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Original Article

Management Performance and Capacity Assessment of Health District Offices in Aleppo and Idlib Governorates Prior to the Syrian Conflict

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Abstract

In 2010, prior to the outbreak of the Syrian conflict, a bilateral health project of the Japan International Cooperation Agency was launched in Aleppo and Idlib governorates. The project aimed to improve reproductive health status by strengthening the district healthcare system, and a key step was to enhance the management performance and capacity of health district offices (HDOs). The study sought to describe the current situation of three health districts, to assess the management latitude and capacity of the HDOs, and to identify priority objectives. The study described the structure and issues facing the health districts using key informant interviews, observation, and strengths, weaknesses, opportunities, and threats (SWOT) analysis. The findings reveal that the HDOs could improve management performance and capacity through specific actions, including: with involvement of the community, developing a work plan; relocating personnel; estimating needed medical supplies and equipment using the results of data analyses; implementing on-going staff supervision practices; providing monitoring services for infants and children; and promoting social relationship with other agencies and the private sector. Such measures require no additional budget, legislation, or reform to accomplish. The approach can be applied to countries and health districts with inadequate resources similar to those of Syria.

Key words

Healthcare system, District health office, Management, Syria

1. Introduction

Since April 2011, the Syrian Arab Republic has experienced violent conflict between forces loyal to the Syrian Ba'ath Party government headed by President Bashar al-Assad and those seeking to overthrow it. March 2017 marks the sixth year of the Syrian civil war. Violence has been directed against innocent civilians, medical personnel, and facilities. An

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entire region and its people have been decimated while the world has watched (Lancet, 2017).

Prior to the outbreak of civil war, Syria was a middle-ranked country globally in terms of health indicators. The Syrian Ministry of Health reported in 2008 that infant mortality was 18 per thousand live births, and under-five mortality was 22 per thousand. Maternal mortality was 58 per hundred thousand live births, and the fertility rate was 3.04, resulting in a population growth rate of 2.5%. However, regional disparities exist within the country. In particular, the northern governorates of Aleppo and Idlib (Figure 1), where the civil conflict is alleged to be fiercest, experience relatively poor health conditions and more restrictions in terms of reproductive health. In 2004, the governorate of Aleppo had a maternal mortality rate of 62, and a contraceptive prevalence rate among married women aged 15–49 years of 40% (Syrian Ministry of Health, 2004), while in the national capital Damascus the maternal mortality rate was 34, and the contraceptive prevalence rate was 58%. Also in Aleppo the proportion of reproductive aged women who wanted to use modern contraceptives but could not reached 30.6% in 2009 (WHO, 2009).

In 2006 the first technical and bilateral assistance of the Japan International Cooperation Agency (JICA) was launched in the Aleppo governorate to improve the reproductive health status in the Manbij health district. Based on its experience in the Manbij district, in early 2010 JICA expanded the target areas to the Aleppo and Idlib governorates as the second phase of the project. The purpose of the second phase was to enhance the management of the health district offices and enable them to deliver quality and universal services of reproductive health at Health Centres (HCs). The project targeted three health districts as pilot sites; Manbij and Al Bab in the Aleppo governorate, and Khan Shaykhun in the Idlib governorate.

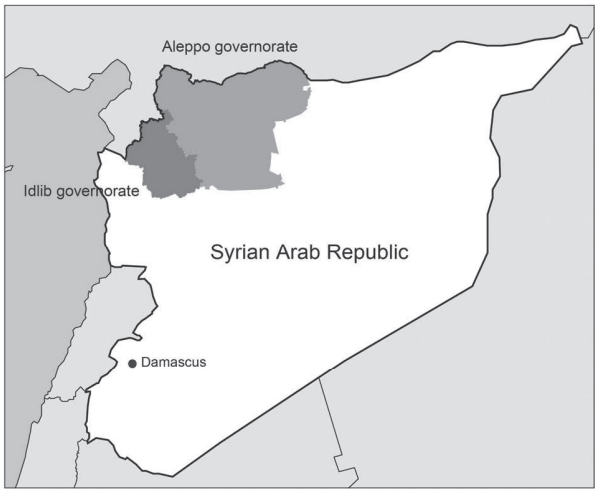

Figure 1. Aleppo and Idlib governorates in Syria

Before the civil conflict, the Syrian Ministry of Health had been working to implement a health district system, and introduced of a referral system from HCs to district and tertiary hospitals. Under the system, a health district office (HDO) manages the organization and allocation of health resources within the district, and the HC is the provider of primary health services for the community. The HDO coordinates various resources that allow the frontline HC to offer quality services in accordance with HDO goals and objectives. Management capacity of the HDO is thus a crucial component of efforts to enhance the district healthcare system.

In the context of achieving the institutional or organizational goals of a healthcare system, management can be defined as a process to effectively and efficiently allocate and coordinate health resources such as health professionals, health information, medical materials and budgets to accomplish the goal “Health for All”. The management discretion and capacity of HDOs should be assessed in the context of healthcare system strengthening, but there has been so far limited literature on the structure and management of Syrian health districts. Therefore, in support of the project to improve the management performance and capacity of HDOs, the purpose of this study was to describe the status of the district healthcare system, and to assess the management lat-

itude and capacity of the HDOs in Aleppo and Idlib. The study also discusses the priority tasks facing the HDOs prior to the crisis.

2. Methods

2.1. Study settings

The study was conducted in three health districts of northern Syria, beginning in February 2010. The districts were Manbij, with a population estimated at 450 000 in 2007, Al Bab, with approximately 340 000 people in 2007, and Khan Shaykhun, a new district segregated from Ma'arrat district in 2010, which had approximately 90 000 residents in 2007. Manbij city is located 100 km east of Aleppo, the second largest city in the country at that time. The Al Bab district is between Aleppo and Manbij city, and Khan Shaykhun is 75km south of Idlib city.

2.2. Data collection

In February, 2010, the status of the target health districts using the World Health Organization framework of health system was assessed (WHO, 2007) through observation, interview and review of available documents. The framework designates six building blocks as structural components of a healthcare system; health workforce; information; medical products; financing; service delivery; and leadership and governance. Management is considered an element of leadership and governance. The primary aim of our assessment was to describe the overall structure and issues of the district healthcare system according to the WHO building blocks. To supplement the qualitative data of interviews, we conducted a health facility survey to obtain quantitative data regarding the number of personnel and availability of delivered health services at the HCs.

In May, 2010, to identify the extent to which the HDOs could manage their tasks consistent with Syrian legislation, but also according to their own discretion, in-depth interviews were conducted. Using a semi-structured questionnaire, we interviewed ten key informants from the three HDOs, including directors and midwife supervisors. The questionnaire included topics related to planning, oversight and guidance, personnel management, physical and supply management, social relationship, and ethics.

For planning, the question was; Did your HDO make an annual work plan? (Making a plan). Two questions were asked under oversight and guidance; Did your HDO make regular on-going staff supervision? (Staff supervision), and Did your HDO hold regular meetings attended by heads of HCs? (District regular meetings). The three questions on personnel management were; Did your HDO make a job description for all of the staff in HDO and HCs? (Job description), Did your HDO make a staff allocation plan to appropriately post staff corresponding to the average number of clients at HCs? (Human allocation), and Did your HDO regularly monitor staff work records? (Staff monitoring). The questions on the physical and supply management were; Who maintained the infrastructure of HCs? (Maintenance of infrastructure), and Did your HDO estimates of medical materials take into account previously consumed amounts? (Estimated supply). The social relationship questions were; To prepare the annual work plan, Did your HDO involve representatives of the community, religious groups and other outside organizations? (Involvement of community), and Did your HDO make efforts to promote a public-private-partnership? (PPP) The ethics query was, Did your HDO encourage all staff to respect client rights? (Ethics).

Then, a strengths, weaknesses, opportunities, threats (SWOT) analysis was conducted with staff of the HDOs and HCs, to determine the priority tasks, which the HDOs could have implemented under their own authority. The SWOT framework is generally used as an analytical tool to categorize an organization's significant internal and external environ-

mental factors (Pickton and Wright, 1998). Four or five staff members from each HDO, including the director and a supervisor midwife responsible for delivery of substantial health services, participated in the analyses. They categorized internal means and capabilities under Strengths and Weaknesses of the HDO, and external development under Opportunities and Threats.

The study adhered to the World Medical Association Declaration of Helsinki. Prior to interviews, informed-consents were obtained from the subjects. The research was conducted as a routine project activity, and the study protocol was ethically approved by the directors of both the Aleppo and Idlib Health Directorates and also by the committee of directorate statistical bureau. The authors declare that we have no conflicts of interest.

2.3. Data collection

All interviews were translated from Arabic to English by a professional native translator, and simultaneously recorded. The data were then summarized to develop an English transcript. Each summary was scrutinized by the translator, checking against the voice records. Two interviewers checked summary content, and inconsistencies were resolved with the interviewee. The interviewers examined whether the summaries could explain management latitude and capacity of the HDO. Management latitude and capability was regarded as the following criteria; (1) a task which the HDOs could implement at their discretion; (2) a task which the HDOs could execute without a budget allocation; and (3) a task worthy for the HDOs to administer in order to improve public health matters. Using the results of interviews and the SWOT analyses, we discussed the extent to which the HDOs personnel were able to manage on the basis of their own decisions.

3. Results

3.1. Current situation of the three health districts by WHO Framework building blocks

3.1.1. Health workforce

Table 1 presents the population, personnel and number of clients by HCs in Manbij, Al Bab and Khan Shaykhun health districts. In terms of the ratio of personnel to patients, a significant difference between health districts was observed.

A number of doctors and midwives lived in Aleppo and commute to their HC worksites. The study revealed that those who commuted were frequently absent from the HCs. Salaries of doctors and midwives at the HCs were approximately 10,000SP (US$150 in 2010) and 7000SP (US$105) per month, respectively. Consequently, nearly half the

Table 1. Demographic data and health workforce of health centre by health district

Health District	Rank of HC with number of patients per month	Number of health centres	Population	Average number of patients per month	Average number of patients per personnel per month	Number of health personnel				
						Total	Doctor	Dentist	Nurse	Midwife
Manbij	Total Maximum Median Minimum	18	451,971 156,156 8,873 2,179	14,159 5,595 363 71	115 207 73 36	123 27 5 2	31 9 1 0	11 4 0 0	21 5 1 0	30 3 2 0
Al Bab	Total Maximum Median Minimum	18	342,597 101,159 8,532 1,714	12,599 4,527 370 119	85 216 53 60	149 21 7 2	20 3 1 1	11 2 0 0	47 9 2 0	42 7 2 0
Khan Shaykhun	Total Maximum Median Minimum	7	93,717 40,089 10,284 2,442	7,165 3,821 486 233	72 85 54 58	99 45 9 4	14 6 2 0	12 3 2 0	27 20 1 0	12 3 2 1

doctors and midwives operated private practices near their workplace.

3.1.2. Information

The HDOs collected health information reported monthly by each HC. The information included data on program activities such as immunization, reproductive health, nutrition, elderly care, health education, accident prevention, chronic diseases and adolescent health. Although the HDOs were required to compile and analyze the data, it was not done due to lack of knowledge, skills and equipment. HDOs were also mandated to report mortality data on a monthly basis to the Health Directorate. Other demographic data such as births and marriages were collected at the end of year by the Civil Affairs Office. New mothers were provided a certificate of birth by a birth attendant and the certificate is registered at the Civil Affairs Office.

Despite the implementation by each HC of an information system for primary healthcare activities, the HDOs had no surveillance mechanism to document public health needs and issues in the community. In order to assess the current health status, the HC collected data using various records documenting child vaccination, pregnancies and family planning.

3.1.3. Medical products

Healthcare Departments in Health Directorates estimated the quantity of drugs for anti-tuberculosis, diabetes, leishmaniasis and contraceptives that each national program must provide. Drugs and materials purchased by the Syrian Ministry of Health were distributed to HDOs every three months. Other drugs and basic supplies not covered by national programs were provided to HDOs through Health Directorates using Ministry of Local Administration budgets. However, medical supplies, especially essential drugs and contraceptives, have been scarce at the district level and were not available at HCs.

3.1.4. Financing

None of their nominal budget was discretionary for HDO. All health services were provided to clients free of charge. Nevertheless, a fee for a normal baby delivery at a private clinic in rural areas was 2000SP

Table 2. Health services available at health centre by Health District

Service	Detail of service	Number of HCs with available service (%)		
		Manbij (n=18)	Al Bab (n=18)	Khan Shaykhun (n=7)
Antenatal care	Weight measurement	18 (100)	17 (94)	7 (100)
	Fundus uteri measurement	17 (94)	15 (83)	6 (86)
	Blood pressure measurement	18 (100)	16 (89)	7 (100)
	Tetanus immunization	18 (100)	17 (94)	7 (100)
Neonatal care	Check-up at 1 month after birth	0 (0)	10 (56)	4 (57)
	Health education on breast feeding	13 (72)	16 (89)	7 (100)
Child health	Immunization	18 (100)	18 (100)	7 (100)
	Check-up at 6 months after birth	1 (6)	13 (72)	0 (0)
	Check-up at 18 months after birth	1 (6)	13 (72)	0 (0)
	Oral health, tooth brushing	4 (22)	7 (39)	6 (86)
Family planning	Condom provision	18 (100)	18 (100)	7 (100)
	Oral pill provision	18 (100)	18 (100)	7 (100)
	IUD insertion	15 (83)	16 (89)	7 (100)
	Contraceptive injection	18 (100)	18 (100)	7 (100)
Women's health	Pap test for cervix cancer examination	8 (44)	12 (67)	7 (100)
	Palpation for breast cancer examination	17 (94)	16 (89)	7 (100)
STI treatment	Syphilis	2 (11)	8 (44)	0 (0)
	Gonorrhea	5 (28)	12 (67)	0 (0)
	HIV	0 (0)	0 (0)	0 (0)
Health education	Provision at HC	18 (100)	18 (100)	6 (86)
Essential drugs	Procurement on time	7 (39)	4 (22)	1 (14)

(US$30) when attended by a midwife. The fee was 3000SP (US$45) if attended byan obstetrician, and between 4000SP and 5000SP (US$60–$75) at a rural private hospital. The same service in an urban area such as Aleppo city typically cost 5000SP (US$75) at a private clinic, and 10,000SP (US$150) in a private hospital. Antenatal care at a private clinic, including an echo examination, was 500SP (US$7.5) per visit. Government employees and their dependent family members could be partly or fully reimbursed for charges incurred for private health care and medications (EMRO, 2006). 64% of births occurred at private health facilities (Syrian Ministry of HealthJICA and Earth and Human Corporation, 2010).

3.1.5. Service delivery

Table 2 indicates the number of HCs providing services in the three health districts. Although antenatal care services were provided at most of the HCs, health check-up services in neonatal and child care were limited. Treatment of sexually transmitted infections (STIs) and provision of essential drugs had also been restricted to delivery to patients (Table 2). In contrast, there was a sufficient supply of contraceptives and vaccines for general distribution. Most of the HCs practiced outreach activities such as education and counselling at villages, schools and religious societies. Each district has a District Hospital with 50 beds, and a referral and counter-referral system between HC and District Hospital was gradually introduced in the governorates in 2007. In 2010, the Ministry of Health launched a new program to introduce the system nationwide and requested HCs to adopt a standard criterion of referral.

3.2. Current management performance of Health District Offices

3.2.1. Planning

HDOs had no responsibility to produce ordinances or regulations. The JICA project strongly recommended planning and consequently the HDOs in the three study districts made monthly and annual plans. Planning of health education with the participation of local institutes and community citizens was observed. The Al Bab HDO annual plan was developed using data from the previous year (Table 3), but in Manbij and Khan Shaykhun the application of results from data was limited due to poor data analysis practices. None of the three plans included WHO framework elements of workforce, information, material and finance, but they did address health service activities. Timetables were included in the three plans.

3.2.2. Oversight and guidance

On-going staff supervisions were frequent, partly because the project emphasized this role (Table 3). Staff with different specialties visited HCs once or twice a month to give suggestions and advice for improving management performance and Reproductive Health service quality. Despite having no specific budget for implementing staff supervisions, they tried to integrate vaccination supervision.

HDOs held monthly meetings with doctors and the director of the HC to exchange relevant information. Manbij was the only HDO with regular meetings for midwives. At the other HDOs, it was difficult to assemble midwives because most of them had children and were unable to pay out-of-pocket expenses for transportation.

3.2.3. Personnel management

Personnel management was considered a priority in HDO management responsibility. All HDOs had created job descriptions (Table 3), and to a small extent, personnel relocations had been implemented. HDO and HC directors (who had been nominated by Healthcare Department directors and appointed by Health Directorate directors), had authority to allo-

Table 3. Current management performance by Health District

Checked item	Manbij	Al Bab	Khan Shaykhun
Planning			
Making a plan	An annual work plan was developed, but it did not include any data of previous annual results.	An annual work plan had been made using analyzed data of previous annual results.	An annual work plan had been made, but did not completely use experiences of previous annual performance.
Oversight and guidance			
On-going staff supervision	Regular staff supervision was conducted at a visit that lasted for 40 to 60 minutes.	The HDO has two vehicles of which one was for staff supervision with gasoline supply of 150 liters a month.	Regular staff supervision was conducted.
District regular meetings	The HDO held monthly meeting of HC heads and midwives. .	The HDO held monthly meeting of HC heads, but no regular meeting for midwives.	The HDO held monthly meeting of HC heads, but not on regular basis. There was no regular meeting for midwives.
Personnel management			
Job description	The HDO had made job descriptions.	The HDO had made job descriptions.	The HDO had made job descriptions.
Staff relocation	The HDO made a plan for staff relocation and practiced relocation of staff and the staff rotation system as of March 2011.	No HDO staff relocation plan.	The HDO made a draft plan but it was not finalized.
Staff monitoring	The HDO was implementing staff monitoring during regular staff supervision.	At the end of every year, the head of HDO checked service records of staffs.	No data
Physical and supply management			
Maintenance of infrastructure	The HDO had no maintenance budget, but official letters requesting repairmen and equipment had been submitted to the Health Directorate with receipts of less than 500 SP. The HDO had to date never received a training budget. The HDO had no accountant, and salaries were managed by the Health Directorate through the accountant of the District Hospital. HC directors paid for minor repairs from their pocket money. The JICA project established an infrastructure maintenance system with the cooperation of the maintenance division of the Health Directorate. The division must be called when maintenance needs arise at the HC and hospital levels. The system was implemented as of March 2011.	The HDO had no maintenance budget, but the HDO received financial requests with receipts of less than 500 SP from HCs two to three times a month, and sent them to the Health Directorate. Payment from the Health Directorate has often been slow. The HDO has an accountant in charge of maintenance requests as well as distribution of salary. The infrastructure maintenance system was similar to that in Manbij.	In emergencies, urgent requests within 10,000SP per unit could be accepted by HDO. The head of the HC never made an emergency request, but technicians from the HDO had performed minor repairs based on requests from the HC.
Estimating supply	The quantity of vaccines and contraceptives was estimated by the HDO based on previously distributed and consumed amounts, but the estimates were not accurate.	The HDO director estimated needed quantities every three months, based on previously consumed amounts from monthly reports submitted by the HC. The HC estimated the demand amounts based on previous consumed quantities each month. Vaccines were estimated and requests submitted to the HDO every week. The estimates were not accurate.	Every three months, needed amounts were estimated based on previous consumption and amounts requested from the Health Directorate. Contraceptive and vaccine supplies were adequate, but 80 different drugs were not supplied in sufficient quantities.

Table 3. Current management performance by Health District (continued)

Social relationship			
Involvement of community	The HDO developed a health educational plan with participation of religious groups, the women's union, the youth union, and the teachers' association.	The Friends of SAHA (a consortium of local organizations), comprising various local groups, schools and religious leaders, was involved in the development of the HDO health education plan.	The process of developing the health education plan involved representatives of the women's unit, the Ba'ath Arab Socialist party, the cultural centre and others groups.
Public-Private-Partnership (PPP)	The HDO recognized that PPPs were important and effective, in particular for encouraging postnatal care. However, they are difficult to promote because private doctors were beyond the control of the HDO. It was possible to carry out PPPs through collaborations in health education.	In 2010, the HDO held a meeting with private doctors and distributed mother's cards to them. The HDO recommended that private doctors have their clients come to HCs for PAP smear tests free of charge.	The head of the HDO contacted seven private doctors in the town, but they hesitated to promote PPPs because they assumed that many clients moved to public services.
Ethics			
Ethics	At regular meetings and training, patient rights are always emphasized, especially privacy and confidentiality. Many midwives were practicing actions to maintain privacy, such as closing the door when a client enters the examination room. No complaints from clients were recorded.	The head of HDO advocated the ten of client rights at any opportunities and recommended to post it on a wall of HCs.	At the time of visit of HCs and training, the ten client rights were introduced.

cate personnel at HCs and District Hospitals in accordance with local needs. Staff positions could be changed between a HC and District Hospital, or between HCs if

both HDO and hospital directors agreed and the staff person gave consent. However, it was difficult to convince staff to change workplaces because they owned houses and private clinics near their current places of work. Furthermore, if agreement was reached, the transfer could aggravate personnel shortages, especially at HCs where there was a strong desire to work at hospitals rather than the HC. The result was that staff monitoring was limited to performance appraisal of personnel.

3.2.4. Physical and supply management

When physical maintenance and repair was needed, HDOs prepared a budget proposal, based on a request from HCs, and submitted it to the Healthcare Department in the Health Directorate. Each HC had to maintain the facility and purchase the consumables from their out-of-pocket money. The HC sent the HDO a request sheet with attached receipts for amounts less than 500SP (US$7.5) per purchase. The HDO compiled these sheets from several HCs and forwarded them to the Health Directorate. Expenses were refunded if the budget was available.

Every three months, the HDO estimated the quantity of drugs and vaccines necessary for the HCs, and submitted a request to the Health Directorate. However, these requests were often not based on actual needs, resulting in a shortage of drugs at the HC level. In addition, HC staff had to occasionally transport vaccines and medical products from the HDO using their own cars owing to a lack of official vehicles.

3.2.5. Social relationship

In Syria, there was no formal mechanism to involve local community leaders and citizens in the health sector, but participation by the community and other agencies was observed in health educational activities. In the Khan Shaykhun district, the HDO had an informal association with Muslim and political leaders. Most directors of HDOs and HCs were

Table 4. Results of SWOT analyses by health district

Health District	*Internal environment*		*External environment*	
	Strengths	***Weaknesses***	***Opportunities***	***Threats***
Manbij	1. Availability of a special room for health education at the comprehensive clinics (four lectures a month based on a preset schedule) 2. Trained midwives (27 trained midwives out of 30, or 90% of midwives were trained) 3. Support team composed of four midwives 4. Participation in the three courses for health education at the cultural center (three months per course)	1. Lack of staff, in particular doctors and midwives 2. Absence of financial resources 3. Distance from HCs (the district is geographically vast) 4. Lack of water and electricity at many HCs (e.g., Al Mashi, Haymer Labdeh, Mahdoom, Tal Al Rafea, Um Hajarah, Rasm Al Faleh, Mohtarak Kabeer etc.)	1. Collaboration with the local community and good support to tackle the health problems through the regular meeting with the community-based working groups (local organizations, governmental bodies, religious groups, etc.) 2. 60 Community Health Volunteers and efforts to connect them with HCs (they conducted 1440 home visits) 3. Availability of projector for outreach health education (presentations at three HCs) 4. New vocational training course at the Women's Club in Mazarea and Maskane HCs. The purpose was to convey health messages to the community (sewing, hair styling, and nursing)	1. Turnover of the trained staff 2. Low health education levels (high rate of illiteracy) among women living in deprived rural areas 3. Competition by the private sector in healthcare delivery
Al Bab	1. Availability of a lecture hall at the HDO 2. Capability of regular and continuous renovation of HCs 3. Strong management and trained staff in the health district	1. Lack of equipment 2. Lack of educational materials (17% of HCs) 3. Lack of water (78% of HCs) 4. Lack of furniture at HCs 5. No midwives at some HCs	1. Responsiveness of local organizations to the program during meetings, discussions and surveys 2. Intangible support by the Aleppo Health Directorate 3. Existence of the Health Villages program at Aran HC and Tal Al Hawa HC 4. Public contribution in building Aran HC and Yalani HC	1. Low knowledge of HCs services by local community (13%) 2. Low percentage of women who received information on prenatal care (6%) 3. Female school dropouts (50%) 4. Early marriage (22%) 5. Husbands' disagreement on family planning (18%)
Khan Shaykhun	1. Availability of new building 2. Availability of drinkable water 3. Availability of electricity 4. Existence of the normal child delivery center (24 hours)	1. No budget 2. Lack of trained staff 3. Lack of furniture and medical equipment 4. Ineffective child health program	1. Collaboration by local organizations (religious groups and vocational associations) 2. Availability of referral system for reproductive health services	1. High rate of home deliveries 2. High rate of marriage to relatives 3. Low usage of family planning materials 4. Early marriage 5. Times of antenatal care visits was low (10% never went to HCs) 6. Competition between public and private sectors

under conditions of limited resources and recognized the importance of sharing capacity and promoting resource mobilization from other sectors and private organization in public-private partnerships (PPPs). There was, however, little collaboration and partnership with outside institutions and agencies due to a perception of inability to control the private sector among the HDO staff, and a lack of awareness of PPPs among private doctors (Table 3).

3.2.6. Ethics

To protect and support patients, the Syrian Minis-

try of Health declared ten client rights. They are: a right to obtain correct information, to receive sufficient information, to choose, to receive safe services, to have privacy protected, to have confidentiality maintained, to have dignity, to feel comfortable, to receive continuous services, and to be allowed to express opinion freely. The HDOs advocated conformity to this declaration at every opportunity (Table 3).

3.3. SWOT of Health District Office(Table 4)

Although the HDOs identified their trained personnel as a strength, they experienced a constant lack of workers, especially doctors and midwives, which they acknowledged as a weakness. HDOs were located in new buildings or had generous space for education, while some HCs were without water and electricity, which were seen as great weaknesses. A common weakness was an absence of discretionary budget. Furthermore, although establishment of social relationships was seen to be important, and collaboration with health volunteers, community people, and local organizations regarded as good opportunities, PPPs could be perceived as a threat to the HDOs arising from competition with the private sector. Low knowledge of HCs services by the local community, and low educational attainment among women were also considered weaknesses or threats to the HDOs.

4. Discussion

The study revealed that the management performance and capability of the HDOs and HCs could be improved, regardless of the many constraints in resources and latitude within their current discretionary authority. Prior to the Syrian conflict, HDOs had been broadly required to execute routine management tasks as follows: periodical planning for and evaluation of health services delivered by HCs; on-going staff supervision to facilitate attendance and performance; allocation of personnel; planning and organization of distribution of drugs, vaccine and equipment to HCs; promotion of community mobilization, collaboration and partnership with extensive social resources, including the private sector; and, relevant advocacy and provision of health education. Unfortunately, we found no HDO that executed all of these management tasks. We have identified potential adjustments and make recommendations to improve management performance and capacity without additional budget or systemic reform.

In terms of the workforce, an imbalance between numbers of health service providers and users is the most crucial issue to address, a difficult but feasible task for the health district administration. Yet, unless a staff member agrees to workplace relocation, the HDO director finds it hard to compel an individual to move. An example of a strategic tactic that could achieve a balanced allocation of personnel includes; demonstration of strong intention by the Health Directorate, preparation of a thorough human relocation plan (Table 3), and replacement of the heads of HDO and HC (Furst and Cable, 2008). Nevertheless, the matter will likely be a longstanding challenge to management capability of HDOs.

Regarding information systems, to improve the management capacity of HDOs, utilization of data results should be strongly emphasized. Needed supplies of drugs and vaccines had not been estimated based on previous demands. Consumption levels of such products are likely to change by season, and by observance of Ramadan in Muslim nations (Iraki *et al.*, 1997). Poor estimates of medical supplies can result in shortages or over-supply. It was clearly possible to achieve a fundamental and tangible improvement in stock management. The Health Directorate should guide HDOs and HCs to estimate medical supplies using the WHO Model List of Essential Medicines (Lauffenburger *et al.*, 2011). Consistent staff supervision by HDOs may improve HC performance and HDO management capacity. The HDOs

had frequent interaction with HCs (Table 3); for example the director of the Reproductive Health Division in the Aleppo Health Directorate held regular monthly meetings with midwife supervisors from each HDO to encourage them to make action plans using advice and data from past events.

Management capacity related to practical use of information can be addressed through planning. The decision-making capacity of HDOs could be strengthened through planning that includes an action plan, not only for service delivery, but also for management of the workforce, information systems, medical products, and finances. The Health Directorate often conducted training to enhance the capacity of HDO executive staff to improve their planning. However, we observed few examples of data-based work plans. We assumed that the HDO staff training prioritized planning theory, rather than techniques on how to develop a plan using results gained from data analysis. It is necessary to include training modules on how to analyze data and apply it in the development of a plan.

In terms of service delivery, we found few HCs that had provided health check-up services for infants and children aged one, six and eighteen months (Table 2). Since the current management latitude and capability of the HDO could facilitate such services, they had to admonish the HCs to launch the program together with vaccination.

van Wijngaarden Scholten and van Wijk suggest that the availability of necessary resources can be assessed as strengths or weaknesses, and current and future expectations and contextual developments can be assessed as opportunities or threats via SWOT analysis (2012). The SWOT analyses revealed that the weaknesses of most of the study HDOs and HCs were an absence of discretionary budget, poor supply of water and electricity, and constant lack of trained professionals (Table 4). The analyses also showed that community involvement and mobilization could become potential opportunities. Strengthening of social relationships and entering into PPPs was within their management discretion, and recommended by the Syrian Ministry of Health. At the time of the study, collaboration with community and local organizations was limited to health education as an out-reach activity. Other possibilities include a referral system and sharing of patients between public and private health providers, and involvement and mobilization of community and local agencies in health planning and activities. Conversely, there were negative aspects of PPPs, such as a likely lack of responsibility, transparency and accountability (MeierSchoffski and Schmidtke, 2012). The result of the SWOT analysis indicated that promotion of PPPs could be a threat to HDOs because of potential competition between them (Table 4), but a broad resource mobilization that included PPPs might create benefits, especially in the resource-poor context.

Among methods of analyzing strengths and weaknesses, we applied SWOT analysis. Because it is commonly used in the global health field, and particularly in Syria, the use of the SWOT method was recommended by the Syrian Ministry of Health. This survey using the SWOT analysis was well-received by the study participants. The possible limitations of SWOT analysis are that it doesn't prioritize issues and it doesn't provide solutions. It is a strong method to capture and categorize the ideas. The action plans need to be developed flexibly based on the categorized factors. This requires some expertise and facilitated discussions among the stakeholders.

5. Conclusion

Since very few documents exist to describe the Syrian district healthcare system during the pre-civil war era, our manuscript is one of scarce few reports to describe the situation.

The study found that the HDOs in Aleppo and Idlib governorates could improve management per-

formance and capacity without additional budget, legislation, or reforms. Because the health system in Syria is quite top-down and standardized, the specific action plans we suggested in these governorates could be implemented all over the country at that time. Unfortunately, the findings and recommendations cannot be applied in Syria at this time due to on-going domestic unrest. We hope our approach and results could be valuable for other countries and health districts with few resources and strict centralization, similar to Syria prior to the civil unrest.

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