safe and healthy environment.
7	Nutrition	Strengthen human resources for health.	To strengthen section doctor system and improve the quality of health service.
8	Mental health	Integrated health management information system.	To improve the technical competency of health workers.
9	Blood safety	Strengthen emergency preparedness.	To improve the maternal, child and aged healthcare.
10	Health and environment	Intensify international cooperation and partnership.	To strengthen professional development of midwives for providing quality SRH services.
11	Developing and application of new technology		To strengthen the capacity of leadership and management in public health.
12	Essential drugs and drug quality assurance		To develop the capacity for immediate response to emergencies and disasters.
13	Strengthening of health system		
14	Training/reorientation of health workers		

CVD, cardiovascular disease; DPRK, Democratic People's Republic of Korea; NCD, Noncommunicable Diseases; NHP, National Health Priorities; OTC, Over-the-Counter; SRH, Sexual and Reproductive Health.

such as the WHO, United Nations Children's Fund and United Nations Fund for Population Activities. It can be confirmed mainly through three official reports : the National Health Priorities (NHP),ⁱ (table 1) ⁶⁻⁸ Country Cooperation Strategy (CCS),ⁱⁱ and Medium Term Strategic Plan for Development of Health Sector DPRK (MTSP).ⁱⁱⁱ All these are organically linked with each other through closed discussions with DPRK authorities and WHO DPRK representatives in the process of preparation.^{9-12 iv} They represent that DPRK is making efforts to establish and implement healthcare policy in line with international standards. At the same time, however, there is a possibility that DPRK, which places great emphasis on national reputation and face, has possibly written these documents to demonstrate their national policies to the international community without enough intention to implement them. In fact, it is difficult to confirm whether the government is implementing healthcare activities in accordance with such internationally proclaimed national health policy.

The third is the healthcare policy instructed by the DPRK authorities to its own community-based healthcare workers which, may reflect the most practical and realistic health policy that the DPRK government seeks to implement. Such instruction may be given in a variety of ways, and one of them is through the '*Sa-seol*' (editorial) in the first issue of every quarterly medical journal published in

ⁱThe NHP has been published three times: 2004 (NHP 2004–2008), 2009 (NHP 2010–2015), and 2016 (NHP 2016–2020). However, the original documents of DPRK's NHP cannot possibly be obtained due to restrictions on access to DPRK's domestic data. But it is included in the MTSP and CCS report as the part of a chapter.

ⁱⁱ The CCS suggests the Strategic Agenda aimed at making the greatest contribution to global health, including strengthening the technical, intellectual, ethical, and political leadership of all the member states in the international health sector. The report has been published threetimes: 2004 (CCS 2004–2008), 2009 (CCS 2009–2013), and 2014 (CCS 2014–2019).

ⁱⁱⁱ The MTSP suggests the Strategic Goals for providing the framework in the coordination of development investment based on investigation of the health needs of DPRK through strategic investment area designation, national monitoring and evaluation systems, and financial gaps for priority interventions. The report has been published two times: 2009 (MTSP 2010–2015; MTSP 1) and 2016 (MTSP2016–2020; MTSP 2).

^{iv}According to the MTSP and CCS, WHO and many international organizations which have representative offices and/ or have officials in DPRK, and support the MoPH of DPRK in developing the health care mid-term plan.

DPRK. The *Sa-seol* tends to have a propaganda slogan as a title, and, as is the case of editorials, no specific author name. It is a directive message from the DPRK authorities which mainly contains an analysis of the healthcare contents of Kim Jong Un's annual New Year's address.¹³ ^v Hence, the Sa-seol,^{vi} as a vivid resource, need to be analyzed to compare the practical direction and implementation of health care policies with the internationally proclaimed health policy in DPRK. In this context, this paper has the following objectives. First, it aims to analyse how frequently the 12 items in NHP 2016–2020 are mentioned in the *Sa-seol* in order to identify DPRK's domestic priorities. Second, it aims to find how the most mentioned NHP items are described and explained in the *Sa-seol*. Third, it aims to suggest some issues to be considered by the international community in future healthcare cooperation with DPRK.

In DPRK, there are nine medical journalsvii which

(AF 647)	한 결심이다. 세해 주체 101 (2012)년은 위대한 결정일 G 1여만전지사업의 생과를 중고해하여서 개최하
강성부흥의 전성기가 펼쳐질 올해에 당의	강생부흥구상이 빛나는 겉실을 뺏게 되는 태이 된 암조기겹진사임을 실수있게 진행하여 한성
	며 김일성조생의 새로운 100년대가 시작되는 절명을 조기에 적말하고 계대에 치료함으로써
예방의학적방침관철에서 혁명적전환을 일으키자	장염한 대원군의 해서다. 취대한 황도의 당출 근로자들의 진장을 믿음직하게 암보하여야 한
	바라 대를 이어 대교조력사를 지승리나가는 참 다. 또한 먼거의의로봉사되지의 추별성을 더욱
오늘 우리 군대와 인민은 반양년의 운구한. 지난해에 귀려한 땅을 따라 알까지 한것을 하	엄한 총진군으로 빛내일 출해에 당의 세방의학 등고히하여 의로봉사의 실직수준을 더욱 높이
우리 인국사에서 영원해 지불수 없는 자유를 처는 우리 문대와 선권의 대통도가 승규한 높이	직망침을 펼쳐쳐 관절하는것은 사회주의보전계 한양시켜야 한다.
남긴 귀눈물속에 2011년층 보내고 새해 주제 여서 발휘되었으며 온 나라 보관일근물의	도를 용효교수하고 그 우월생을 높이 발양시키 예탕의학부문 일군들은 전국적인 범위에서
101 (2012) 년을 맞이하였다. 아마에 인원의 전장풍진을 위해 드나는 성	· 기위한 중요한 사업이다. ' 꾸려진 비상방역지위부들의 기능과 역할을 높
해마다 위터한 김정일동지께 추천의 인사를 로교를 마체시며 사회주의보건계도의 우원	·····································
드리고 세해 친군길에 오르면 우리 인민들은 지 이유 빛내여주신 위해한 장관님에 대한 다만없	지적화시켰다. 에서 실험하기 위해 해당부분 과학자, 기승자
금 경제하는 장군님에 대한 결정할 그리움이 어 는 장사의 것이 드것게 중이켰다.	《위생방역사업을 강화하는것은 당의 예방의 물과의 정초를 강좌하여야 한다.
더욱 가슴속에 넘쳐나 뜨거운 눈물을 흘려며 술 뒤대한 장군님의 편명한 평도에 의하여 사회	화적방침관철에서 매우 중요한 인의를 가진다. 응해에도 이상기후행상에 대체하며 해당 위 E. 지금까지 우리 나라에서 많은 질병들과 전, 생활성소중에서 전성성의 방생수 미리하기 위
응을 했다 흥기로 바꾸어 경예하는 김정혼동기의 부의부상치료계의 우월성이 더욱 높이 맞았다.	
형도따라 주제의 혁명위업을 대통 이어 끝까지 ▌였으며 예방의학사업에서 많은 성과들이 이동	
완성해나깥 절세의 의지를 가다듬고 새로운 주 되었다.	[[]]문입니다.) 인자에 의하여 발생할수 있는 전영병들이 대한 '지금 우리았어는 위대한 장군님의 유혼을 한 방역사업을 예전성있게 진명하여야 한다.
제100년대의 강성부용을 위한 창업한 친군길에 🖡 대방의학부들에서는 위생방역사업이 가지는	전 시험 가지 있지는 위해 한 장도 함께 부분을 한 방역자입을 해진성있게 전형하여야 한다. 중고 2012년까지의 치사처만개의 목표를 기어 특히 전자적인 범위에서 실명을 히려받기 위
중이셨다. 외치와 중오성을 깊이 명심하고 정보관연시대	· 이 달성하여야 할 중대한 과업이 나세고있다. · 해 세상약을 공급하는 사업을 생상화하는것과
위대한 김정일등지는 심오한 사장리론과 비] 의 요구에 맞게 취생하여사연을 고착화하기 위	《위대한 고경일문지의 유분을 받들어 함께 나이에 따르는 세방점들에 대한 자료자리
병한 평도로 주체혁명위험을 백전백승의 원길 한 투쟁이 철차계 떨어졌다. 충양과 각도위영	2012년을 장성부용의 전성기가 전체지는 자항 프로그램을 개발하여 예방식업의 과학화를
'로 이들어오신 결출한 사상의론가, 회사의 정 선전관사이의 풍종리방하 성과원으로 도입되는	전 승리의 해로 몇대이자 ! }, 이것이 올해야 전 현라이야 한다. 그리하여 해당 지역에서 말
치원로, 물세숲의 전군령장이시며 조숙과 인민 없으며 여러가치 집정물을 예방하기 위한 민간	방, 원군, 전인이 높이 들고나가야 할 신투적 할수 있는 전영명들에 대하여 신속성독한 싸
에 대한 승규한 현실으로 혁명적성대를 수놓아 표르힘들다 보약을 가장 효과있게 허용할수 있는	구요이다. 대체는 시름으로써 우리 당의 세방의학사상의
오십 절세의 매국가, 인민의 가대로운 어머이시 《상취들, 녀성등속에서 쉽지 나타나는 질병들을	세방의학부운 일군들은 우리의 정치사상적위 정망성과 성황력은 힘있게 파시하여야 했다.
있다. 예방하기 위한 다매체원집문들이 <u>개</u> 맞 <u>치여</u> 위	러, 한결의 위력을 해당으로 강화해나가야 한 - 주퍼 나라 사회부죄보전체도를 총로고주하고
위대한 김정일등지께서 이끄실으로써 생선전사업에 장성히 리유지였다.	· 다. 우리 연민은 누구나 다 어버이수형님의 사 그 우월성을 높이 말았시키기 위한 근본받도는
어버이수형님께서 창시하신 물법의 주제사상, 또한 희무조전에서의 비원경이 🖡 🍝	· 장과 취업을 이야받은 김일성동지의 후승증이 경애하는 김정은동지의 치도를 가장 신속하게.
선군사상이 자주시대의 지도부장으로 빛을 두 없네거나 사람들의 전강에 음려하는 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	· 여 김정일등지의 전사, 제자들이다. 가장 절제하게 관철해나가는 인민군대 지휘관을
	· 취대한 수정 김일성동지의 한생 100歳을 높 의 전투적기실은 제국 마라대위 취대한 장순님의
	은 정치사장적열의와 빛나는 로취직성과로 맛 명전에 파진 명제를 지켜 강성부흥구상을 실천
	이하기 위한 사업에 최대의 충경을 하쳐나가야 ·하는 루징에 모든 힘과 지해와 열정을 생그리
기 없었던 민족변형의 대권생기가 편하셨다. 도움을 두는 환경관리프로그램을 환성하여 로 우리 혁명이 가장 어려운 지원을 겪던지기에 통위생조사에서 올해선자와 전강과해상황자이	한다. 바치는데 있다.
이버이수형님의 고귀한 유산인 사회주의권위를 의 관계를 과학적으로 밝힐수 있게 되었다. 공	·대방의학부문 일순들은 경애하는 김경온통지를 우리 혁명의 결은 간교하고 우려있어 나선 과업
출 경전히 수호하시고 빈쪽안대의 번영을 위한 Ⅰ기, 등, 총식불 등 성준에 필수적인으로 등과	· 결사용위하며 위대한 방송 따라 영원히 한길을 '은 방대하지만 어머이수영님과 캐대한 장군님 그
같해한 경치꾼사직, 정치계도대를 마련하여주 ■림질을 비롯한 생활환경의 위성문화상태, 공	가려는 투행한 신영을 지니고 인명보전사업에 대로이신 경매하는 김정은동지의 현명한 평도가
신것은 위대한 집정일등지께서 주체혁명위업에 장, 기업소의 로등환경조진들을 보다 뉴학적으	서 혁명적전분을 일으켜야 한다. 있고 수명님과 장군님께서 평생의 로그와 심혈을
이목하신 최대의 풍적으로 빛나고있다. 로 조신장악할수 있는 로래가 그문하게 마련되	위대한 김정일등지께서는 지난해 인민보전말 바쳐 다편하여주신 백두산혁명강군과 자원경제
오늘 우리 군대와 입민은 얼마나 취대한 평도자를 없다.	· 전의 강형적지점으로 되는 교전적로작을 발표 '의 박장한 토대가 있는만 우리 혁명은 평승불과 하시에 이버이수평님께서 음산으로 들려주신 이미 국목분할 남곳 성형부할 호세라 없다.
전유위·해양으로, 어버이로 도시표 혁명하여표 지난 C 된 자랑문 성파는 2012년의 자	
는가를 심장으로 결감하고있으며 김정일등지의 광은 ~~~~ 오기 위하여 초인가격인 것의	
병원과 위험을 끝까지 완성해나갈 불라는 경의 으로 괜찮힌적인 진준을 전부에서 이끄시었으	
'에 넘쳐있다	전문적인 제기를 다친해주시켰다. 최 발전송, 신군송비의 형관 발전용, 강성부용 비행과학부분, 월군들은 신인적 건강물전상, 외 우발관 발전용눈이 당한 비행의학제단전관
지난해는 위대한 김정일동지의 정력적인 명 의 주요친구들과 최징연초소들, 온 나라의 방	· 가격이 역가는 현존들은 그건의 건강물건을 더 가장한 분강물로이 영의 예정의학적당철관 위해 물러주셨 위해할 광관님의 어머이사랑과 - 성에서 혁명체정확을 얻으며 우리 나라 사회부
도로 장성국가전철에서 대해신, 대비약이 있어 방무목을 중황부전하시며 현지되도의 것을 이	· 제작· FATA 가격도 정도 24 거기기가 54 · 경계적 지정적 인원을 알드려 우리 나와 사회수 협렬한 힘도의 순간아내 몇내여온 엔인적보전 · 최보전제도를 총효고수하고 그 우림성을 더욱
난 승리의 해있다. 어오신 경애하는 장군님의 힘명한 평도의 고귀	지책의 정당성과 수업성, 생활성을 투명해 과 및내비나가자

A	"Sa-seol"
в	Title of Se-seol (propaganda slogan) "Let's make a revolutionary transition through strengthening the party's preventive medical policy this year"
С	Contents which explained the Last year's Acheivements
D	Contents of main activities and expectations emphasized for the present year
E	"Great leader, Kim Jong Un instructed as below:"
F	"The computer network in the central and each provience's hygiene system has been successfully introduced." And multi-media compilations have been developed to prevent common diseases that can be easily seen among women, to and they have been widely used in hygiene propaganda projets using by folk remedy.
G	• "Proceed with an early cancer screening project to promptly detect cancerous diseases and treat them on time" • Improve the quality of health care by developing telemedicine system "

Figure 1 Composition of Sa-seol in medical journal of Democratic People's Republic of Korea and its brief explanation.

^vIn DPRK, New Year's address is a very important document, which reveals the specific tasks and practices in each social sector within a year. When a New Year's address is announced, each sector of the national policy begins to re-organize its contents related to there spective specialty area and submits the specific plan based on the address.

^{vi}Sa-seol in the medical journals contains such customized and detailed contents as the instruction to health care workers about the authority's directional goal during the year. It consists of two parts: the achievements in the health care sector of the last year and the future instructions to be achieved for the current year, conveyed in a strong, concise manner. publishes original articles. Most of these are published four times a year. Among them, issues of the eight journals published between 2012 (Kim Jong Un's official

^{vii}There are nine medical journals such as Chosun Medicine, Preventive Medicine, Basic Medicine, Korean Pharmacy, Dentistry, Otolaryngology, Ophthalmology, Internal Medicine, Orthopediiics, Pediatric Obstetrics & Gynecology Clinic, and Koryo Medicine. These journals are published by the Medical and Scientific Publisher in DPRK.

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regime began in 2012) and 2018 could be obtained and copied from the Information Center on North Korea at the National Library of Korea. However, the Journal of Koryo Medicine is only possibly obtained for 3 years issued, between 2016 and 2018, so it is excluded from the analysis. Analysing how the items of NHP presented as the national plan are handled in the Sa-seol to examine the direction of DPRK's healthcare plan indirectly under the circumstances of insufficient information on the status of healthcare in DPRK. Thus, a total of 56 Sa-seol from eight medical journals within 7 years between 2012 and 2018 were collected and analysed sentence by sentence and then classified in terms of their relevance to each of 12 items presented in NHP 2016–2020 (figure 1). We calculated the percentage of mention of each item out of the total number of mentions and then rearranged the order of items by the frequency of mentions.

CATEGORIES OF CONCERN

The 12 items in NHP 2016–2020 were classified into three categories: the most, mentioned categories of concern (table 2). Notably, the way the two most mentioned items are explained in the *Sa-seol* are as follows:

(1) Production of pharmaceuticals and combination of the new medicine (western medicine) and Korvo medicine (traditional Korean medicine): As part of DPRK's efforts to supplement the healthcare delivery system and to modernise the quality of medical care, it has increasingly emphasised the supply of medicines and the improvement of technology for combining Koryo medicine.^{14 viii} The high consumption of Korvo medicine is also reported in WHO as the essential drug policy of DPRK.¹⁵ Koryo medicine, which poses less financial burden to use and is easily accepted by the people, has been strongly emphasised as the unique medical system of DPRK to be utilised in combination with western medicine. According to the Sa-seol, the combination of Koryo medicine and western medicine was related to (1) the interest in developing new drug productions with herbal ingredients¹⁶¹⁷; (2) the emphasis on preventive treatment through natural treatment methods, such as bathing in hot springs, mineral water and mud¹⁸¹⁹; and (3) the interest in health supplement food and the operation of medical facilities which are based on Koryo medicine.¹⁷ These seem to have come from DPRK's attempt to solve the country's medical problems by themselves and to increase the production of medicines in response to the difficulties in importing medicines and medical supplies amid strengthened sanctions.^{20–23}

(2) Independent development of medical science and technology and the reinforcement of healthcare workers: DPRK is striving to make substantial efforts to strengthen science and technology. DPRK urges the development of science and technology as the path to economic progress.^{24 25} In particular, the repeated expression 'the development of our style of medical science and technology' is closely related to the policy of 'emphasis on scientific technology' which would enable a leap into an economic power through the strengthening of the technical capacity of workers and the development of science and technology autonomously based on DPRK's resource utilisation.26-29 In addition, the number of published articles in Science Citation Index (SCI) journals and the actual opportunities to hold international academic conferences, including joint research with foreign researchers, have been steadily increasing.^{22 30 31} Further, active educational support for the younger generations is provided, including the opportunity to obtain a doctorate degree (PhD) in their 30s, far younger than the case in the past based on the previous DPRK's standards.^{32–36}

MORE FUTURE DEVELOPMENT THAN CURRENT TROUBLESHOOTING

The healthcare sector needs to be developed step by step from primary care to more advanced technologies. However, our analysis suggests that DPRK is willing to leap forward through intensive investment and development of medical and scientific technologies even though the health system of DPRK still faces many challenges, and need more humanitarian work.³⁷ DPRK's attention is more focused on 'future development' than 'current troubleshooting'. Such a policy may have a positive aspect, in that it prepares for the future in the long term. However, these principles may not be appropriate in healthcare. It may be necessary to promote tertiary care and the development of advanced medical technology after stabilising efforts to protect the lives and health of the people through basic primary and secondary healthcare. Therefore, a well-balanced approach between 'present' and 'future' is needed in the priority of DPRK's healthcare policy, for building a strong and sustainable healthcare system in DPRK.

This analysis has a couple of limitations. First, *Sa-seol* is not an official healthcare policy document. It is a propaganda document published in medical journals and so, there are limitations to using it only as a basis for understanding DPRK's national healthcare policy. However, *Sa-seol* contains detailed information in each specialty area sufficient to grasp the macro-direction of DPRK healthcare policy in a situation where official documents on DPRK healthcare policy are hard to obtain. Second, this study used frequency analysis to identify priorities in the national healthcare policy. However, the background and reason for such comments in the *Se-seol* were not analysed. This shall be the subject of further research.

^{viii}Koryo medicine is DPRK's traditional medicine based on acupuncture and botanical drugs, principally similar to South Korea's "Hanmedicine". Since the founding of the country, DPRK has consistently emphasized and promoted the development of Koryo medicine and urged the policy to combine it with Western medicine through Article 7 and 31 of the Medical Law and Article 16 and Chapter 4 of the People's health Law.

Table 2 Th presented in	Table 2 The number of frequency in the Sa-seol, in the eight medical journals published during the Kim Jong Un regime (2012–2018), relevant to each of 12 items presented in NHP 2016–2020	al journa	ldud als	ished d	uring th	e Kim J	ong Un	regime	(2012-2018), releva	ant to each of 13	2 items
Frequency ranking	Items on the year NHP 2016–2020	2012	2013	2014	2015	2016	2017	2018	Total number of frequency	Percentage (%)	Category of concern
-	To facilitate the modernisation of medicine manufacture, medical tools, and production	6	12	14	14	10	13	25	97	27.1	Most
	To facilitate the production of Koryo traditional medicine	#	1	1	Ø	12	7	თ	69		
0	To intensify the development of Juche-oriented medical science and technology	21	21	19	18	24	17	15	135	22.1	
Ю	To strengthen systems for the prevention and monitoring of diseases	က	4	4	13	ω	9	15	53	8.7	Medium
4	To upgrade the health sector into an information- oriented one	Ŋ	7	œ	4	10	7	œ	49	8.0	
сı	To improve the technical competency of health workers	9	7	œ	7	7	7	Q	47	7.7	
Q	To establish a nationwide telemedicine system and improve operational quality	4	7	10	9	4	4	9	41	6.7	
7	To strengthen the capacity of leadership and management in public health	-	ო	Ŋ	9	10	Ð	10	40	6.5	
8	To improve maternal, child, and aged healthcare	7	7	ო	0	4	ო	2	31	5.1	
o	To strengthen the section doctor system and improve the quality of health service	ო	2	ო	2	Ð	4	7	26	4.2	
10	To provide a safe and healthy environment	ю	ю	ю	-	9	2	4	22	3.6	
11	To develop the capacity for immediate response to emergencies and disasters	0	0	0	0	0	-	0	-	0.2	Least
12	To strengthen the professional development of midwives for providing quality sexual and reproductive health services	0	0	0	0	0	0	-	÷	0.2	
Total		73	84	88	81	100	76	110	612	100	
NHP, National	NHP, National Health Priorities.										

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CONCLUSION

Healthcare policy is one of the most fundamental and important policies in a country, especially for addressing the health needs of vulnerable groups such as the poor, aged, women and children. So, understanding the priority of national health policy is essential in international cooperation. This study suggests a two-track approach for healthcare cooperation with DPRK in the future. It is necessary to progress international cooperation for the development of medical and scientific technology, regarded as a priority issue by DPRK, and at the same time, to strengthen the primary healthcare system through the provision of sufficient supplies, human resource education and empowerment, and establishment of essential healthcare infrastructures. Furthermore, sufficient dialogue is required in the process of international cooperation to ensure that the international community and DPRK understand each other's thoughts and positions.

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REFERENCES

- 1. McCurry J. North Korea's health system in disarray. *Lancet* 2010;376:318.
- SEARO WHO. Health SDGProfile: Democratic People's Republic of Korea, 2017. Available: http://www.searo.who.int/entity/health_ situation_trends/countryprofile_dprk.pdf?ua=1
- Shin H, Lee H, Ahn K, et al. North Korea's Trends on Healthcare System in Kim Jong Un Era:concentrated on Healthcare Delivery and Organization System. J Peace Unific Stud 2016;08:181–211.
- 4. Korea UN. Researchand development division, Institute for unification education. Seoul: Ministry of Unification, 2014.
- UNICEF. Annual Report 2015 Korea, Democratic People's Republic of UNICEF, 2015. Available: https://www.unicef.org/about/annualreport/ files/Korea_(Democratic_Peoples_Republic_of)_2015_COAR.pdf
- World HealthOrganization. WHO Country Cooperation Strategy 2004-2008 Democratic People's Republic of Korea 2003:16–17.
- World Health Organization. Medium term strategic plan for the development of the health sector in DPRK 2010-2015. 19. Ministry of Public Health in partnership with WHO, 2010.
- Ministry of Public Health, DPRK in partnership with WHO, UNICEF and UNFPA. Medium term strategic plan forthe development of the health sector in DPRK 2016-2020. 15, 2017.
- Ministry of Public Health, DPRK in partnership with WHO, UNICEF and UNFPA. Medium term strategic plan for the development of the health sector in DPRK 2016-2020, 2017.
- Ministry of Public Health, DPRK in partnership with WHO, UNICEF and UNFPA. WHO Country Cooperation Strategy 2009-2013

Democratic People's Republic of Korea. Medium term strategic plan forthe development of the health sector in DPRK 2016-2020. 15, 2010.

- 11. World Health Organization. WHO Country Cooperation Strategy 2014-2019 Democratic People's Republic of Korea, 2016.
- World Health Organization. Medium term strategic plan for the development of the health sector in DPRK 2010-2015. Ministry of public health in partnership with who, 2010.
- 13. Thae YH. Assessment of Kim Jong Un's New Year's Address 2-Meaning of New Year's Address in North Korea. (translated from " 김 은 년사 평가 2 – 북한에서 년사가 가지는 의미"). *Thae Yong Ho's Forum for Unification* 2019. Available https://thaeyongho.com/
- 14. YM C. The Characteristics and Limitation of the Health-Medical Care system and Law of North Korea – Focused on the Public Health and Social Welfare Perspectives. (translated from "북한 보건의료법 의 특성과 한계 – 4대 특성의 보건복지 근"). J Public Welfare Administration 2012;32:43–71.
- Kathleen H. Democratic People' Republic of Korea Drug policy and Pharmaceuticals in Health Care Delivery. Regional Office for South East Asia, New Delhi, World Health Organization. Mission Report, 2012. Available: http://www.searo.who.int/entity/medicines/dprk_ situational_analysis_2012.pdf?ua=1
- 16. Sa-seol (editorial). *Korean medicine*. Pyongyang: DPRK Medical and Scientific Publisher, 2018: 1. 4.
- 17. Sa-seol (editorial). *Korean medicine*. Pyongyang: DPRK Medical and Scientific Publisher, 2013: 1. 3.
- Sa-seol (editorial). *Internal medicine*. Pyongyang: DPRK Medical and Scientific Publisher, 2013: 1. 4.
- Sa-seol (editorial). *Internal medicine*. Pyongyang: DPRK Medical and Scientific Publisher, 2016: 1. 4.
- 20. Kim JS. A study on the Characteristics and Limitations of North Korea's Pharmaceutical Policy. (translated from "북한 의약품 책의 특징과 한계 분석"). *Health and Social Welfare Review* 2012;32:631–65.
- 21. Sa-seol (editorial). *Korean pharmacy*. Pyongyang: DPRK Medical and Scientific Publisher, 2018: 1.3.
- Sa-seol (editorial). Basic medicine. Pyongyang: DPRK Medical and Scientific Publisher, 2016: 1. 4.
- 23. Park SM, Lee HW. Current status of healthcare and effective health aid strategies in North Korea. *J Korean Med Assoc* 2013;56:368–74.
- Yoo KM. North Korean newspaper emphasizes "self-sufficient economy" ahead of North's foundation day. Hankyoreh, 2018. Available: http://english.hani.co.kr/arti/english_edition/e_northkorea/ 860477.html
- 25. Kang TJ. North Korea's High-Tech Pursuits- From bullet train to air purifier: North Korea's ambition for scientific technologies. *The Diplomat*, 2018. Available: https://thediplomat.com/2018/06/north-koreas-high-tech-pursuits/
- 26. Sa-seol (editorial). *Orthopedics*. Pyongyang: DPRK Medical and Scientific Publisher, 2016: 1. 4.
- 27. Sa-seol (editorial). *Orthopedics*. Pyongyang: DPRK Medical and Scientific Publisher, 2018: 1. 4.
- Sa-seol (editorial). Basic medicine. Pyongyang: DPRK Medical and Scientific Publisher, 2017: 1. 4.
- Sa-seol(editorial). Orthopedics. Pyongyang: DPRK Medical and Scientific Publisher, 2016: 1. 4.
- Choi HG, Noh KR. Analysis of the scientific citation index (SCI) in North Korea 2005~2015, Seoul: Korea Institute of science and technology information, (KISTI 2016.
- Sa-seol (editorial). Orthopedics. Pyongyang: DPRK Medical and Scientific Publisher, 2017: 1. 4.
- Sa-seol (editorial). Pediatric Obstetrics & Gynecology Clinic. Pyongyang: DPRK Medical and Scientific Publisher, 2015: 1.3.
- Sa-seol (editorial). Pediatric Obstetrics & Gynecology Clinic. Pyongyang: DPRK Medical and Scientific Publisher, 2016: 1. 4.
- Sa-seol (editorial). Orthopedics. Pyongyang: DPRK Medical and Scientific Publisher, 2015: 1. 4.
- Sa-seol (editorial). Orthopedics. Pyongyang: DPRK Medical and Scientific Publisher, 2017: 1.4.
- Sa-seol (editorial). Pediatric Obstetrics & Gynecology Clinic. Pyongyang: DPRK Medical and Scientific Publisher, 2017: 1.3.
- UNICEF. Dpr Korea needs and priorities. UNICEF, 2018.