The North Korean Healthcare System: 
On the Fine Line Between Resilience and Vulnerability

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Summary
The healthcare system of the Democratic People’s Republic of Korea (DPRK or North Korea) has been under significant stress due to lack of resources since the country fell into economic recession in the mid 1990s. This paper examines the current status of the system using the lens of resilience, focusing on the coping mechanisms employed by individuals, families, and healthcare workers. It is suggested that although the system has demonstrated elements of resilience, it would appear that it has been unable to return to “normal” function following the economic recession, and is now in a seemingly permanent position of vulnerability due to its reliance on international assistance.

Introduction
While the world pays keen attention to the nuclear program of the Democratic People’s Republic of Korea (DPRK or North Korea), the serious humanitarian situation, including healthcare, is largely ignored. Relying on the most recent media (or humanitarian agency) reports and scholarly published articles, this paper provides an analytical commentary on the status of the North Korean healthcare system as seen through the lens of resilience, in the process exposing the vulnerabilities of the system. It will examine the coping mechanisms employed by individuals and families burdened by illness when the healthcare system is not functioning normally. It will also examine the coping mechanisms of healthcare workers to keep the system running as best they can, despite continuing challenges. Ongoing food shortages and subsequent widespread malnutrition are likely to contribute to an increasingly greater disease burden for the population and their healthcare system. However a discussion of the link between food security and health is beyond the scope of this paper.

Resilience and vulnerability will be examined at the system level, while coping mechanisms will be discussed at the individual and family level, as this is most pertinent to the

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current situation in North Korea. The following definitions of resilience and vulnerability are used in this paper:

“Resilience is the capacity of individuals, families, communities, and institutions to anticipate, withstand and/or judiciously engage with catastrophic events and/or experiences; actively making meaning out of adversity, with the goal of maintaining ‘normal’ function without fundamental loss of identity.” (Almedom 1)

“Vulnerability: physical feature or operational attribute that renders an entity open to exploitation or susceptible to a given hazard.” (Department of Homeland Security 34)

**History and Structure**

The North Korean healthcare system was established soon after the end of the Second World War, when the Korean peninsula was liberated from Japanese colonial rule. A publicly funded socialist system, it was modeled on the Soviet healthcare system. Free medical care for all citizens is guaranteed, to the present day, by the DPRK Constitution (Chapter 3, Article 56). The national public health law defines “preventative medicine” as the foundation of socialist medicine in the DPRK (Article 3). In fact, some hospitals are not called “hospitals” at all, but rather “prevention centers.” The section doctor system, where one doctor is responsible for the primary care of around 130 households, forms the foundation of the healthcare system. There are more than 800 hospitals at central, provincial, and county levels, and about 1000 hospitals and 6500 polyclinics at the Ri and Dong levels (a Ri is the administrative unit beneath a county in a rural area, and a Dong is same in an urban area). The entire healthcare workforce is estimated at 300,000 (WHO 2008: 35). Each of the ten provinces has its own medical university providing a steady supply of workers into the system (WHO 2009: 22).

**Devotion Movement**

The Devotion Movement was formalized within the North Korean healthcare system in the early 1960s by President Kim Il Sung, but had in fact existed unofficially since the mid 1940s, as the Workers Party of Korea emphasized the importance of healthcare workers’ devotion to their patients. The message of the Devotion Movement is summarized in Article 42 of North
Korea’s Public Health Law: “Medical personnel shall treat patients kindly, and afford them all possible wisdom and devotion in order to cure them.” The Devotion Movement has similar characteristics of other loyalty movements in North Korea which emphasize loyalty to the Korean Workers Party, the leader Kim Il Sung, and to the fatherland. As part of the Devotion Movement, healthcare workers in North Korea wear name badges bearing the word ‘Devotion’ along with their name, position, and a red cross. According to one South Korean author, the purpose of the Devotion Movement is to “reform the people's thought and mind along with complementing the lack of human and material resources” (Choi et al. 48). Unfortunately, empirical data does not exist with regard to the impact of the Devotion Movement on patient care. However its importance cannot be underestimated as it remains the cornerstone of healthcare workers’ philosophy toward their work, and may have a positive impact on system resilience.

**Economic Recession**

According to the World Health Organization (WHO), North Korea “had achieved an efficient and effective free universal health-care system accompanied by impressive health indicators” prior to the 1990s (WHO 2009: 11). However, the system suffered a severe blow as the entire national economy fell into recession in the 1990s. GDP per capita fell by half within the space of a few years dropping from USD 991 in 1993, to USD 457 in 1998 (Unicef 2003: 3). The largest single contributing factor to this dramatic contraction of the economy was the loss of favorable trade relationships with the former Soviet Union and China. During the Cold War, the North Korean economy had been supported with significant subsidies in its trade with the former Soviet Union and China, but this came to an abrupt halt and North Korea was forced to pay market prices in hard currency. Additionally, 1994 and 1995 saw severe flood and drought, and there was a breakdown in the public distribution system which prevented rations from being delivered. This plunged the country into a devastating famine leaving an estimated six hundred thousand to one million people dead (Haggard and Noland 1).

**Current Status of the North Korean Healthcare System**

The economic downturn had a significant impact on healthcare, and throughout the 1990s key health indicators such as the maternal, infant, and child mortality rates worsened as a result. Although there have been significant improvements in recent years, health indicators have still
not recovered to pre-recession levels. Furthermore, there is significant discrepancy between the health statistics cited by different institutions. The WHO put the maternal mortality ratio at 370 in 2005 (WHO, *World Health Statistics* 2008: 36).

<table>
<thead>
<tr>
<th>Year</th>
<th>1993</th>
<th>1998</th>
<th>2008</th>
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<tbody>
<tr>
<td>Maternal Mortality Rate (deaths per 100,000 live births)</td>
<td>54</td>
<td>105</td>
<td>77</td>
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<tr>
<td>Infant Mortality Rate (deaths per 1000 live births)</td>
<td>14</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Under-five Mortality Rate (deaths per 1000 live births)</td>
<td>27</td>
<td>50</td>
<td>55</td>
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Table 1. Sources IFRC (2), UNICEF (2003: 3-4), and (UNICEF 2008: 1) citing DPRK government figures.

Life expectancy has also decreased for both sexes from 72.7 years in 1993 to 69.3 years in 2008 (IFRC 2). Significant improvement has been seen in chronic malnutrition which decreased from 62% in 1998, to 37% in 2004 (WHO 2008: 34). According to the WHO, malaria re-emerged in North Korea in 1998, and reached epidemic proportions by 2001, with 300,000 reported cases. Concerted efforts by the Ministry of Public Health, the WHO, and other organizations have brought about a dramatic 95% decrease in the number of malaria cases from 185,420 cases in 2002, to 9300 cases in 2006 (34).

While the basic infrastructure of clinics, hospitals, and healthcare workers continues to exist, a number of stressors have had an ongoing negative impact on the system’s ability to operate including a lack of financial resources, medicines and vaccines, power and heat, limited supply of clean water, and food shortages. Significantly, the shortage of electric power is said to be responsible for the decline of the domestic pharmaceutical industry, forcing North Korea to import medicine which had previously been produced domestically. In recent years the North Korean government has emphasized the revival of pharmaceutical plants, and one pharmaceutical factory now has Good Manufacturing Practice (GMP) certification; however the country remains dependent on drug imports (IFRC 3).

**Current System Weaknesses (Barriers to Resilience)**

Current system weaknesses include (a) health finance, (b) transportation and communication infrastructure, (c) human resource development, (d) clean water and energy, (e)
medicine and equipment. As we discuss the current system weaknesses it is worth noting the significance of the ongoing food shortage as a barrier to resilience. However, as mentioned earlier, discussion of the link between food and health is beyond the scope of this paper.

**Health Finance**

The lack of finance affects all aspects of the healthcare system and means all resources are constantly in short supply. It is difficult for the system to return to normal function or build resilience without sufficient funding (Grundy and Moodie 120).

**Transportation and Communication Infrastructure**

Shortage of vehicles limits the mobility of healthcare workers and the transportation of vaccines and hospital supplies. The limited and dilapidated road network means it takes four days to travel from the capital city of Pyongyang to the northeast corner of the country, a journey of 600 kilometers. In the summer monsoon season, travel can also be hindered by flooding. The insufficiency of finance and transportation greatly hinder the maintenance of the cold chain when transporting vaccines (121). In terms of communication infrastructure, private telephones are uncommon, but most hospitals are equipped with one or more telephones. Internet access is not available across the entire country, except in the offices of international organizations. However, most areas are connected to a domestic 'Intranet'. A 3G cell phone network operated by the Egyptian/DPRK joint venture Koryolink, began operations in December 2008, and now reportedly provides signal coverage within reach of 75% of the population. Coverage areas include the capital Pyongyang, 54 other cities and towns, and 22 highways and railways. As of September 2010 it had over 300,000 subscribers and was rapidly expanding (Williams).

**Human Resource Development**

Human resource development is critical to the modernization and updating of the health sector, but due to the isolation of North Korea, some health practices and standards are outdated. Most hospital directors are trained in medicine but not in management and supervision. North Korean healthcare workers could greatly benefit from additional training to modernize their skills, as well as domestic or international peer exchanges for which there are currently few opportunities (Grundy and Moodie 120-121).
Clean Water and Energy

Particularly in rural areas there is a shortage of electrical power and clean water supply to hospitals and clinics. This is particularly challenging in winter months when temperatures drop to below freezing for weeks or months on end, and the only heat source available is scarce firewood or coal. The lack of a sufficient clean water supply to some clinics seriously affects their ability to maintain cleanliness and hygiene (120).

Medicine and Equipment

The shortage of medicine means that hospitals often do not have sufficient medicine to treat patients, nor can they keep a buffer stock of supplies in case of an emergency. The shortage of medical equipment means hospitals are forced to use worn out tools and reuse products which are designed to be disposable. Surgery is particularly risky in this situation and can lead to poor outcomes. Inadequate sterilization of equipment leads to disease transmission and post-secondary infection. Although there are no available statistics, experts suspect these practices contribute significantly to Hepatitis B transmission (Interview with HL).

Vulnerability to Politics and Sanctions

While the DPRK’s reliance on international assistance to support its healthcare system is not uncommon for a low income country, this reliance presents an added vulnerability. North Korea’s political relations with its immediate neighbors (South Korea, China, Japan, Russia) and the US are tense at best, and often out right confrontational. South Korea, China, and the US are incidentally North Korea’s largest donors of humanitarian assistance. While donors’ intention is to de-link humanitarian assistance from politics, unfortunately this rarely happens. In February 2010, the US Special Representative for North Korea Policy, Ambassador Stephen Bosworth, reiterated the US policy to begin a discussion on aid to North Korea, only once “significant” progress had been made in the Six Party Talks on denuclearization (Bosworth). An example of this policy in action was seen in 2008 when the United States pledged to supply 500,000 metric tons of food aid to North Korea as part of a denuclearization deal. However, only about a third of this aid was delivered before disagreements between the two governments prematurely ended the aid program (Manyin and Nikitin 7).

In relation to the political situation, the DPRK’s national economy has been stifled for decades under international sanctions, which intensified after it carried out nuclear tests in 2006 and 2009. In September 2005 the US implemented financial sanctions against Banco Delta Asia
in Macao, after the Financial Crimes Enforcement Network (FinCEN), a part of the US Treasury Department, designated it a “financial institution of primary money laundering concern” (US Department of Treasury). This led to a run on the bank by customers. Macanese authorities responded by freezing $24 million in North Korean accounts while an audit was conducted (Taylor 32-33). In addition, suspected involvement of the North Korean state in the trafficking of narcotics, as well as counterfeit US dollars and cigarettes, has brought further condemnation, particularly from the US. Such concerns and allegations have left the country increasingly isolated (Perl 4).

A recent report to the US congress admits it is difficult to gauge the effectiveness of international sanctions in deterring further nuclear tests and illicit trade (Nikitin 16). The situation has made life difficult for the average citizen, as foreign partners and humanitarian programs are deterred from engaging in legitimate trade and aid implementation. UN agencies are required to implement additional accountability measures which take precious financial and human resources away from actual health work. In the case of the Global Fund to Fight AIDS, TB, and Malaria, this is known as the Additional Safeguards Policy (ASP). Furthermore, sanctions impede what can be imported into the DPRK. For example, one US based NGO, was stopped from donating soccer balls to children at a pediatric hospital, because “sporting goods” are included on the list of prohibited ‘luxury’ items under UN Security Council Resolution 1874 (UN Security Council Resolution).

**Strengths**

Despite the weaknesses discussed above, the North Korean healthcare system’s strengths include its 300,000 strong workforce and far-reaching hospital and clinic system, based on the section doctor system (WHO 2009: 6). A seasoned NGO worker commented on the remarkable creativity, inner strength, and tenacity exhibited by North Korean healthcare workers. They are accustomed to getting by with very few resources, so when given even a small amount of assistance “they pick up and run with it,” often producing big results, according to the NGO worker (interview with HL). Indeed, the system has demonstrated an impressive ability to perform well and produce results when the necessary financial resources are available. The centralized administration is able to implement a nationwide plan in record time using the
extensive network of hospitals and clinics. For example, in 2007 the WHO released the following press report:

“PYONGYANG, 20 April 2007 -- In one of the fastest responses to a major outbreak of measles, 16 million children and adults [two thirds of the entire population]...have now been immunized against the disease, less than a month after the government asked for assistance. In the first phase, more than six million children, aged six months to 15 years, were vaccinated between 14 and 18 March 2007, some of them within just three days of the arrival of the vaccines in the capital of Pyongyang. The second phase from April 9 to 11 targeted more than 10 million children and adults aged from 16 to 45.”

Cracks in the System?

In 2010, Amnesty International released a report on the state of the North Korean healthcare system based on interviews with 40 former North Korean citizens who had resettled in South Korea. The interviewees describe the situation of healthcare in North Korea somewhat differently to the picture painted by internal sources. Interviewees claim healthcare is no longer free, and doctors have to be bribed for their services. Furthermore, medicine is generally not available at hospitals and clinics, and therefore has to be purchased at a market (Amnesty International 2).

The situation with bribing doctors warrants further analysis. Is this a situation where doctors are taking advantage of their positions and demanding money for personal gain? Or, is it rather the case that doctors are forced to charge for their services in order to keep the system functioning because the resources they receive from the state are insufficient? Based on brief personal observations and limited conversations with North Korean doctors, I would suggest that it is the latter. Doctors admit that due to financial constraints the state cannot provide them with sufficient resources to maintain their hospitals, nor can international humanitarian agencies for that matter. Their only options are to improve self-sufficiency (which will be discussed below as a coping mechanism), or directly charge patients for treatment. Although I have no direct knowledge of doctors receiving monetary payments from patients, doctors do talk of families supplying food to the healthcare facility where their relative is an inpatient. Indeed, the barter economy is significant in North Korea, a socialist country where the monetary economy is of far lesser significance than in a capitalist country. There is insufficient data to form a reliable picture
of the prevalence of healthcare workers charging patients for treatment, be it monetary or non-monetary forms of payment. Regardless, Amnesty International identifies a legitimate concern regarding access to healthcare by those with the least social support (i.e. the homeless, elderly without family, or orphaned children) who may be falling through the cracks (10).

Next, there is the situation of access to medicine, which according to Amnesty International’s report, is often unavailable at hospitals, or, if it is available, it is not free. The report states that medicine can also be purchased at markets, but this poses certain risks as it is an unregulated business and many of the available drugs are counterfeit (16). Likewise, this represents an area for further research as too little is known about the prevalence of these practices or the accuracy of the claims.

**Individual and Family Coping Mechanisms**

Coping mechanisms employed by individuals and families affected by illness include going to China to seek treatment, or borrowing money from friends and relatives to pay for medicine and treatment. Sometimes overseas relatives send money to support their family members. However, such coping mechanisms are likely to be limited to border residents and the middle and upper classes.

Increasingly, people from all sectors of society are not turning to hospitals for treatment when they are sick (Grundy and Moodie 121), but rather staying at home and having their family members nurse them back to health. This allows families to stay together, and reduces work for the caregiver, who would otherwise have to make a journey to the hospital to provide patient food. Another potential benefit of at-home treatment is that the sick individual's ration stays with the family. When an individual becomes an inpatient their ration is transferred to the hospital, which can have a negative impact on the food security of their family. At-home treatment for TB patients is also said to be preferred because the social stigma attached of having the disease limits marriage and career prospects, and individuals try to hide their TB status through at-home treatment. According to the IFRC, another reason for at-home treatment is the lack of heating at healthcare facilities, where winter temperatures can drop to -30 degrees Celsius, and voluntary bed occupancy rates are often below 50% of institutional capacity (IFRC 2-3).

However, there are several risks associated with this behavior. For example, successful treatment of TB requires a patient to take a specific course of several drugs over a period of six
to eight months. These medicines often have side effects, and must be taken under a doctor’s supervision. If a patient takes the medicines incorrectly, or stops taking them prematurely, they can relapse and the disease organism can develop drug resistance to the medicines. Furthermore, in an at-home situation sick individuals are more likely to spread infection to their family members.

**Healthcare Workers Coping Mechanisms**

As the North Korean healthcare system fails to provide sufficient resources, healthcare workers are increasing their self-sufficiency by growing herbal medicine, food crops, and raising livestock on the land surrounding their hospitals. Doctors are increasingly prescribing traditional (Koryo) medicine due to the lack of pharmaceutical drugs (WHO 2008: 33).

As described above in the report by Amnesty International, healthcare workers are able to keep their hospitals and clinics open despite the lack of resources from the state, by charging for services and selling medicine. Another creative money earner is selling medical certificates which excuse people from showing up for work. These medical certificates are sought after by people who seek to engage in trade or private enterprises, rather than performing their state assigned occupations (Amnesty International 21).

**Maladaptive Coping Mechanisms**

On a more somber note, there have been anecdotal reports of healthcare workers suffering due to the lack of safety measures to protect their physical health in the course of their daily work. Officials from the Ministry of Public Health have expressed concern for their colleagues, TB doctors, who willingly expose themselves to infected patients, even when they do not have the resources to protect themselves from infection. They may eventually contract the disease, and may suffer several relapses over the course of their careers causing them to take TB drugs for an extended period of time. The drug Isoniazid taken for TB treatment has been linked to memory loss (Isoniazid Fact Sheet), which has been reported in doctors who have been taking it long term. This may affect their ability to manage their patients and administrative tasks.

Due to a lack of alternative technologies, TB patients are sometimes diagnosed using direct fluoroscopy. This involves having the patient sit in front of a radiation source in a dim room. The radiation is projected through the patient onto a fluoroscopy screen in front of the
doctor’s face, allowing the doctor to view the patient’s lungs in real time. However, doctors frequently lack the protective garments to needed prevent exposure to radiation in the process (Linton et al. 153). This practice is known to cause cataracts, and one US based NGO has reported radiation related deaths due to this practice (Glain).

A third maladaptive coping mechanism to try to extend the application of medicines in short supply involves dripping medicine directly into patient’s lungs instead of giving the standard oral dose. Linton describes this “extremely painful process involving] inserting a very long hypodermic needle into the patient’s lungs with the tuberculosis medicine. The doctors have also experimented with the insertion of a tube down the trachea into the lungs and dripping medicine on a daily basis. Inevitably, there is a high risk of post-secondary infection and pneumonia” (Linton et al. 154).

**Conclusion**

The North Korean state has been engaging with humanitarian agencies, including UNICEF, the WHO, and private NGOs to strengthen the system and promote resilience. However, health indicators as well as on the ground reports confirm it has not been sufficient to return the system to ‘normal’ function. Indeed, the system as it currently stands is alarmingly vulnerable due to its reliance on international humanitarian aid, which rests to a large extent on North Korea’s political relationships with its neighbors.

North Korea’s institutionalized philosophy of devotion represents a unique aspect of the North Korean healthcare system, and may contribute to increased resilience at the system level. Faced with inadequate resources, healthcare workers employ a variety of coping mechanisms which they attribute to the devotion movement. In this sense, the Devotion Movement may represent an institutionalized emphasis on finding and implementing creative coping mechanisms.

The efforts of healthcare workers to keep the system running are remarkable and demonstrate an inner resilience, but these efforts are probably not sustainable in the long term, nor are they a replacement for much needed systemic inputs such as financial resources, and clean water and energy infrastructure and supply. A great deal more international assistance is needed to bring North Korea's healthcare system back to full functioning capacity. The North Korean government has been vocal in their requests for further international humanitarian assistance, a tacit admission that they realize they are unable to meet the people's healthcare
needs on their own. However, in recent years the amount of aid forthcoming has been woefully insufficient to meet the dire need. Given the political situation, it is unlikely that such assistance will be forthcoming in the short-term, and the past fifteen years of failed denuclearization negotiations do not bode well for a diplomatic solution to current political tensions. A realistic solution to the challenges plaguing the North Korean healthcare system appears to be out of reach in the short term. In the long-term, reunification with South Korea could be the catalyst needed to attract international support and assistance, which might feasibly provide the necessary impetus and resources to repair and revitalize the system.

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