

HeRAMS Annual Report

January - December 2019

Public Hospitals in the Syrian Arab Republic



World Health
Organization

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World Health Organization
Health Resources and Services Availability Monitoring System
Syrian Arab Republic



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This is to acknowledge that the data provided in this report is a product of joint collaboration between the World Health Organization, Ministry of Health, and Ministry of Higher Education in the Syrian Arab Republic. The report covers the months of January to December 2019.

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Abbreviations

CEmOC	Comprehensive Emergency Obstetric Care
CS	Caesarean Sections
DoH	Directorate of Health
ESKD	End Stage Kidney Disease
HeRAMS	Health Resources & Services Availability Monitoring System
HIS	Health Information System
HRP	Humanitarian Response Plan
ICT	Information and Communication Technology
ICU/ CCU	Intensive Care Unit / Critical Care Unit
IDPs	Internally Displaced People
MoH	Ministry of Health
MoHE	Ministry of Higher Education
NCDs	Non-communicable Diseases
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
WHO	World Health Organization

Introduction

HeRAMS is a global health information management tool (for mapping, collection, collation and analysis of information on health resources and services) that aims to provide timely, relevant and reliable information for decision-making. It is used to guide interventions at the primary and secondary care levels, measure gaps and improve resource planning, ensure that actions are evidence-based, and enhance the coordination and accountability of WHO and other health sector partners.

HeRAMS in Syria is a World Health Organization (WHO) project that aims at strengthening the collection and analysis of information on the availability of health resources and services in Syria at health facility level. A team of national health staff from all governorates was formulated for HeRAMS reporting, and different data collection mechanisms were introduced to address the shortage of timely and relevant information. The main HeRAMS tool for collecting data is a questionnaire that assesses the functionality status, accessibility, health infrastructure, human resources, availability of health services, equipment and medicines at primary and secondary care level.

Executive summary

Regular assessment to monitor the impact of the crisis on the health facilities functionality, accessibility, condition status, availability of resources and services, has been conducted using HeRAMS (Health Resources & services Availability Monitoring System) tool. The report provides descriptive and trend analysis for the situation of public hospitals in all 14 governorates of Syria [including Ministry of Health (MoH) and Ministry of Higher Education (MoHE) hospitals (a total of 113 hospitals)].

Despite the challenging security situation and protracted crisis, in addition to the wide disruption of the Health System, implementation of HeRAMS has been successfully institutionalized and strengthened in public health facilities since 2014.

Completeness of hospitals' reporting remained 100%, where all 113 public hospitals: 100 (MoH) hospitals and 13 (MoHE) hospitals reported to HeRAMS by end of December 2019.

Functionality status of the public hospitals

By the end of December 2019, and out of the 113 assessed public hospitals [MoH & MoHE], 50% (57) were reported fully functioning, 25% (28) hospitals were reported partially functioning (i.e., shortage of staff, equipment, medicines or damage of the building in some cases), while 25% (28) were reported non-functioning.

Accessibility status of the public hospitals

By the end of December 2019, 81% (91) hospitals were reported accessible, 8% (9) hard-to-access, and 11% (13) were inaccessible.

Infrastructure of the public hospitals

By the end of December 2019, 43% (49) hospitals were reported damaged [10% fully damaged and 33% partially damaged], while 57% (64) of public hospitals were reported intact.

Analysis on inpatient capacity in functional hospitals has shown shortage of beds at varying degrees, across all governorates.

Assessing the availability of water sources at functional public hospitals indicated that 37.6% (32) are using main pipelines, 9.4% (8) are mainly using wells, 49.4% (42) are using both (main pipeline and well), while 3.5% (3) are using other sources of water.

Electricity power is widely disrupted nationwide and majority of public hospitals are dependent on generators' power. According to HeRAMS assessment 26% (22) of functional public hospitals across Syria are in need for electrical generators, mainly reported from 9 governorates: Damascus, Rural Damascus, Aleppo, Tartous, Hama, Al-Hasakeh, Dar'a, As-Sweida, and Quneitra.

Human resources for health

The general practitioner (0.2%) and emergency physician (0.3%) were the lowest proportion of health staff in public hospitals, followed by dentists (0.8%), pharmacists (0.7%), midwives (4.9%), laboratory (5.1%), specialists (12.5%), resident doctors (20.7%), and nurses (52.8%).

Trend analysis of available number of medical doctors, nurses, and midwives during 2019 has shown slight increase. In functional public hospitals the number of medical doctors [general practitioner, specialists, emergency doctors, resident doctors, dentists] has increased by 11% in December 2019 compared to January 2019, similarly the number of nurses and number of midwives has increased by 3% and 4%, respectively.

Analysis of proportions of medical doctors [general practitioner, specialists, emergency doctors, resident doctors, dentists] working at MoHE hospitals versus MoH hospitals has shown that 26% of medical doctors work in MoHE, while 74% are in MoH hospitals.

Analysis of availability of medical doctors by gender has shown that lowest proportion of female to male medical doctors is in Ar-Raqqa governorate (24%).

Availability and utilization of health services

As a result of disrupted healthcare delivery and non-functionality of the hospitals, limited provision of health services was observed across governorates, even within functional hospitals. Detailed analysis on services' availability and utilization throughout 2019 by category (i.e., General Clinical Services, Surgical and Trauma care, Child Health, Nutrition, Maternal & Newborn Health, Communicable Diseases, Non-communicable Diseases, and Mental Health) is provided at governorate level.

Availability of medical equipment

Analysis of availability of essential and specialized equipment was measured across all functional public hospitals [MoH & MoHE], in terms of functional equipment out of the total available equipment in the hospital. The produced analysis provides good indication of the current readiness of the hospitals to provide the health services, and also to guide focused planning for procurement and distribution of equipment and machines, to fill-in identified gaps that were observe even within the functional public hospitals.

Availability of medicines and medical supplies

Availability of medicines and medical supplies at hospitals' level was evaluated based on a standard list of identified priority medicines and medical supplies for duration of one month.

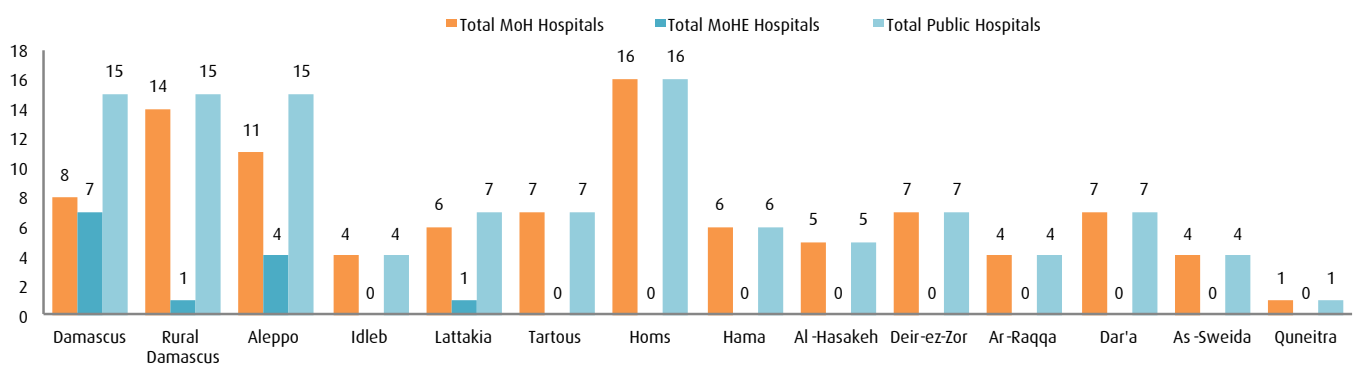
The key identified gaps of medicines and consumables at functional hospitals include the: Tetanus shot (89%), Cancer related medicines (84%), Hepatitis vaccine (73%), Psychotropic medicines (70%), etc.

1. Completeness of hospitals reporting

The completeness of reporting from public hospitals across Syria remained at 100%, where all the 113 public hospitals: 100 Ministry of Health (MoH) Hospitals and the 13 Ministry of Higher Education (MoHE) hospitals continued to report to HeRAMS in December 2019. Noting that two new MoH established hospitals and started to functioning since October 2019; Children hospital in Tartous and Shaba hospital in As-Sweida.

The distribution of public hospitals by affiliation [MoH & MoHE], per governorate is shown in Figure 1.

Figure 1: Distribution of public hospitals by affiliation, per governorate



The following sections provide descriptive and trend analysis on the functionality status, accessibility, and infrastructure of the public hospitals, availability of resources & services, and available equipment and medicines by the end of December 2019.

The provided analysis supports informed decision making, better planning and allocation of resources, and contributes to significant and focused humanitarian response by WHO and health sector partners.

2. Functionality and accessibility of the public hospitals

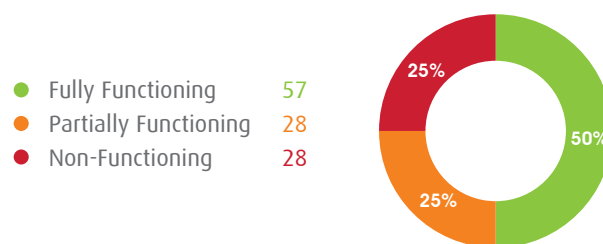
The following sub-sections provide analysis on the functionality and accessibility status of the public hospitals at governorate level.

2.1 Functionality status of the public hospitals

Functionality of the public hospitals was defined and assessed at three levels;

- **Fully functioning:** a hospital is open, accessible, and provides healthcare services with full capacity (i.e., staffing, equipment, and infrastructure).
- **Partially functioning:** a hospital is open and provides healthcare services, but with partial capacity (i.e., either shortage of staffing, equipment, or damage in infrastructure).
- **Non-functioning:** a hospital is out of service, because it is either fully damaged, inaccessible, no available staff, or no equipment.

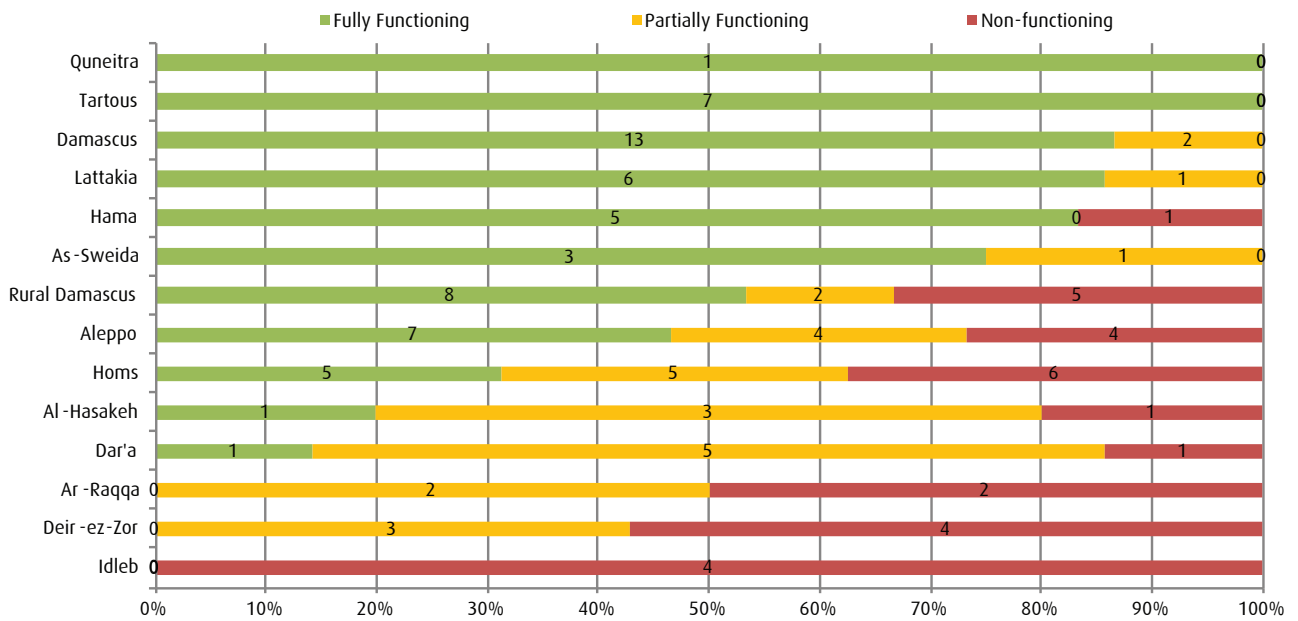
Figure 2: Functionality status - December 2019



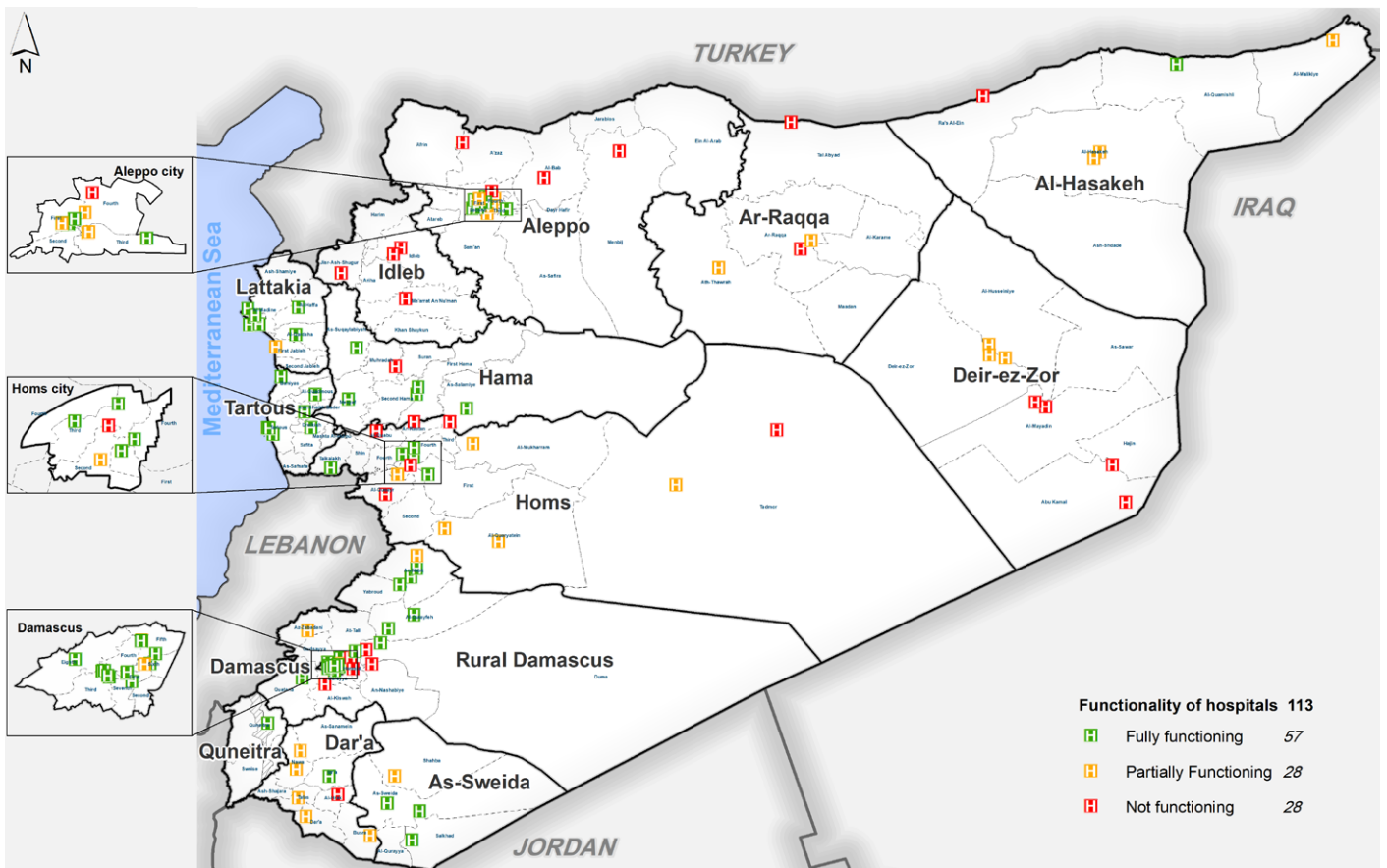
By the end of December 2019, and out of the 113 assessed public hospitals [MoH & MoHE], 50% (57) were reported fully functioning, 25% (28) hospitals were reported partially functioning, while 25% (28) were reported non-functioning [Figure 2].

The hospitals reported partially functioning or non-functioning are in 12 out of a total 14 governorates (86% of governorates). Detailed analysis on the functionality status of the MoH and MoHE hospitals at governorate level is presented in [Figure 3] and [Map 1]. All public hospitals in Idleb were reported out of service.

Figure 3: Number and percentage of the public hospitals by functionality status, per governorate, December 2019

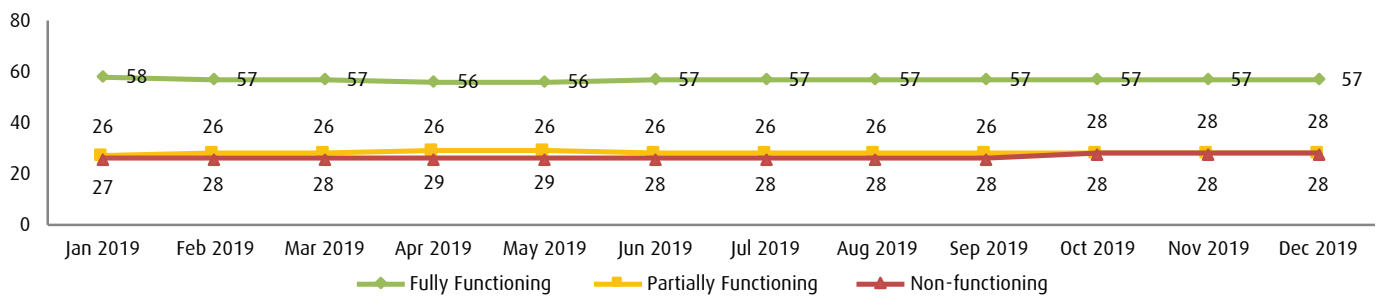


Map 1: Distribution and functionality status of public hospitals, December 2019

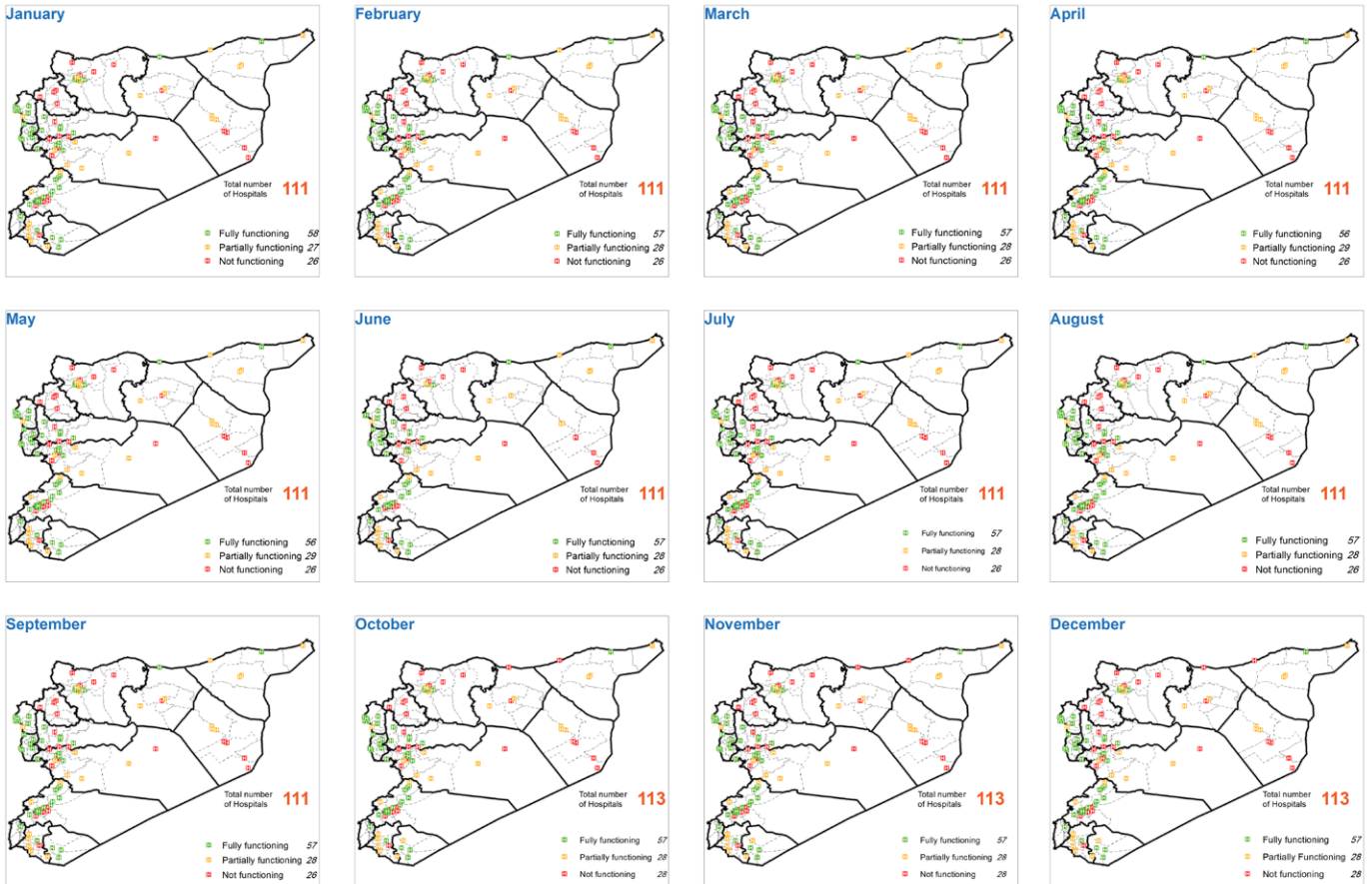


Slight variation of functionality status of public hospitals has been observed during 2019 [Figure 4].

Figure 4: Trend analysis of functionality status of public hospitals, January to December 2019



Map 2: Trend analysis of functionality status of public hospitals, January to December 2019

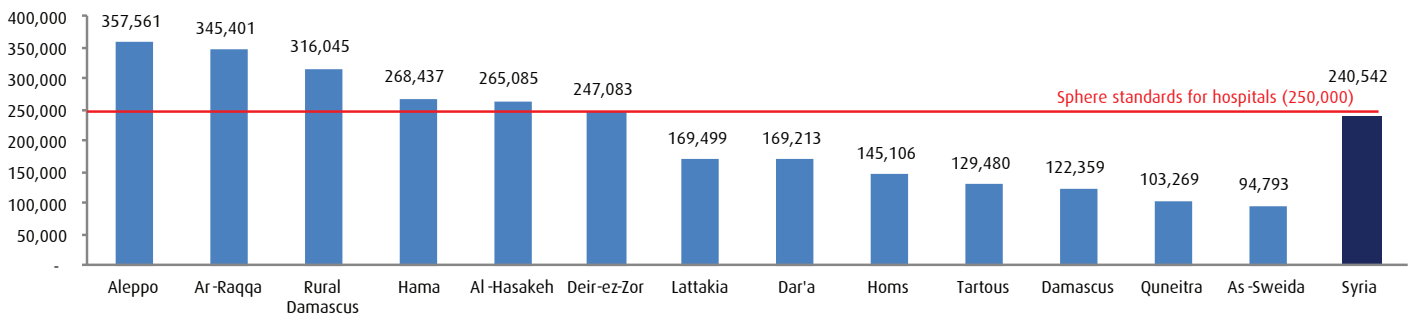


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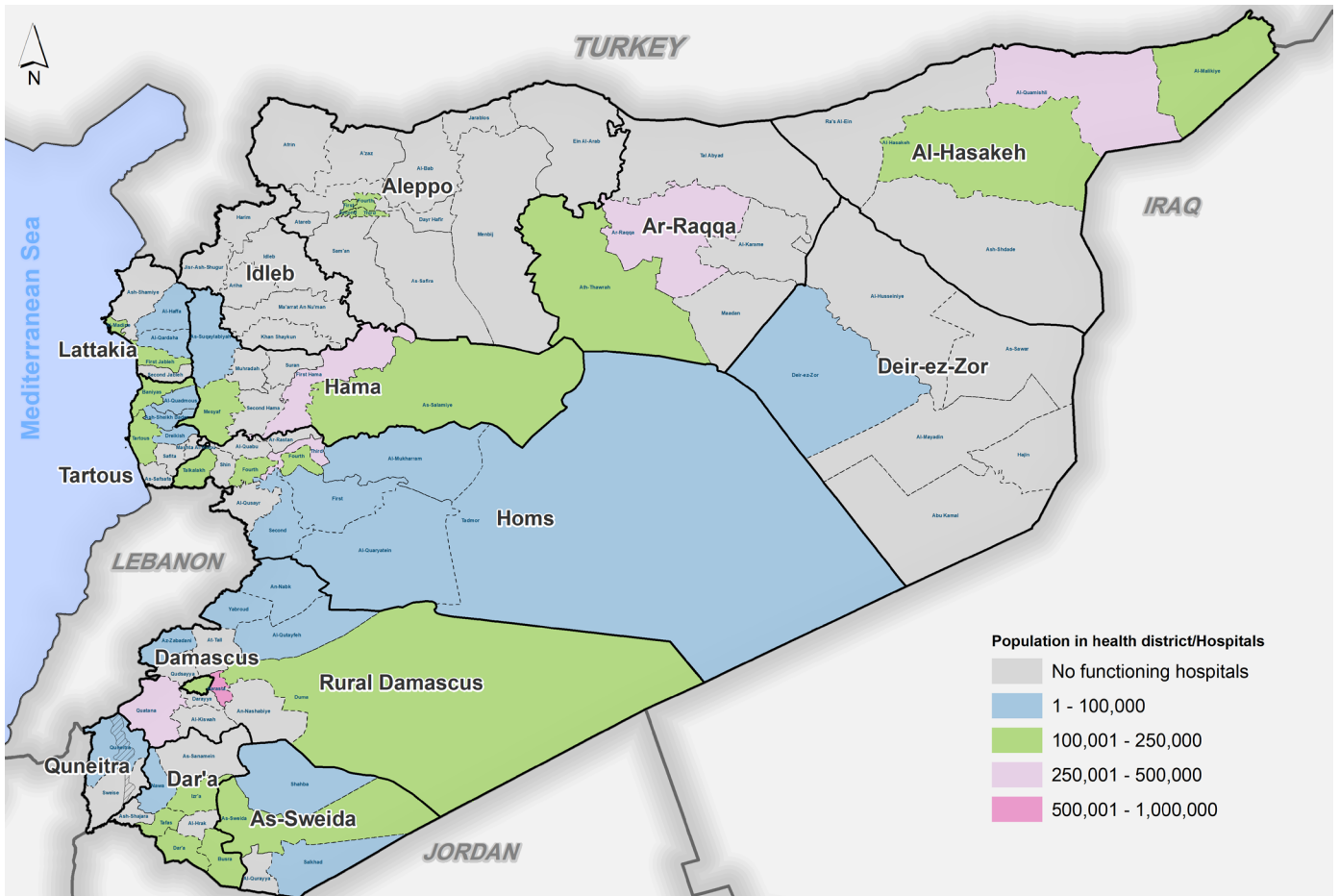
2.2 Density of the public hospitals

Hospitals density reflects the total number of hospitals relative to population size (based on OCHA HRP 2019), which helps measure physical access to outpatient health care services. Comparing with Sphere standards for hospitals (250,000), five governorates (Aleppo, Ar-Raqqa, Rural Damascus, Hama, and Al-Hasakeh) are over the standard density reference; due to high number of population against the available functioning public hospitals [Figure 5] and Map 3.

Figure 5: Density of the public hospitals per governorate, December 2019



Map 3: Density of the public hospitals per governorate, December 2019



2.3 Special cases

The following public hospitals have been considered as non-functioning, but are providing health services by non-MoH staff with no information available, where data is being collected by cross-border partners:

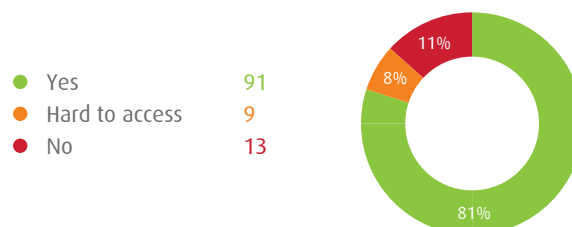
1. “Idleb National Hospital” in Idleb: partially damaged, providing health services by non-MoH staff since 2015.
2. “Ibn Seina Hospital” in Idleb: partially damaged, providing health services by non-MoH staff since 2015.
3. “Ma’arrat An-Nu’man Hospital” in Idleb: partially damaged, providing health services by non-MoH staff since 2016.

3. Accessibility to public hospitals

Accessibility to public hospitals is defined at three levels:

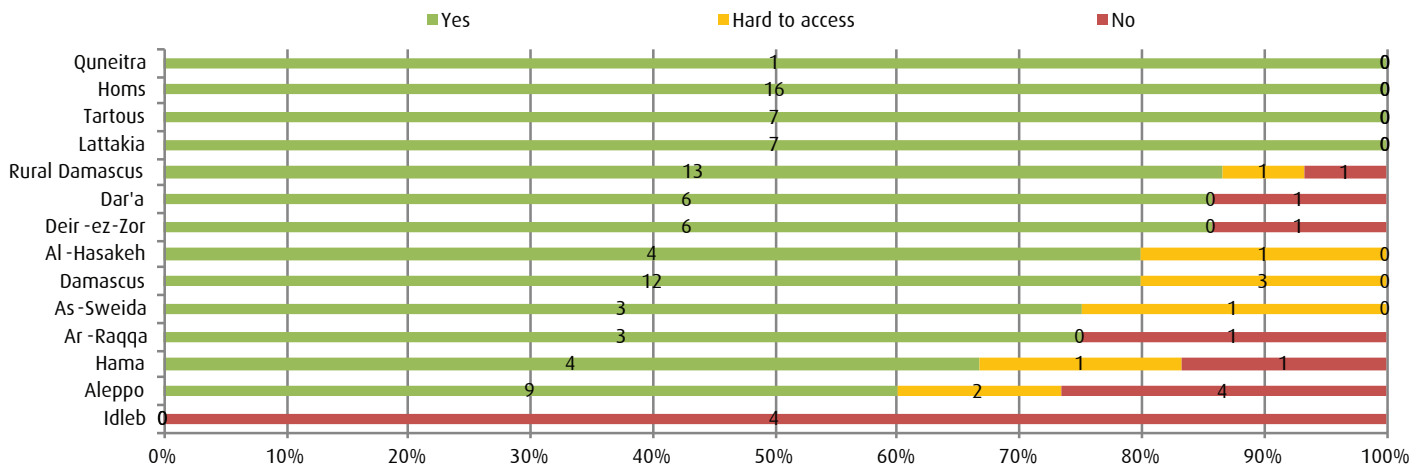
- **Accessible:** a hospital is easily accessible for patients and health staff.
- **Hard-to-reach:** a hospital is hardly reached, due to security situation or long distance.
- **Inaccessible:** a hospital is not accessible because of the security situation, or a hospital is accessible only to a small fraction of the population, or military people (inaccessible to civilians).

Figure 6: Accessibility status - December 2019

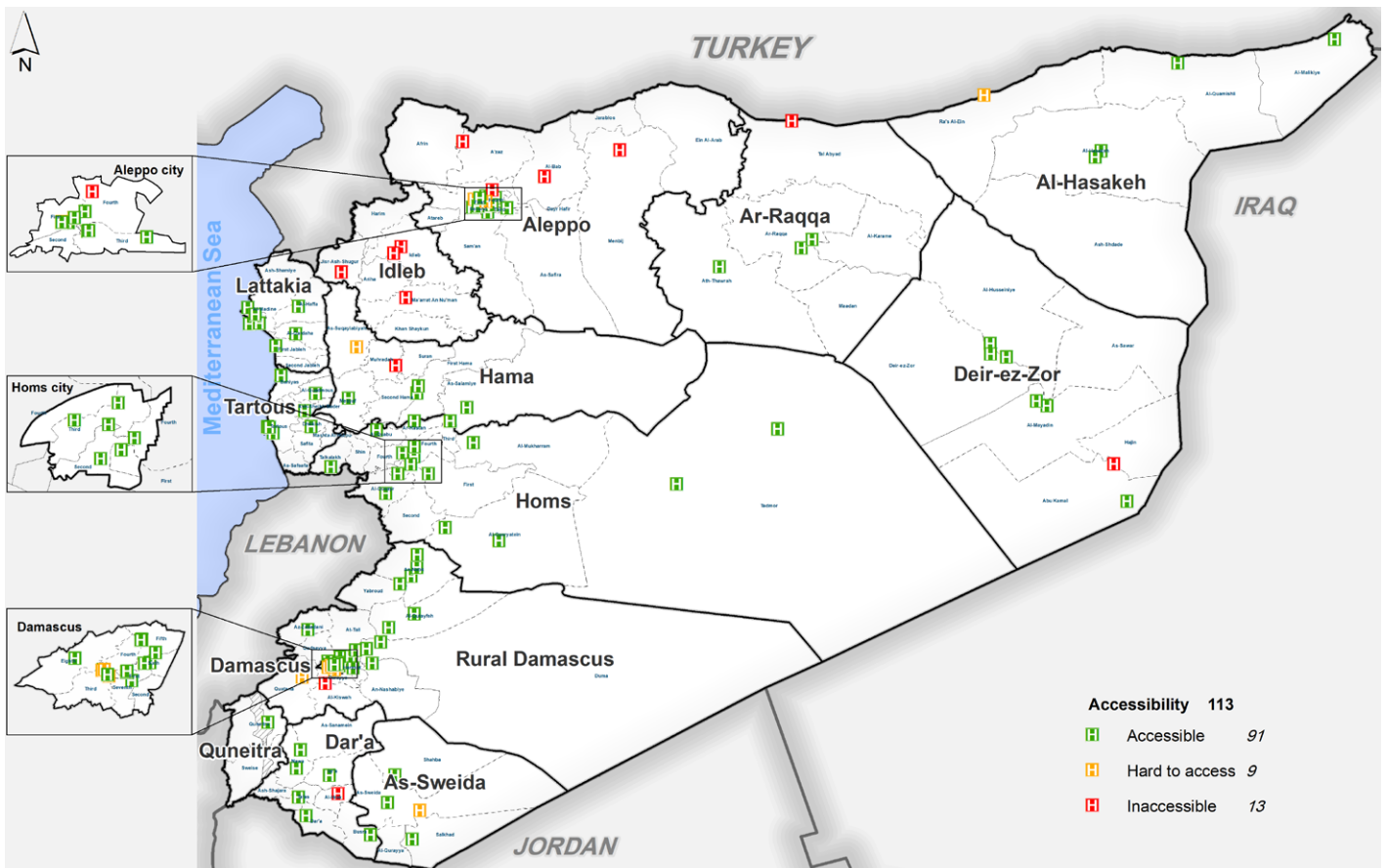


By the end of December 2019, 81% (91) hospitals were reported accessible, 8% (9) hard-to-access, and 11% (13) were inaccessible [Figure 6]. Distribution of public hospitals by accessibility status is presented in Map 4 , while more details are provided at governorate’s level in Figure 7.

Figure 7: Accessibility status of the public hospitals per governorate, December 2019

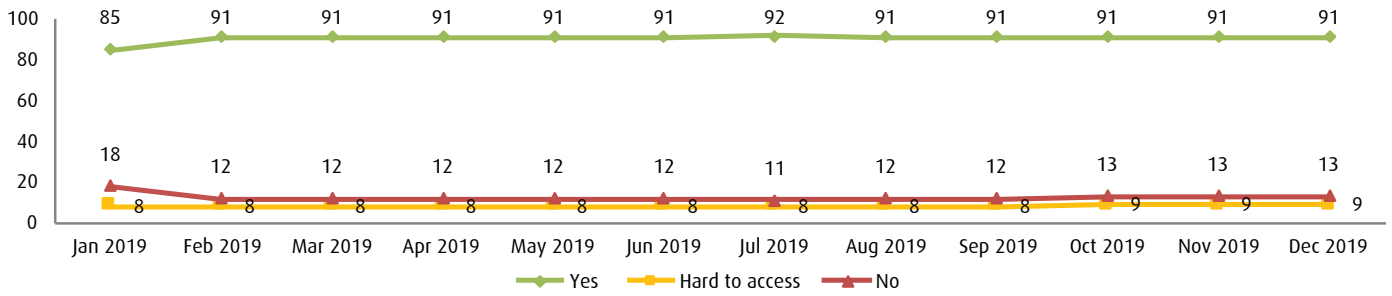


Map 4: Accessibility to public hospitals [MoH & MoHE], December 2019



Trend analysis on accessibility to public hospitals [MoH & MoHE] from January to December 2019, is presented in Figure 8.

Figure 8: Trend analysis of accessibility to public hospitals, January to December 2019



4. Infrastructure patterns of the public hospitals

The following sub-sections provide analysis on the infrastructure patterns of the public hospitals, in terms of building condition, inpatient capacity, water sources, availability of ambulances, and electricity generators, all summarized at governorate level.

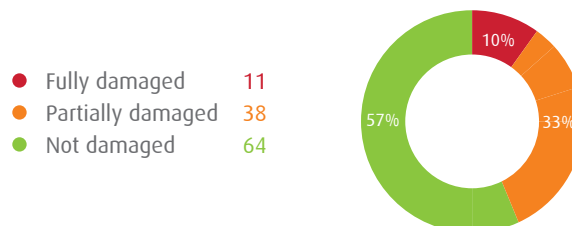
4.1 Level of damage of the hospitals' buildings

The level of damage to hospital buildings was measured at three levels:

- **Fully damaged:** either, all the building is destroyed, about 75% or more of the building is destroyed, or damage of the essential services' buildings.
- **Partially damaged:** where part of the building is damaged.
- **Intact:** where there is no damage in the building.

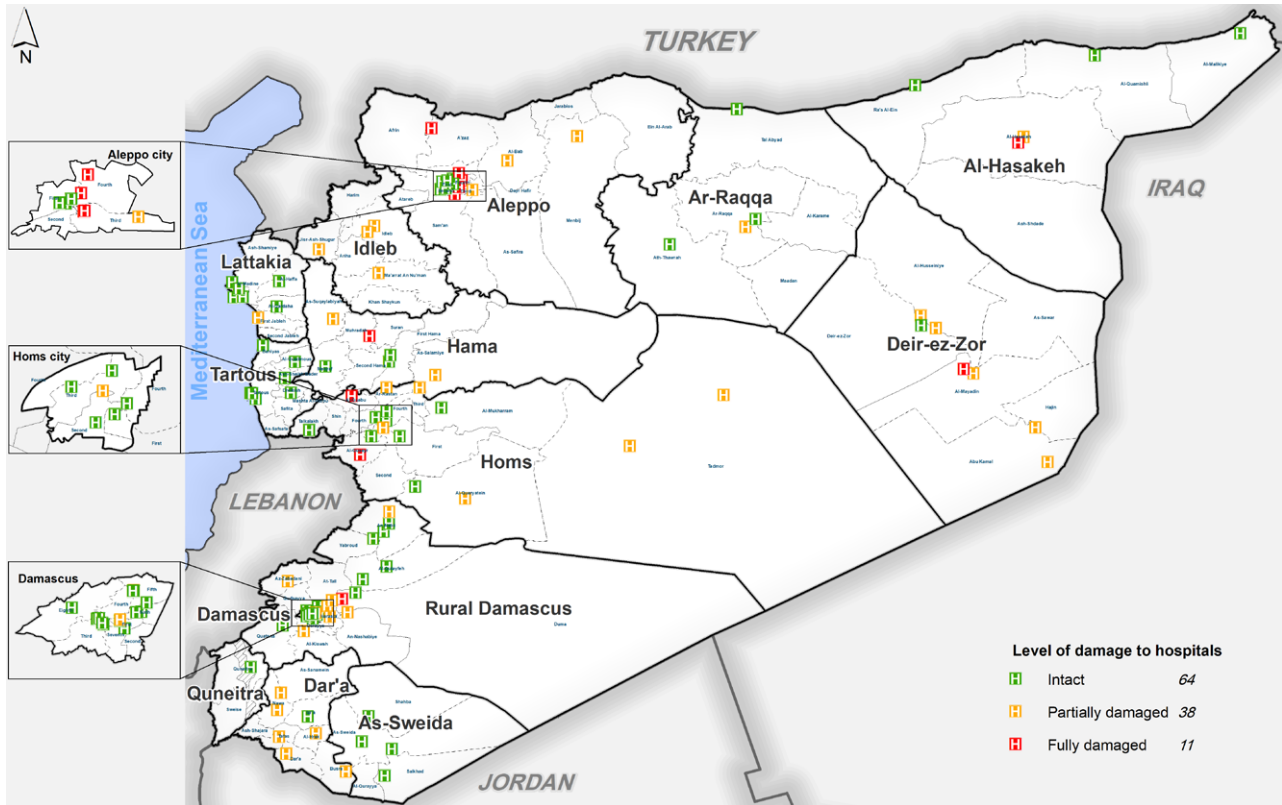
Analysis of the level of damage provides good indication on the potential costs for reconstruction.

Figure 9: level of damage - December 2019



By the end of December 2019, 43% (50) hospitals were reported damaged [10% fully damaged and 33% partially damaged], while 57% (64) of public hospitals were reported intact [Figure 9]. Distribution of public hospitals by level of damage is presented in Map 5, while more details are provided at governorate's level in Figure 10.

Map 5: Level of Damage of the Hospitals' buildings, by governorate [MoH & MoHE], December 2019



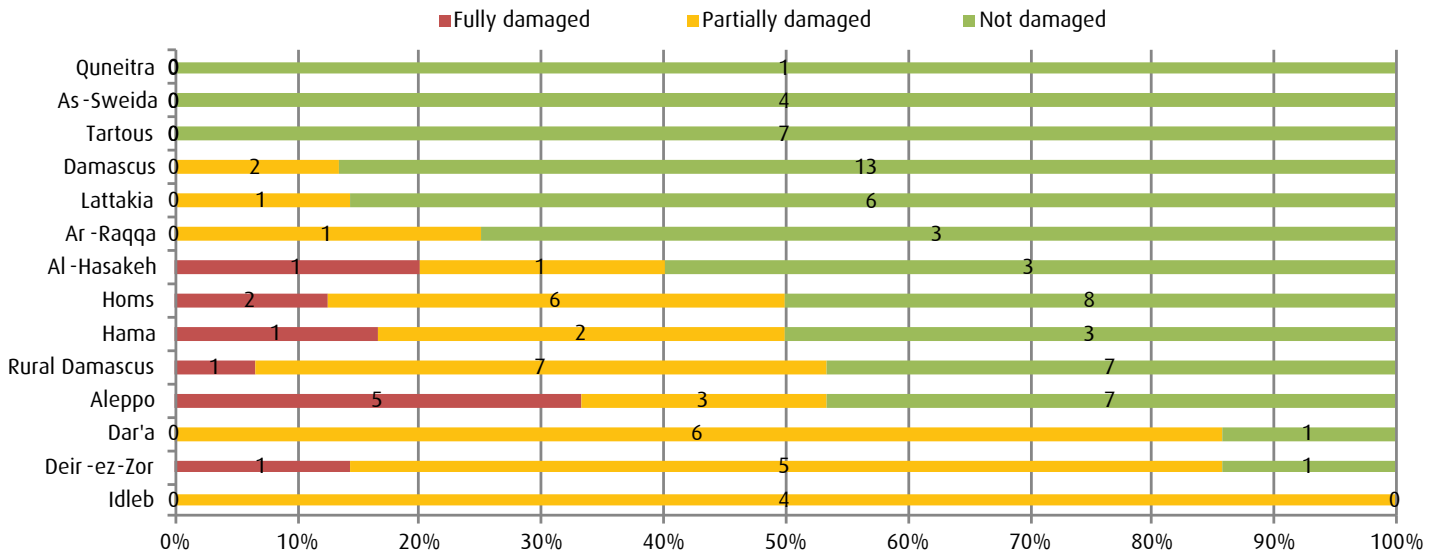
It is essential to cross-analyze the infrastructural damage of the public hospitals in relation to the functionality status (i.e. provision of services). Some hospitals have resiliently continued to provide services regardless of the level of damage of the building and by optimizing intact parts of the building or in a few cases operating from other neighboring facilities. The national figures translate as follows:

Out of the 38 partially damaged hospitals, 14 hospitals were reported partially functioning and 19 out of service (non-functioning), while 5 hospitals (Ebn Khaldoun Psychiatric hospital in Aleppo, As-Salameyeh National hospital in Hama, As-Suqaibeyeh National hospital in Hama, Al-Bairouni hospital in Rural Damascus, and Dermatology and Venereology hospital in Damascus) were reported to be fully functioning providing all services with full staffing capacity.

Out of the 11 fully damaged hospitals, 7 were reported non-functioning while 4 hospitals have opted for innovative ways to continue providing health services to populations in need through partially functioning from other nearby temporary locations and provide health services with limited staff capacity and resources. More details of the 4 hospitals are available in the HeRAMS database.

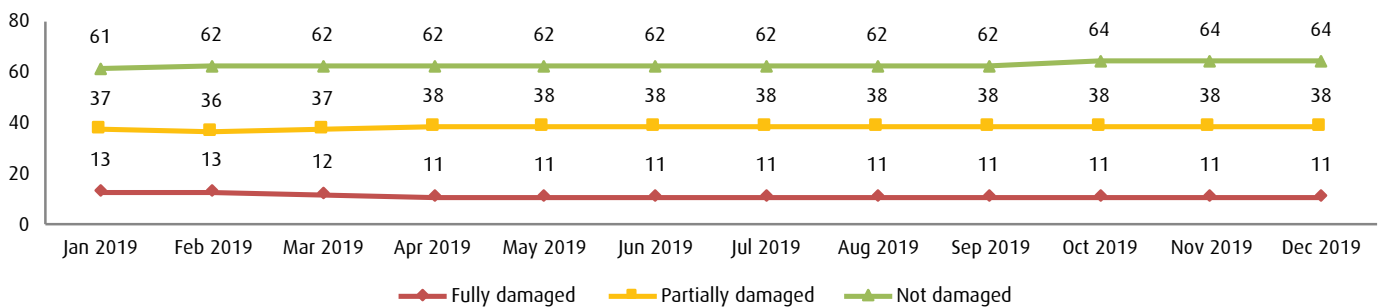
Then again, hospitals with intact buildings (64 hospitals) does not directly reflect full functionality, only 52 of the 64 intact hospitals are fully functioning, while 10 are partially functioning, and two hospitals are not functioning, due to limited access of patients and health staff to the facilities resulting from the dire security situation as well as critical shortage of supplies.

Figure 10: Number and percentage of the public hospitals by level of damage, per governorate, December 2019



Trend analysis on condition of the public hospitals (level of damage of the building) from January to December 2019 is presented in Figure 11.

Figure 11: Trend analysis of public hospitals' level of damage, January to December 2019



The tables below list the hospitals, which reported fully damaged (buildings), in addition to the list of hospitals that are operating from different location (s) given that the original building is fully damaged or partially damaged.

Table 1: The list of hospitals with reported fully damaged buildings

#	Hospital Name	Province	District	Affiliation
1	Rural Damascus specialized hospital – Duma	Rural Damascus	Duma	MoH
2	Zahi Azraq general hospital	Aleppo	The fourth	MoH
3	E'zaz national hospital	Aleppo	E'zaz	MoH
4	Ophthalmology hospital	Aleppo	Third	MoH
5	Children hospital	Aleppo	Third	MoH
6	Al-Qusayr general hospital	Homs	Al-Qusayr	MoH
7	Taldaw hospital	Homs	Al-Quabu	MoH
8	Helfaya hospital	Hama	Muhardeh	MoH
9	Children hospital	Al-Hasakeh	Al-Hasakeh	MoH
10	Modern Medicine hospital	Deir-ez-Zor	Al-Mayadin	MoH
11	Al-Kindi university hospital	Aleppo	The fourth	MoHE

Table 2: Special cases of hospitals which reported fully damaged (buildings), and operating partially from other locations

#	Hospital name	Province	District	Type	Condition	Affiliation	New location
1	Zahi Azraq general hospital	Aleppo	The fourth	General	Fully damaged	MoH	Ar-Razi hospital
2	Ophthalmology hospital	Aleppo	Third	Specialized	Fully damaged	MoH	Ar-Razi hospital + Al-Bassel Heart Institute
3	Children hospital	Aleppo	Third	Specialized	Fully damaged	MoH	Ar-Razi hospital + Maternity hospital
4	Children hospital	Al-Hasakeh	Al-Hasakeh	Specialized	Fully damaged	MoH	New medical center in Al-hasakah

Table 3: Special cases of hospitals which reported partially damaged (buildings), and operating partially (limited provided health services) from other locations

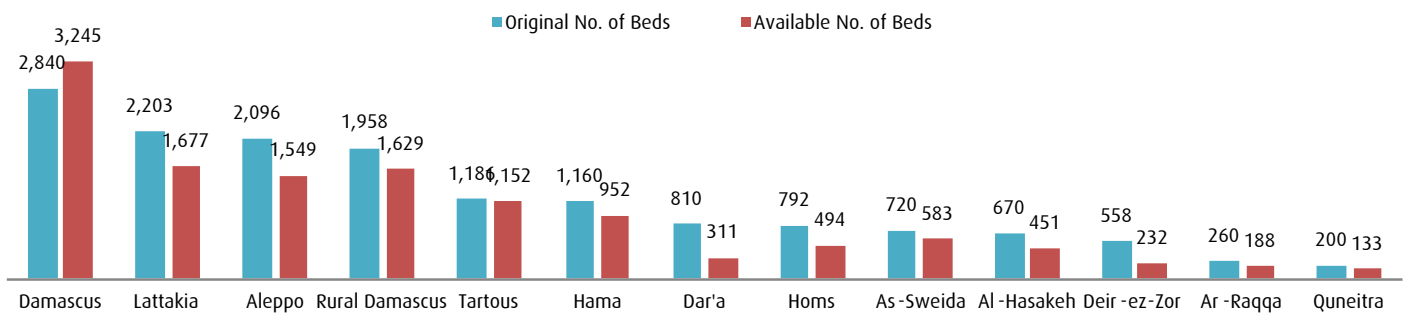
#	Hospital name	Province	District	Type	Condition	Affiliation	New location
1	Al-Bassel-Qara hospital	Rural Damascus	Al-Nabak	General	Partially damaged	MoH	Qara Municipal
2	Children and Obstetrics hospital	Deir-ez-Zor	Deir-ez-Zor	Specialized	Partially damaged	MoH	Al-Assad hospital
3	Al-Furat hospital	Deir-ez-Zor	Deir-ez-Zor	Specialized	Partially damaged	MoH	Al-Assad hospital

The information above could guide focused rehabilitation activities for hospitals' infrastructure, which could improve functionality status of hospitals to reach fully functional level, especially for partially functional hospitals that need small scale of rehabilitation.

4.2 Analysis of the inpatient capacity

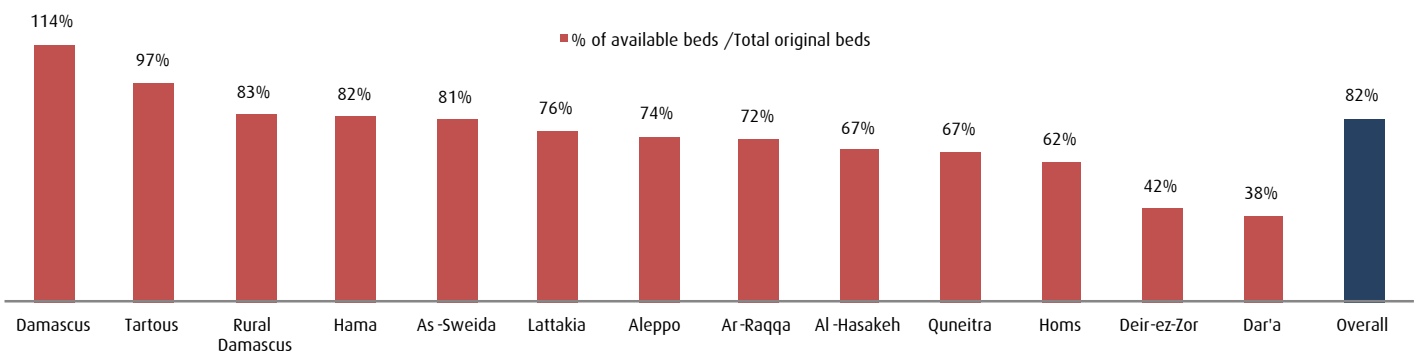
The inpatient capacity has been analyzed in terms of the total number of beds available in functional hospitals by end of 2019 compared to the original number of beds in these hospitals pre-crisis or the maximum inpatient capacity) [Figure 12].

Figure 12: Comparison of inpatient capacity (original vs. available) in functional hospitals per governorate, December 2019



Reduced inpatient capacity (shortage of beds) was observed in all governorates at varying degrees. This may be correlated to the upsurge in usage of beds in functional hospitals, as direct implication of the crisis on the overstretched public health sector. The number 114% in Damascus illustrates that some hospitals have expanded their operational capacity to meet the increase needs of provision health services. Figure 13 illustrates the proportion of available beds in functional hospitals versus the original inpatient capacity at governorate levels.

Figure 13: Percentage of available number of beds in functional hospital versus the original inpatient capacity, December 2019

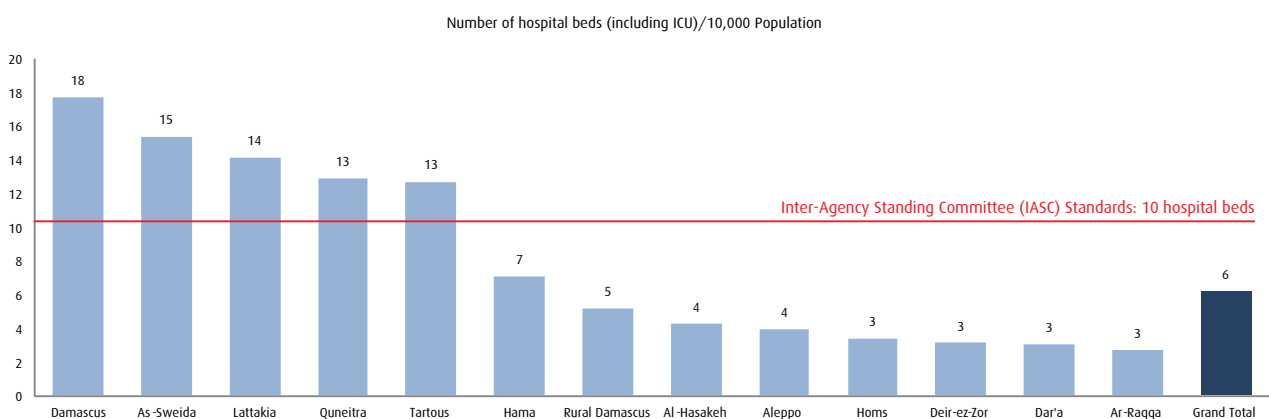


The lowest percentage (38%) of available beds in functional hospital versus original inpatient capacity is observed in Dar'a governorate, mainly reported from Jassem hospital, Nawa hospital, and the national hospital.

The follow figure shows the number of hospital beds (including ICU)/10,000 Population, given that the benchmark is greater than 10 health staff per 10,000 population (Inter-Agency Standing Committee (IASC) Standards).

The national levels in addition to eight governorates (Hama, Rural Damascus, Al-Hasakeh, Aleppo, Homs, Deir-ez-Zor, Dar'a, and Ar-Raqqa) are below benchmark in [Figure 14].

Figure 14: number of hospital beds (including ICU)/10,000 Population in public hospitals, December 2019

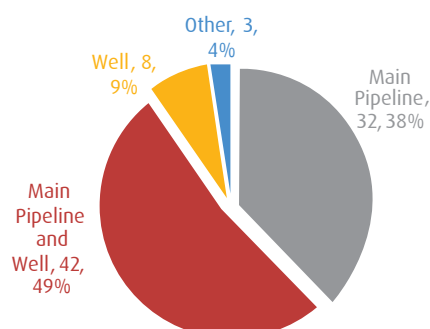


4.3 Water sources and functionality status

Availability of water sources at public hospitals was assessed using a standard checklist of main types of water sources (i.e., main pipeline, well, or both (main pipeline and well)).

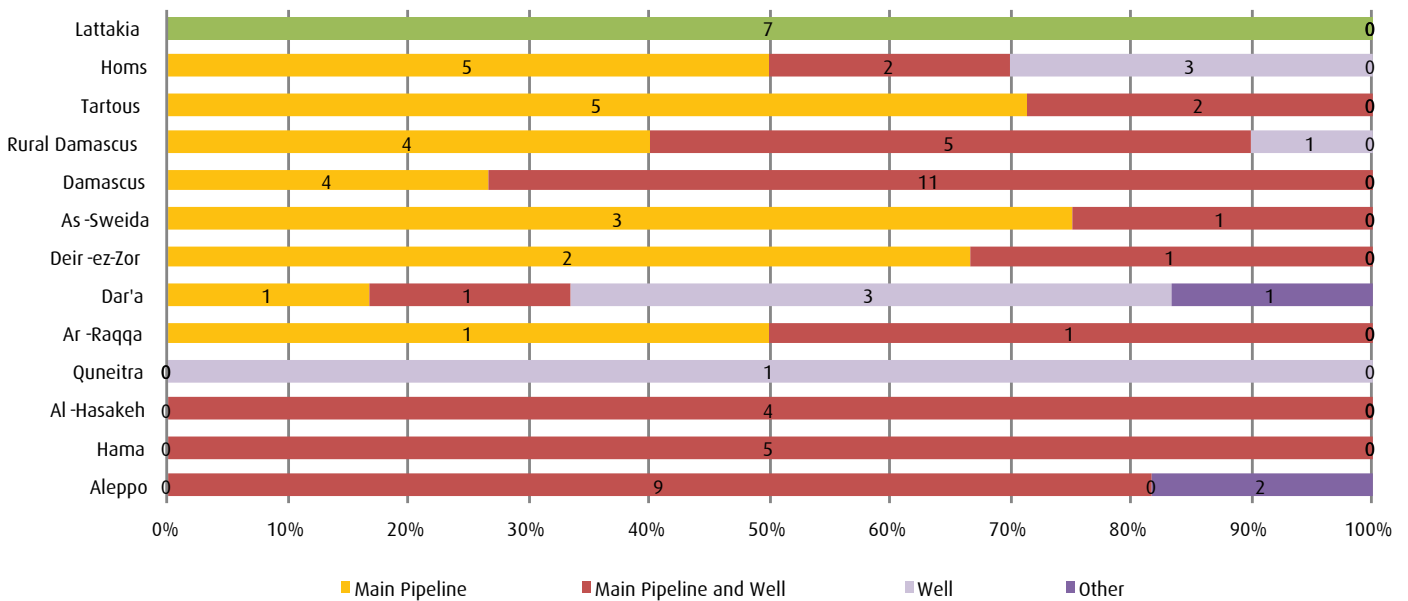
By the end of December 2019 and out of 85 functional public hospitals, 38% (32) are using main pipelines, 9% (8) are mainly using wells, 49% (42) are using both (main pipeline and well), while 4% (3) are using other sources of water [Figure 15].

Figure 15: Main sources of water, December 2019



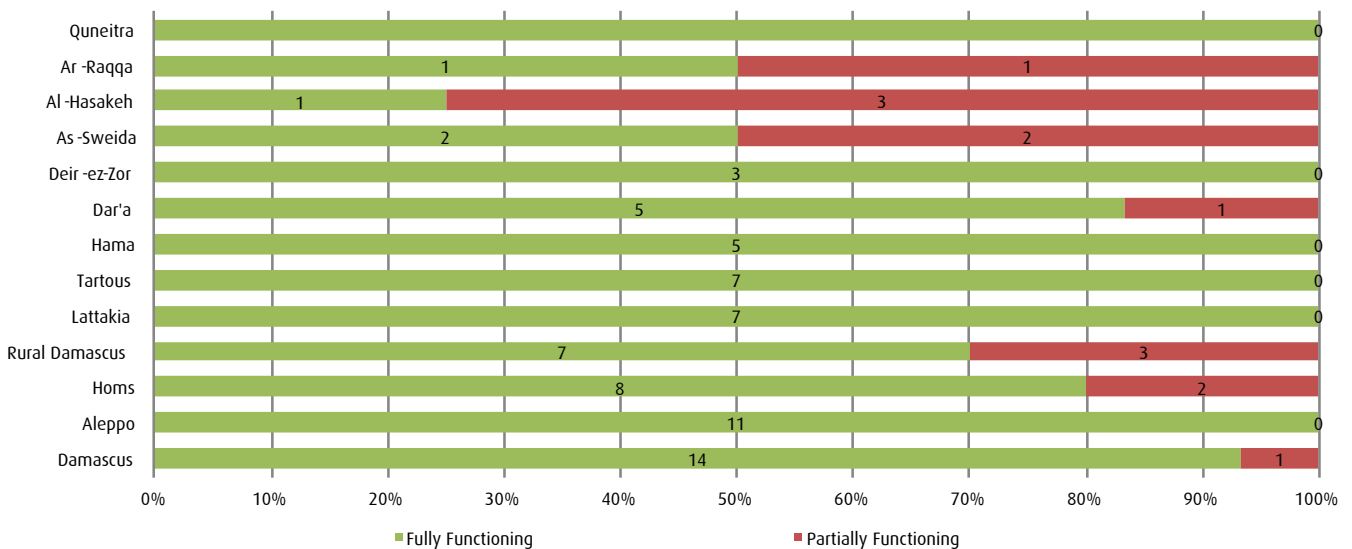
Detailed analysis on distribution of water sources at functional public hospitals is presented at governorate level on [Figure 16].

Figure 16: Distribution of water sources/ types at functional public hospitals, per governorate, December 2019



Functionality status of the water sources was measured at three levels; fully functional, partially functional, and not functional. Figure 17, provides details on functionality status of water sources at functional hospitals, (85/113) per governorate.

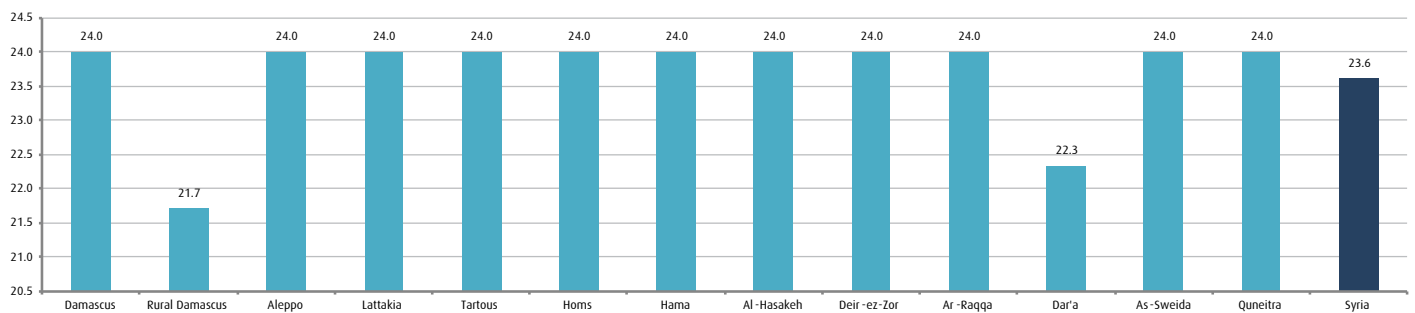
Figure 17: Functionality status of the water sources at functional public hospitals, December 2019



4.4 Availability of electricity generators

Availability of electricity generators continued to be highly demanded with the current situation, where electricity power is widely disrupted and majority of public hospitals are dependent on generators' power. Availability of electrical generators at functional hospitals was measured by assessing the functional out of the total existing generators in the hospital.

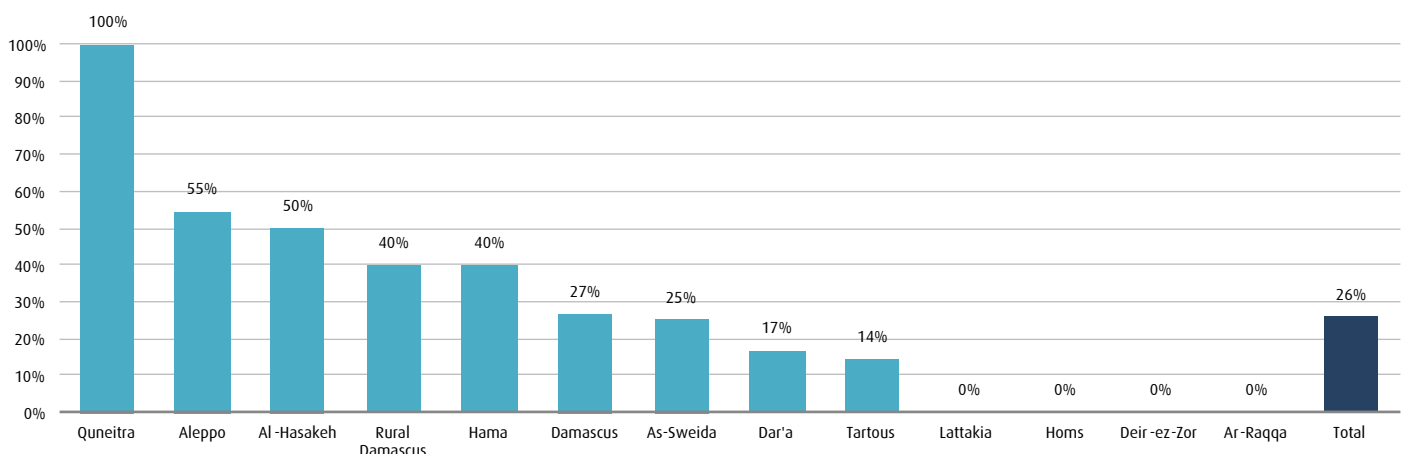
Figure 18: Hours of availability of electricity (from all sources) on average during the day in functional hospitals, December 2019



The percent of hospitals in need for electricity generators out of the total functional hospital is summarized at governorate level [Figure 19].

26% (22) of functional public hospitals across Syria are in need for electrical generators, mainly reported from 9 governorates: Damascus, Rural Damascus, Aleppo, Tartous, Hama, Al-Hasakeh, Dar'a, As-Sweida, and Quneitra.

Figure 19: Percent of hospitals in need for generators out of total functional hospitals, December 2019

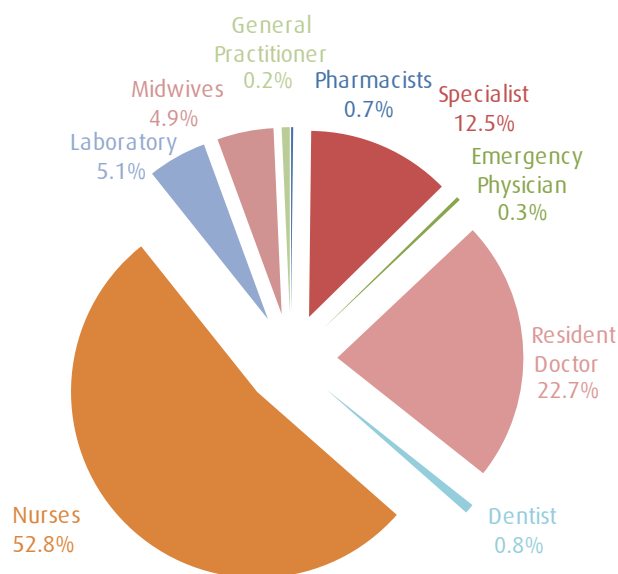


5. Availability of health human resources

Availability and trend of health human resources were analyzed across all public hospitals [MoH & MoHE] considering the following scopes:

- **Comparative and trend analysis** of medical staff by category (i.e., doctors, nurses, midwives)
- **Trend analysis of availability** of medical doctors by affiliation; MoH vs. MoHE hospitals
- **Trend analysis** of availability of medical doctors by **gender**, per governorate

Figure 20: Proportion of health staff in hospitals, December 2019



The proportion between different categories of health staff, among the total functional (fully and partially) MoH and MoHE hospitals (85/113), by the end of December 2019, is as follows: The general practitioner (0.2%) and emergency physician (0.3%) were the lowest proportion of health staff in public hospitals, followed by dentists (0.8%), pharmacists (0.7%), midwives (4.9%), laboratory (5.1%), specialists (12.5%), resident doctors (22.7%), and nurses (52.3%); [Figure 20].

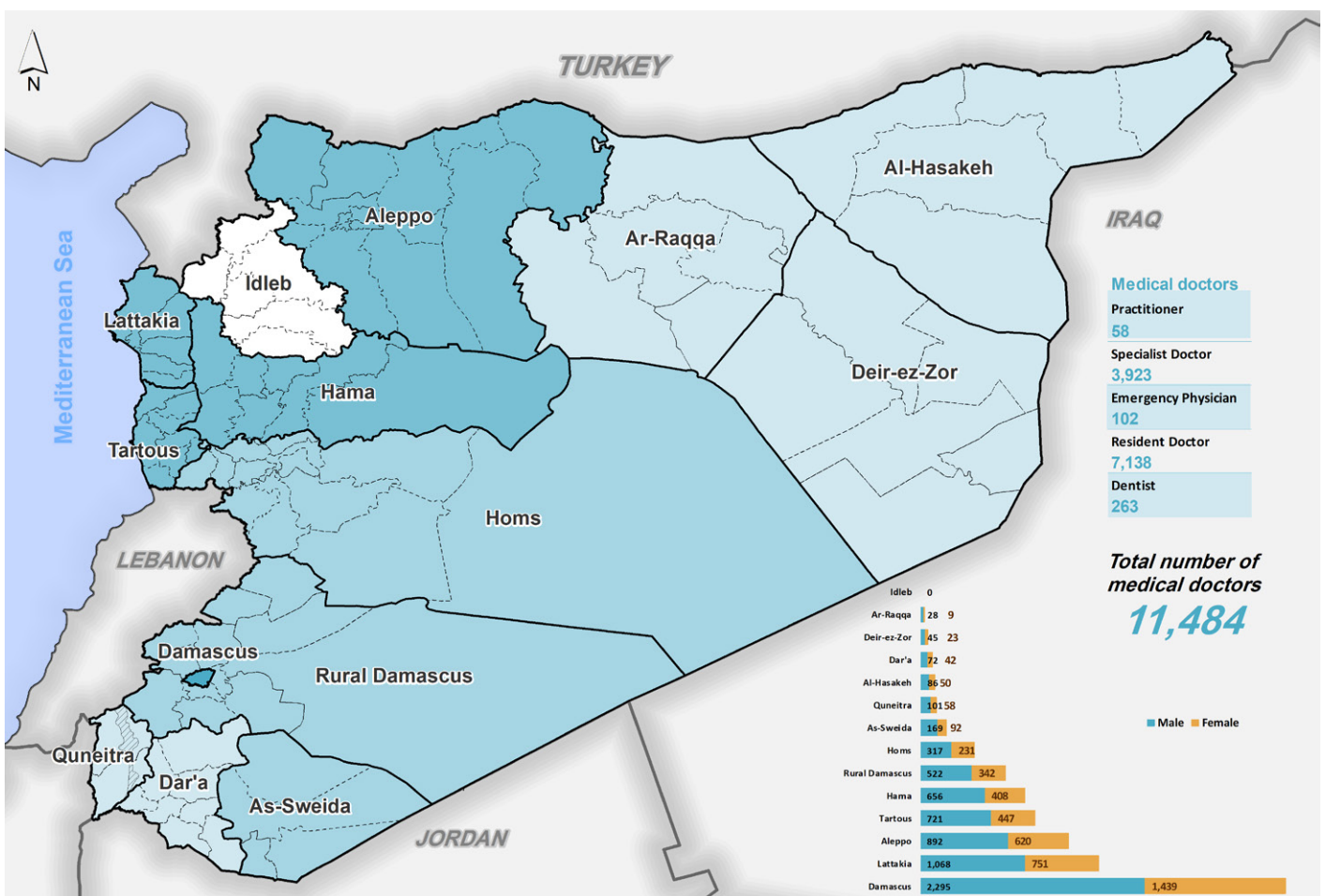
Table 4: Availability of human resources of functioning public hospitals, per governorate, December 2019

Governorate	General Practitioner	Orthopedic surgery	General surgery	Neurological surgery	Other Specialists	Emergency Physician	Resident Doctor	Dentist	Nurses	Laboratory	Midwives	Pharmacists	University*	Technicians	Others
Damascus	0	47	58	17	830	18	2,726	38	3,760	388	158	80	550	1,315	2,954
Rural Damascus	12	22	31	4	226	4	558	7	1,282	132	87	17	125	430	882
Aleppo	6	30	36	6	357	7	1,013	57	930	165	90	16	205	322	1,073
Idleb															
Latakia	4	40	51	8	512	21	1,123	60	2,552	149	247	30	245	491	1,151
Tartous	5	37	59	8	437	21	564	37	2,337	232	120	27	253	820	1,637
Homs	13	31	42	5	238	15	195	9	1,617	165	233	17	68	724	424
Hama	4	29	44	8	346	11	576	46	1,617	157	232	11	139	896	749
Al-Hasakeh	2	3	5	2	55	0	67	2	294	37	44	5	27	144	136
Deir-ez-Zor	1	2	1	0	32	0	29	3	574	74	135	0	17	289	345
Ar-Raqqa	6	3	6	0	22	0	0	0	124	10	37	4	7	27	81
Dar'a	2	5	4	1	43	0	59	0	412	38	48	5	27	152	232
As-Sweida	3	7	14	2	113	1	120	1	1,003	53	95	4	77	298	587
Quneitra	0	2	3	2	37	4	108	3	116	9	15	4	11	70	227
Grand Total	58	258	354	63	3,248	102	7,138	263	16,618	1,609	1,541	220	1,751	5,978	10,478

* Health workers in the health centres who hold university degrees (engineer, law, trade and economics)

The availability and level of medical staffing (by category and gender) in public hospitals a, as is summarized at governorate's level in Map 6. The categories of staff included in the map are: general practitioner, specialists, emergency doctors, resident doctors, dentists.

Map 6: Availability of medical doctors in functional public hospitals, by end of December 2019, per governorate



5.1 Availability of medical staff by category and affiliation

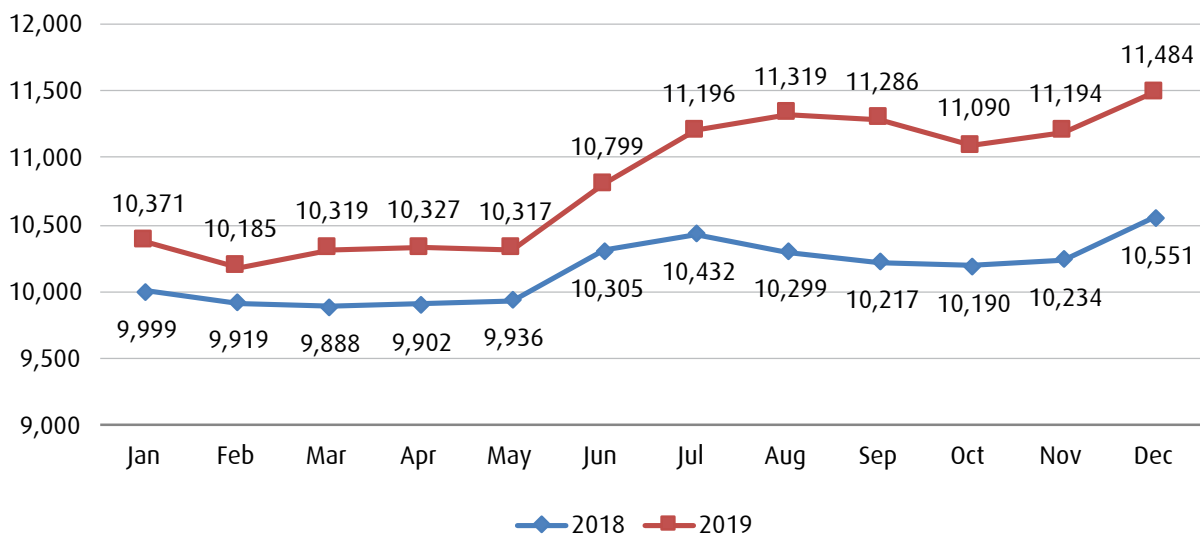
The availability medical staff in functional public hospitals is analyzed by category [i.e., medical doctors¹, nurses, and midwives] and affiliation [MoH vs. MoHE hospitals], as follow:

i. Trend analysis of medical doctors [a total of general practitioner, specialists, emergency doctors, resident doctors, dentists]:

The number of medical doctors in public hospital has slightly increased by 11% in December 2019 (11,484 compared to January 2019 (10,371).

Figure [21] shows the trend analysis of reported medical doctors during 2018 and 2019, in functional public hospitals.

Figure 21: Trend analysis of number of doctors (a total of general practitioner, specialists, emergency physicians, resident doctors, and dentists) in public hospitals during 2018 and 2019

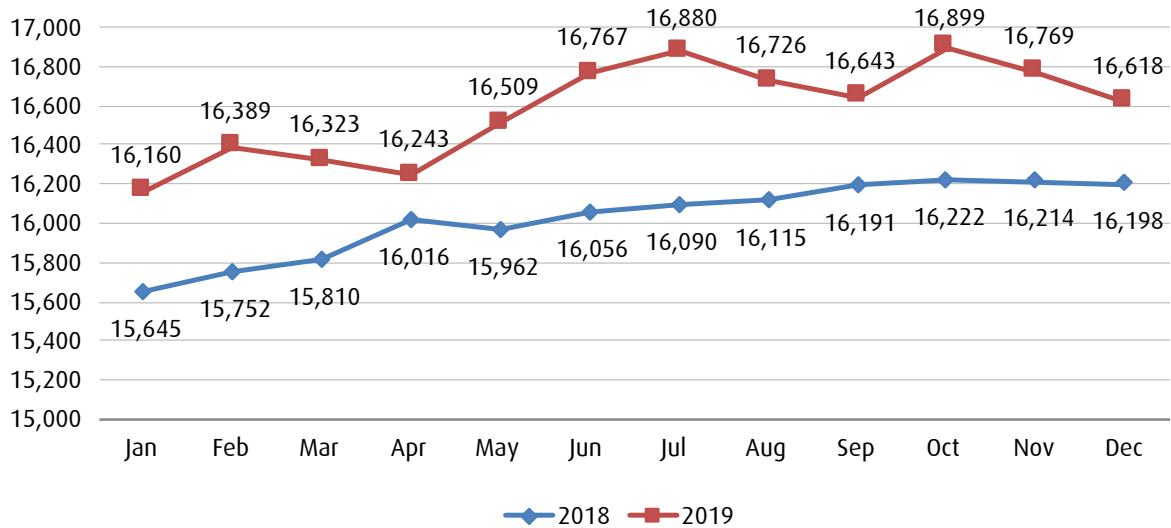


ii. Trend analysis of nurses:

The number of nurses in public hospital has slightly increased by 3% in December 2019 (16,618), compared to January 2019 (16,160).

Figure [22] shows trend analysis for the reported number of nurses during 2018 and 2019.

Figure 22: Trend analysis of number of nurses in public hospitals during 2018 and 2019

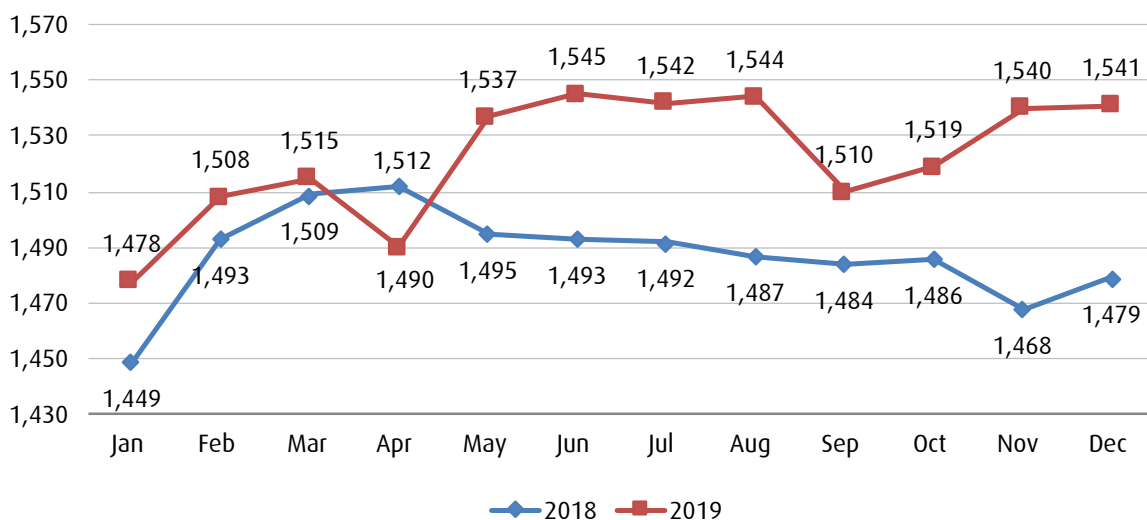


iii. Trend analysis of midwives:

The number of midwives in public hospital has slightly increased by 4% in December 2019 (1,541), compared to January 2019 (1,478).

Figure [23] shows trend analysis for the reported number of midwives during 2018 and 2019.

Figure 23: Trend analysis of number of midwives in public hospitals during 2018 and 2019

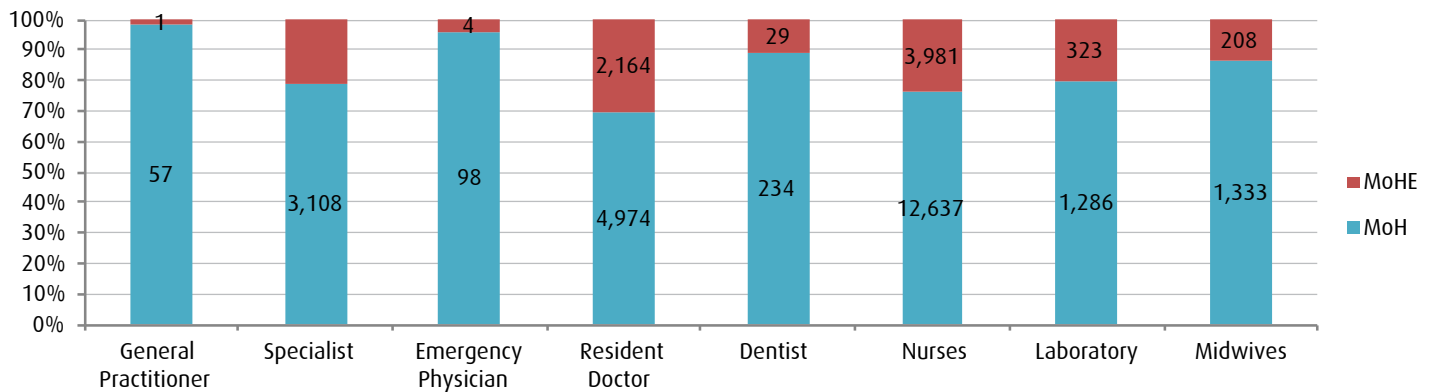


5.2 Availability of medical doctors by affiliation (MoH vs. MoHE hospitals)

Analysis of proportions of medical doctors [general practitioner, specialists, emergency physician, resident doctors, dentists] working at MoHE hospitals versus MoH hospitals in December 2019 has shown that 26% (3,013) of medical doctors (general practitioner, specialists, emergency physician, resident doctors, dentists) work in MoHE, while 74% (8,471) are in MoH hospitals.

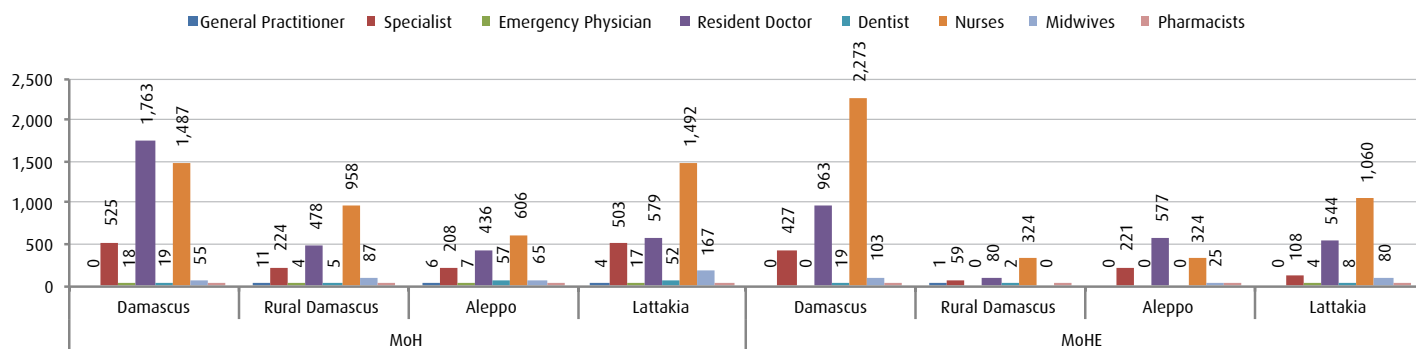
2% out of total general practitioner (58) work in public hospitals are in MoHE hospitals; 21% out of total specialists (3,923) work in public hospitals are in MoHE hospitals; 4% out of total emergency physician (102) work in public hospitals are in MoHE hospitals; 30% out of total resident doctors (7,138) are in MoHE hospitals; 11% out of total dentist (236) work in public hospitals are in MoHE hospitals and 24% out of total the nurses & midwives (16,618) are in MoHE hospitals. Details on proportions and numbers of key staff work in MoH vs. MoHE hospitals, by end of December 2019, are presented in [Figure 24].

Figure 24: Proportions and numbers of key staff work in MoH vs. MoHE hospitals, December 2019



However, MoHE hospitals are located in four governorates (Damascus, Rural Damascus, Aleppo, and Lattakia), they serve the whole country. A comparison between the total available medical-related staff in MoH vs. MoHE hospitals is shown in [Figure 25].

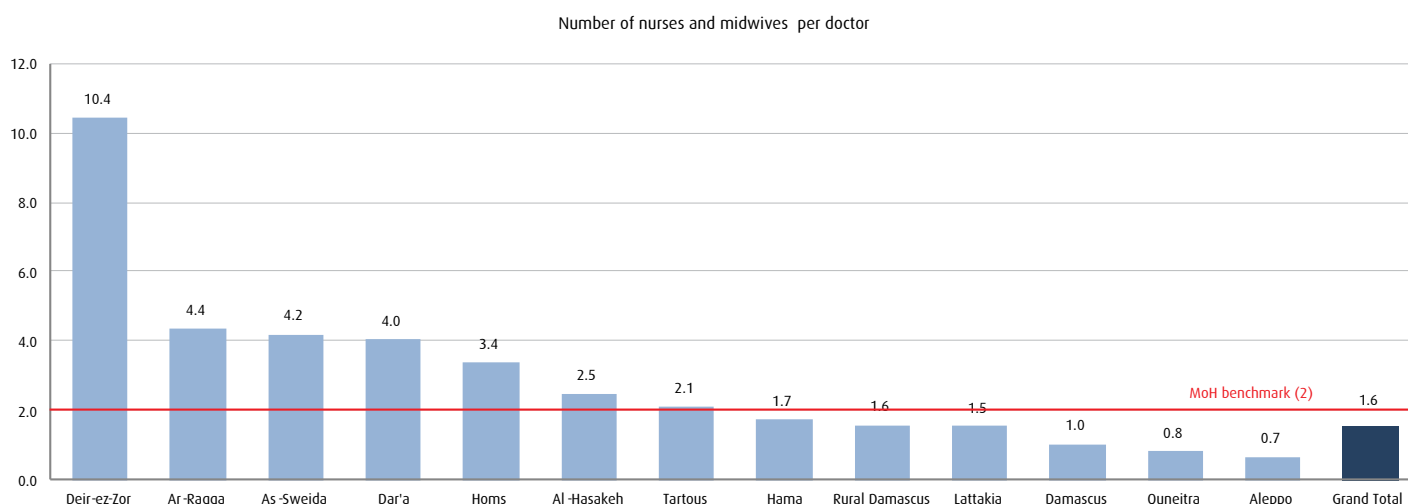
Figure 25: Comparison of the medical staff of MoH vs. MoHE hospitals, December 2019



The follow figure shows the number of nurses and midwives per doctor, given that the benchmark is at least 2 nurses and midwives for each doctor (MoH, 2011).

The national levels in addition to six governorates (Hama, Rural Damascus, Lattakia, Damascus, Quneitra, and Aleppo) are below or equal benchmark in [Figure 26].

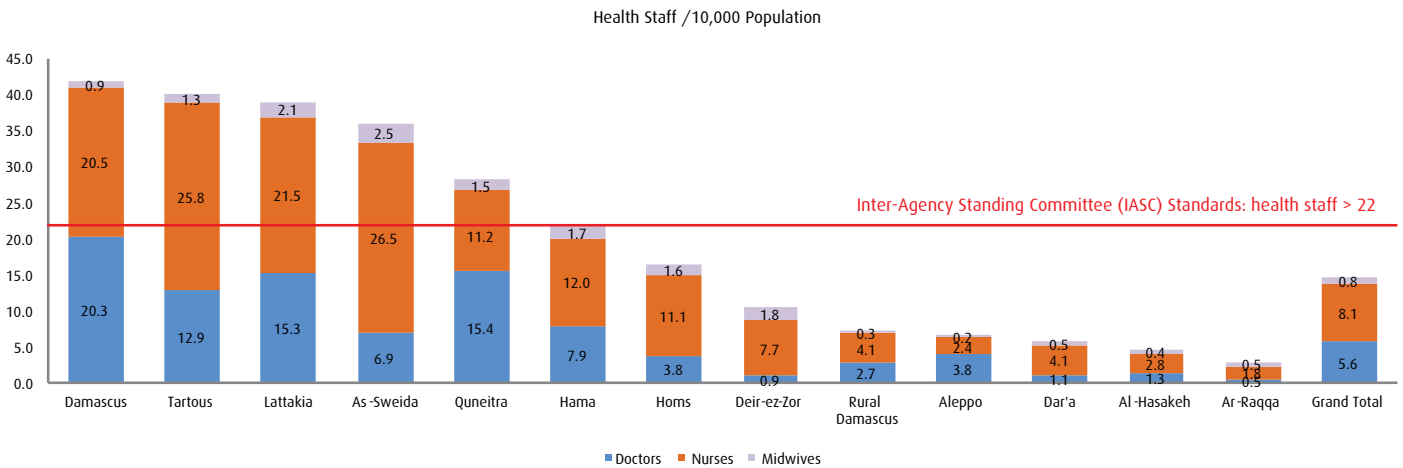
Figure 26: Number of nurses and midwives per doctor in public hospitals, December 2019



The follow figure shows the number of health staff (doctors, nurses and midwives) per 10,000 population, given that the benchmark is greater than 22 health staff per 10,000 population (Inter-Agency Standing Committee (IASC) Standards).

The national levels in addition to eight governorates (Homs, Deir-ez-Zor, Rural Damascus, Aleppo, Dar'a, Al-Hasakeh, and Ar-Raqqa) are below or equal benchmark in [Figure 27].

Figure 27: number of health staff (doctors, nurses and midwives) per 10,000 population in public hospitals, December 2019



5.3 Availability of medical doctors by gender (MoH vs. MoHE hospitals)

By analyzing the proportion of male to female doctors (a total of: general practitioner, specialists, emergency physician, resident doctors, dentists), lowest proportions are seen in Ar-Raqqa governorate (24%). [Figure 28].

Figure 28: Proportion of Doctors (a total of Specialists, Emergency Physicians, Resident Doctors, Dentists), by gender, per governorate, December 2019

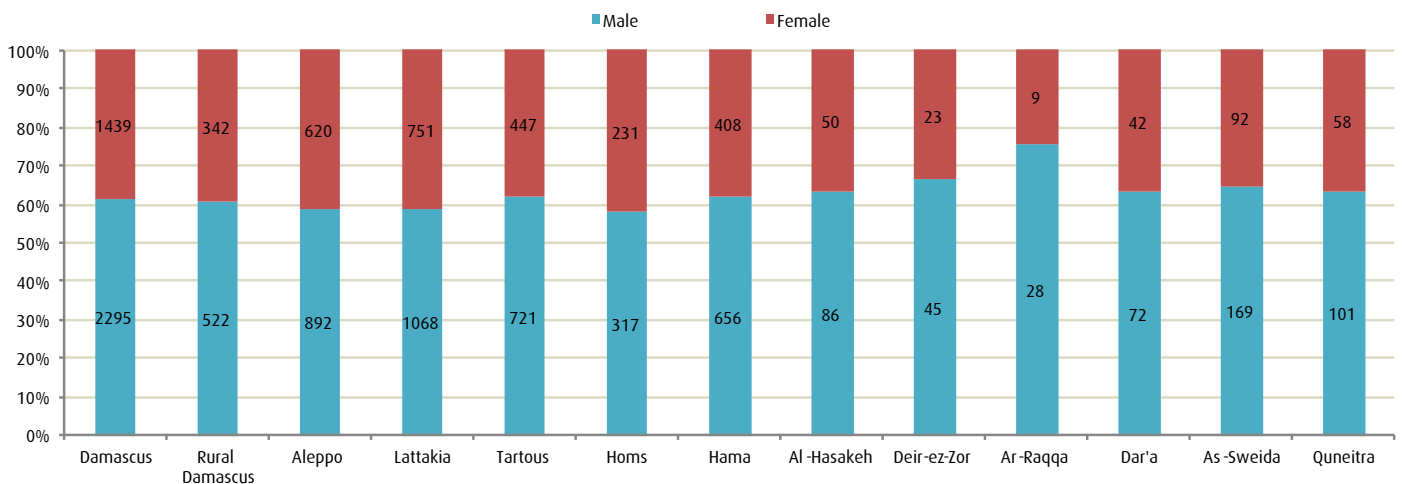
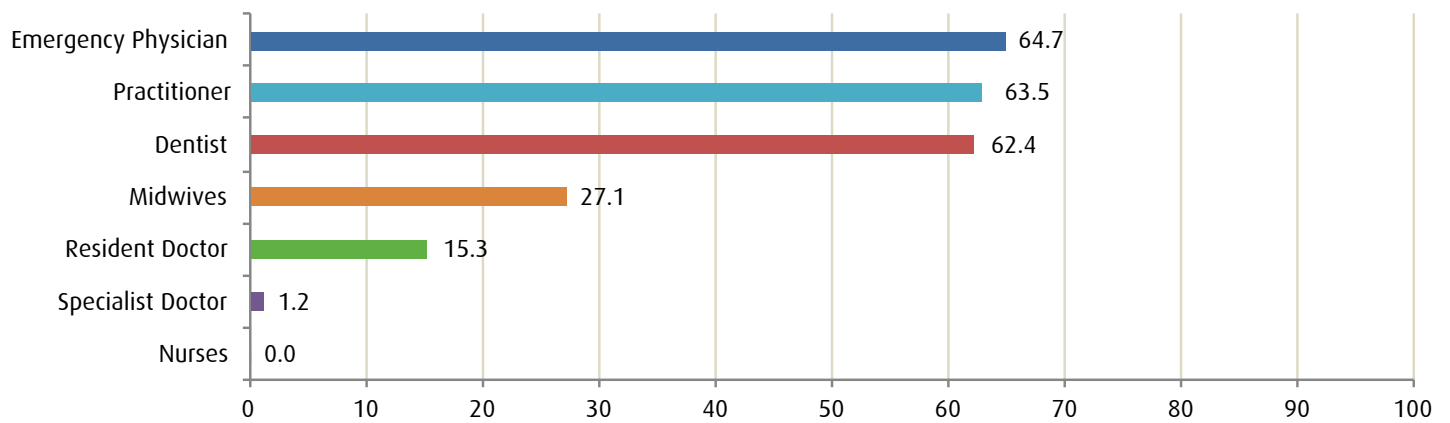


Figure 29: Percentage of functioning public hospitals without medical staff (gaps), December 2019

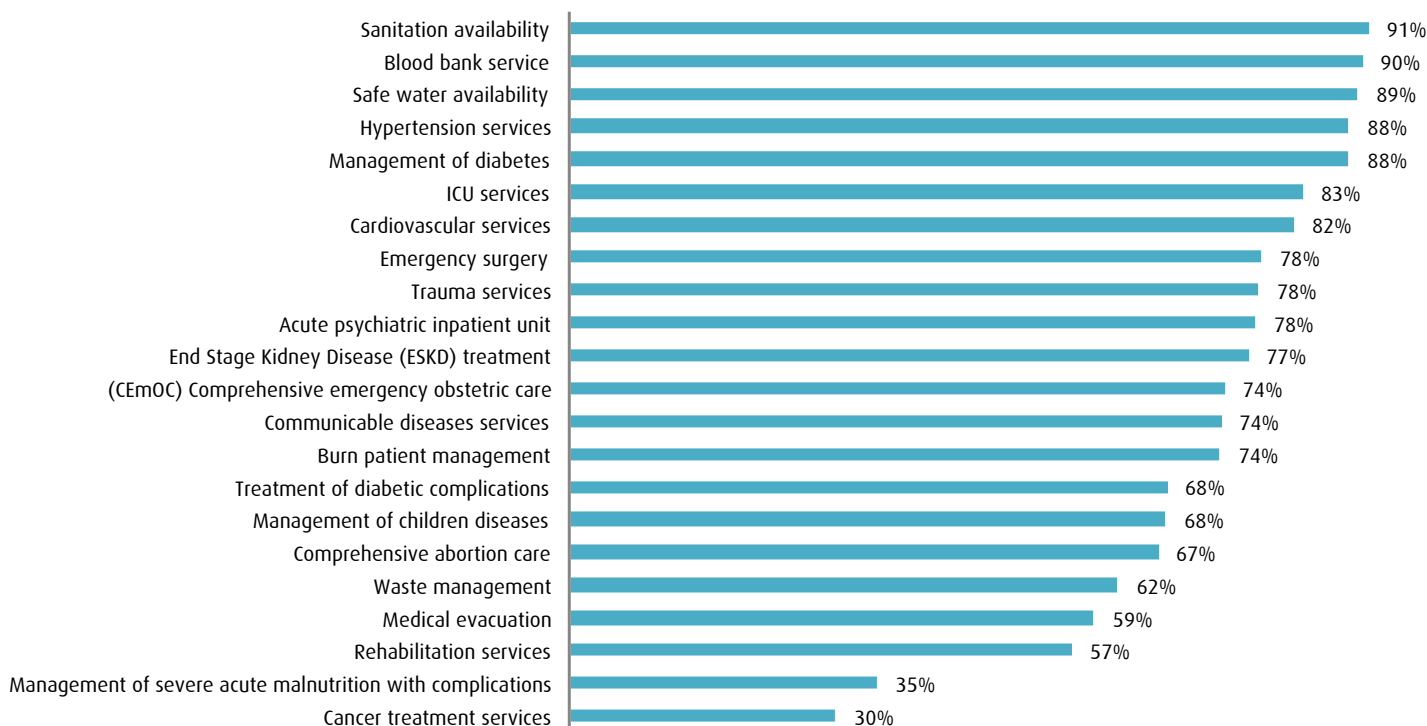


6. Availability and utilization of the health services

The availability of core healthcare services is monitored through HeRAMS at hospital's level, considering a standard list of health services (including: General Clinical Services, Surgical and Trauma care, Child Health, Nutrition, Maternal & Newborn Health, Communicable Diseases, Non-communicable Diseases, and Mental Health).

Analysis of availability of health services has been conducted across all functional public hospitals [MoH & MoHE]: (85/113). As a result of disrupted healthcare delivery and non-functionality of hospitals, limited provision of health services was observed across governorates, even within functional hospitals [Figure 30].

Figure 30: Availability of health services in the functional public hospitals, December 2019



**Detailed information on availability of services per governorate is available in the HeRAMS database.

The workload and utilization of the health services were analyzed in terms of the total estimated serviced people in all functional public hospitals during January and December 2019 per governorate [Figure 31]. In 2019, the total estimated caseload in functional public hospitals is 7,566,249.

Figure 31: Estimated caseload of functional public hospitals (outpatient consultations and emergency cases), January to December 2019

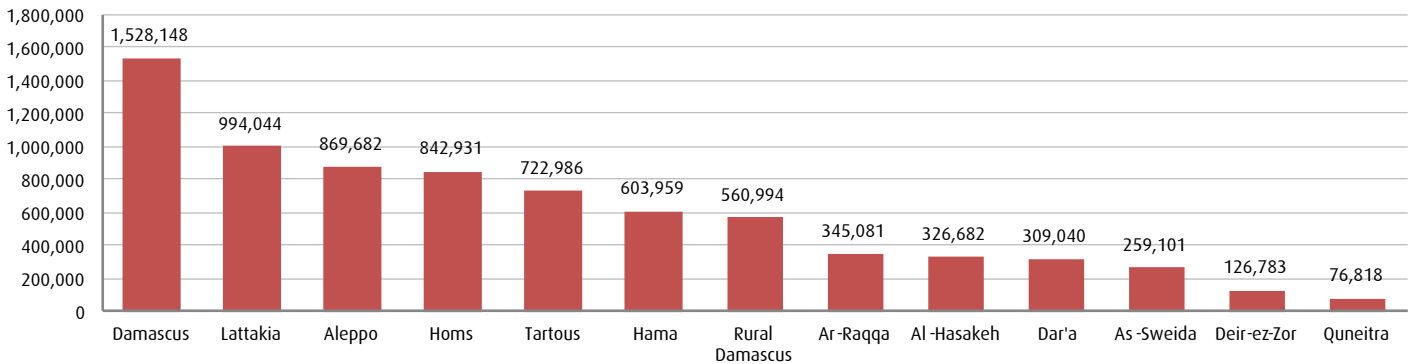
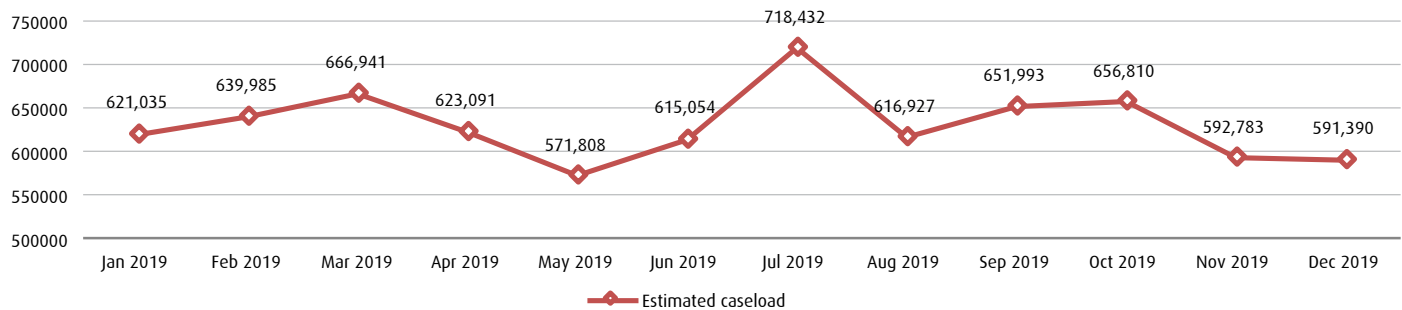


Figure 32: Trend analysis of estimated caseload in public hospitals, January to December 2019



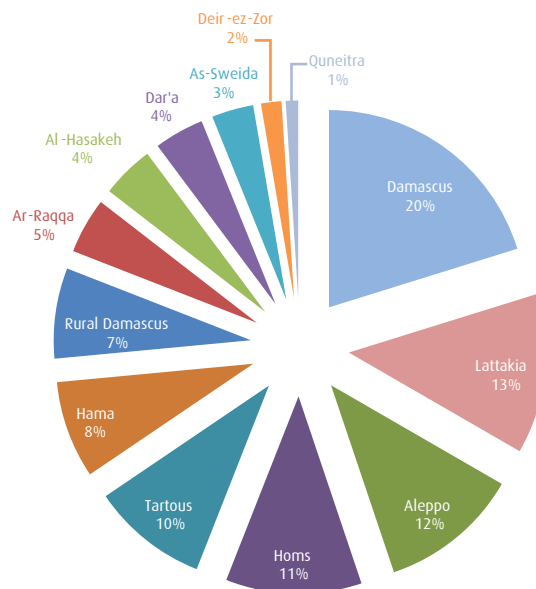
Most of healthcare services had a remarkable drop in June; due to the limited medical visits in Ramadan (fasting month).

The proportion of workload of functional hospitals per governorate is provided on Figure 31.

Detailed analysis on utilization of the core health services is provided on the following sub-sections, including:

1. General Clinical Services (Outpatient, Inpatient, Laboratory, Blood bank services, Imaging services)
2. Surgical and Trauma care
3. Maternal health services [normal deliveries, caesarean sections, and CEmOC]
4. Nutrition
5. Child Health
6. Communicable diseases
7. Non-communicable diseases
8. Mental Health

Figure 33: Proportions of workload during 2019, per governorate



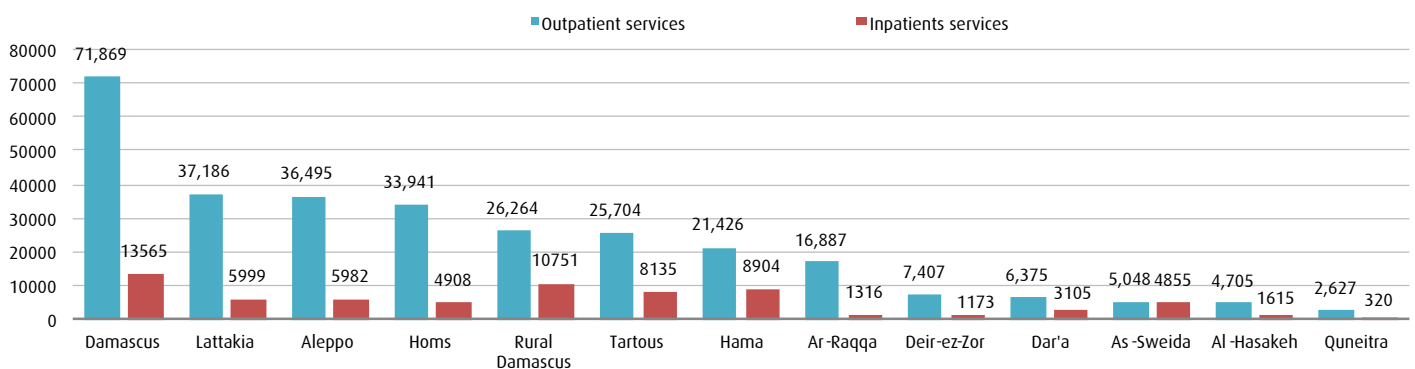
6.1 General clinical services

The following sections provide analysis on the utilization of health services in functional public hospitals at governorate level.

i. Outpatient and inpatient

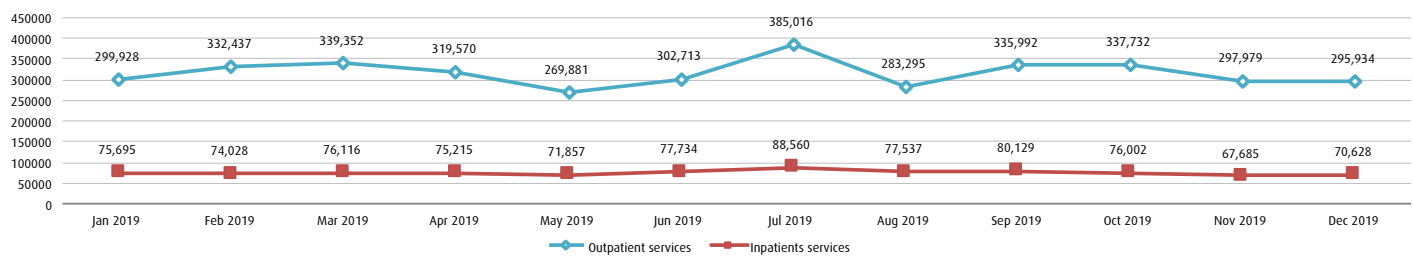
The number of outpatients to inpatients was assessed at a hospital level, and the total numbers reported in December 2019 were summarized and analyzed at governorate level [Figure 34].

Figure 34: The number of Outpatient and Inpatient in public hospitals, December 2019



Trend analysis of total reported numbers of outpatient and Inpatient from functional public hospitals [MoH & MoHE], for twelve months (January to December 2019), is presented in [Figure 35]. In 2019, the total reported outpatients are 3,799,829 while the inpatients are 911,186.

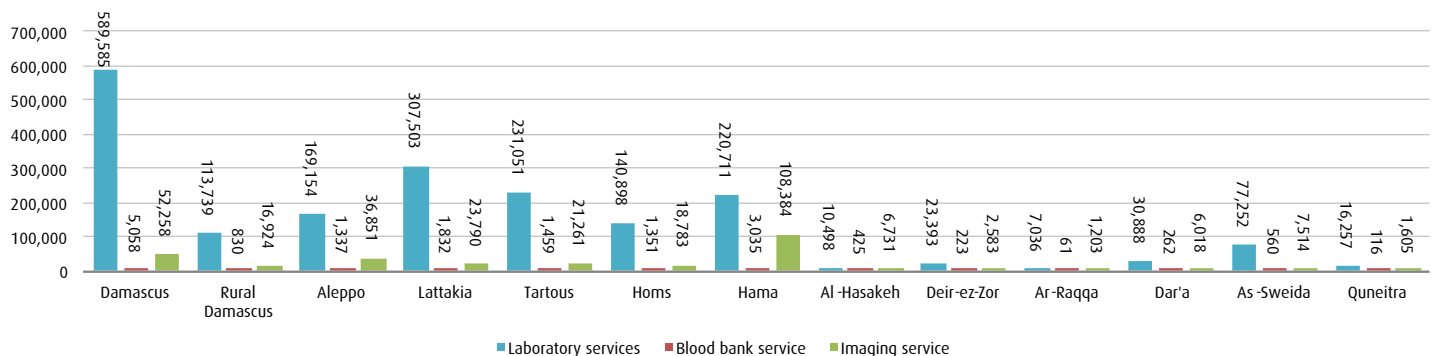
Figure 35: Trend analysis of outpatient and Inpatient in public hospitals, January to December 2019



ii. Laboratories, blood bank, and imaging services

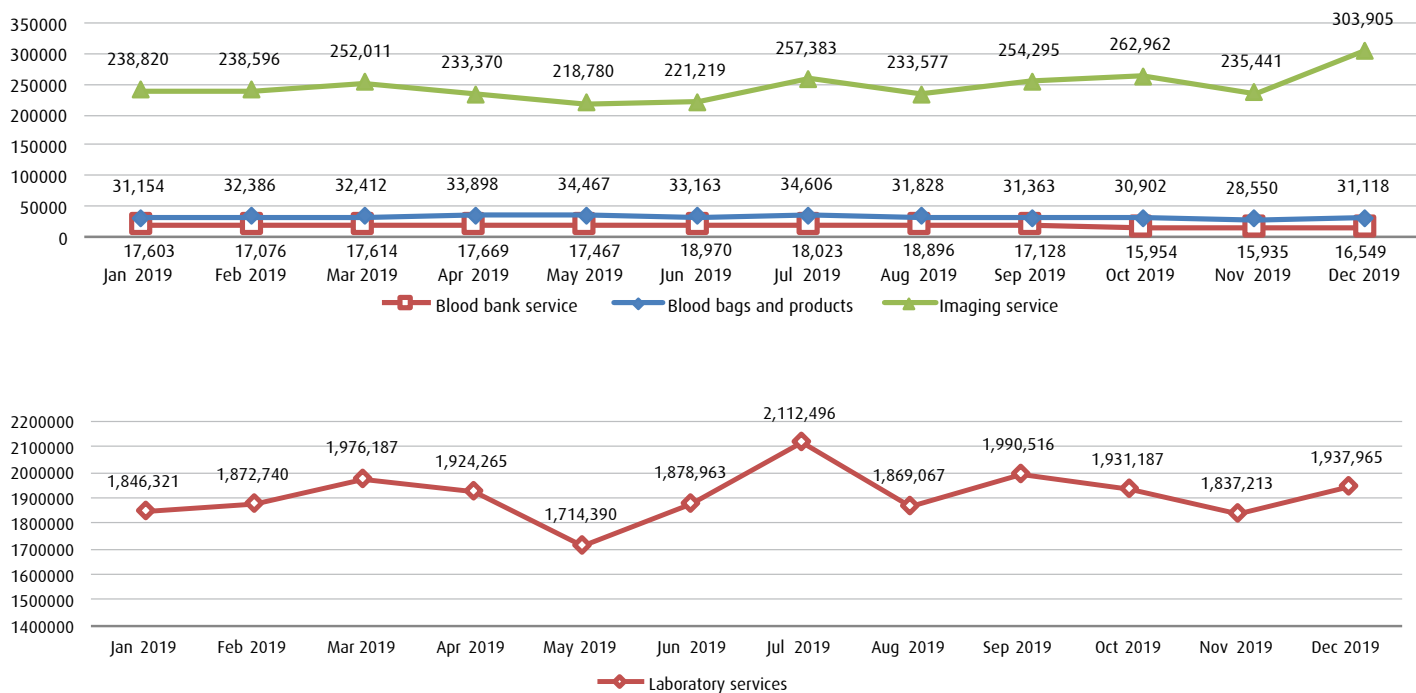
The number of patients received services in hospitals' laboratories, blood bank, and imaging departments was assessed at a hospital level, and the total number of cases from January to December 2019 analyzed at governorate level [Figure 36].

Figure 36: The number of patients received services in laboratories, blood bank, and imaging services in public hospitals, December 2019



Trend analysis of number of patients received services in hospitals' blood banks and imaging departments, from January to December 2019, is presented in [Figure 37]. In 2019, the total reported patients received services in blood banks are 208,884 [of note: the total number of blood bags and products in 2019 are 385,847], while patients received imaging services are 2,950,359 [of note: the total performed service (X-Ray, MRI, and CT Scan pictures) in 2019 are 3,726,687].

Figure 37: Trend analysis of number of patients received services in blood banks and imaging services in public hospitals, January to December 2019



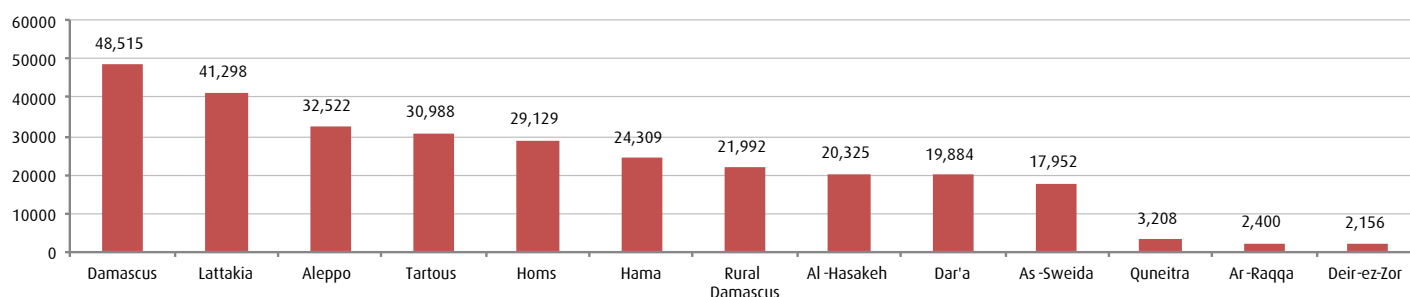
6.2 Surgical and trauma care

The surgical and trauma care services is assessed at hospitals' level. Descriptive analysis is conducted at governorate's level for the number of reported emergency cases, and surgeries (elective and emergency).

iii. Emergency cases reported in emergency departments

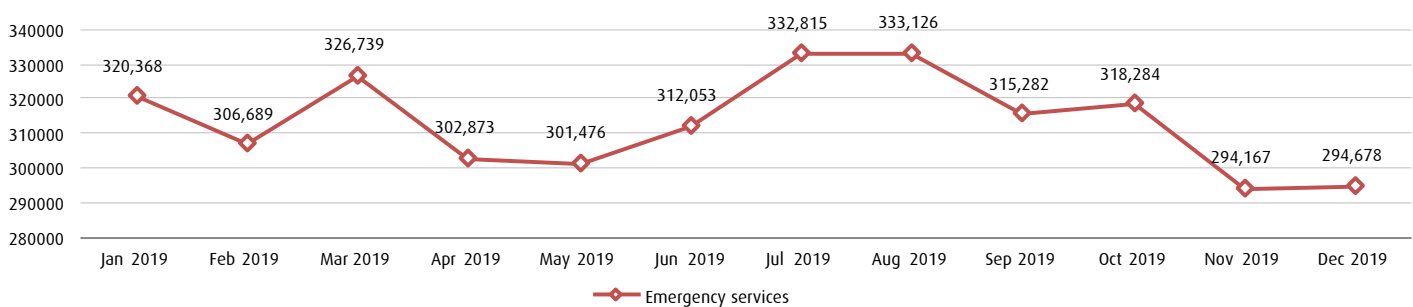
Figure 38 presents the total number of cases in emergency departments, reported during December 2019 from functional public hospitals at governorate level.

Figure 38: The number of reported cases in emergency department in public hospitals, December 2019



Trend analysis of total number of cases in emergency departments in functional public hospitals [MoH & MoHE], for twelve months (January to December 2019), is presented in [Figure 39]. In 2019, the total number of cases in emergency departments are 3,758,550.

Figure 39: Trend analysis of number of reported cases in emergency department in public hospitals, January to December 2019



iv. Emergency and elective surgeries

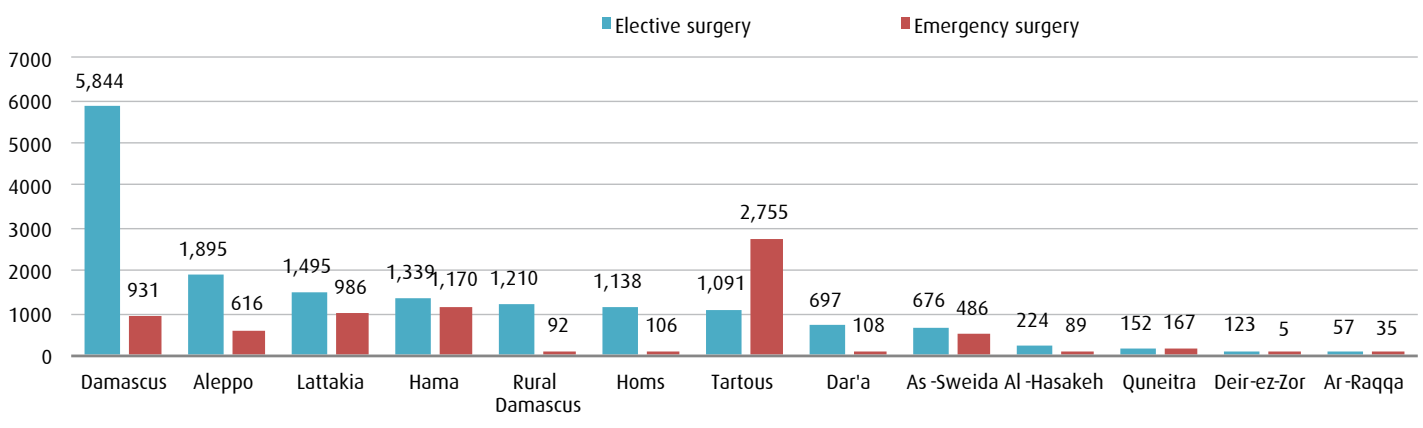
The number of emergency surgeries to elective surgeries was assessed at a hospital level, and total numbers were summarized and analyzed at governorate level [Figure 40].

During December 2019, the highest workload of elective surgeries is reported from Al-Assad university hospital in Damascus (914), followed by Damascus MoH Hospital (Al-Mojtahid: 909), Tishreen university hospital in Lattakia (739), Al-Mouwasat university hospital (694), Hama national hospital (682), Al-Bassel Heart Institute in Damascus (652), Aleppo university hospital (611), Dermatology and Venereology university hospital (602), and Ar-Razi MoH hospital in Aleppo (600).

While the highest workload of emergency surgeries is reported from Al-Bassel hospital in Tartous (2,453), followed by National hospital in Lattakia (592), Hama national hospital (543), Zaid Ash-Shariti hospital in As-Sweida (461), Al-Mouwasat MoHE hospital (353), Aleppo university hospital (309), Tishreen university hospital in Lattakia (274), Obstetrics and Gynecology Hospital in Aleppo (231), and Hama national hospital (206).

*Of note, the highest number of functional public hospitals is in Damascus, of which 14 out of 15 hospitals provide elective surgeries, except Ibn-Roshd hospital for mental health.

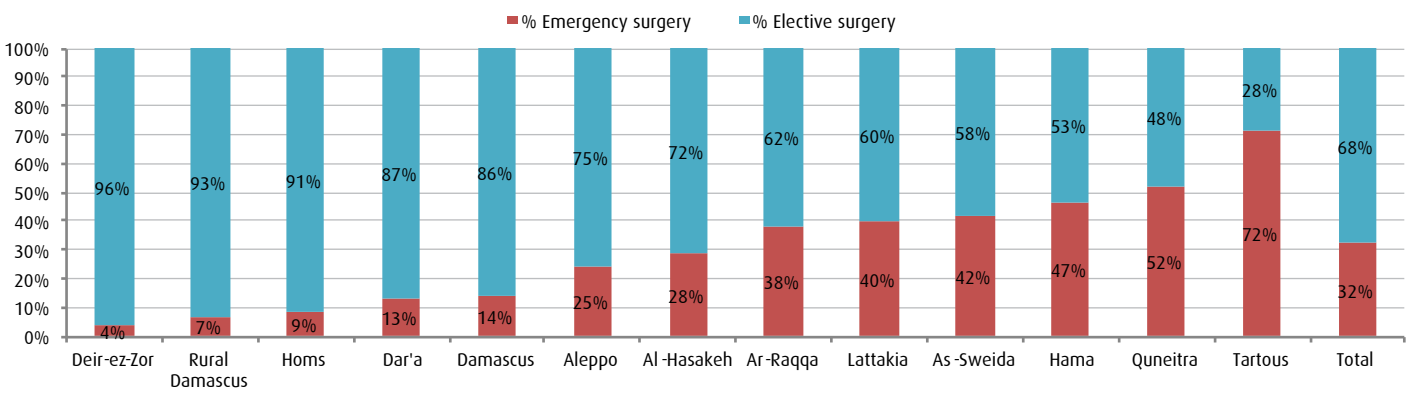
Figure 40: The number of emergency surgeries vs. elective surgeries in public hospitals, December 2019



By analyzing the percent of total emergency surgeries to elective surgeries during December 2019, the highest percent across different governorates is reported in Tartous, Quneitra, Hama, As-Sweida, and Lattakia governorates.

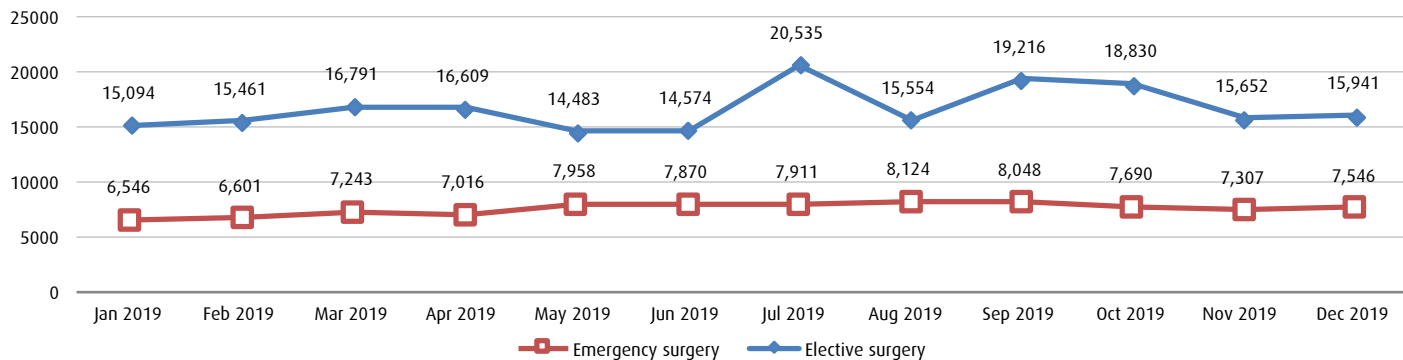
Across all reported functional public hospitals, 32% of surgeries are emergency while 68% are elective [Figure 41].

Figure 41: Percentage of total emergency surgeries to elective surgeries in public hospitals per governorate, December 2019



Trend analysis of total number of elective and emergency surgeries reported in functional public hospitals [MoH & MoHE], from January to December 2019 is presented in Figure 42. In 2019, the total reported emergency surgeries are 89,860 while the elective surgeries are 198,740.

Figure 42: Trend analysis of number of patients received emergency surgeries and elective surgeries in public hospitals, January to December 2019

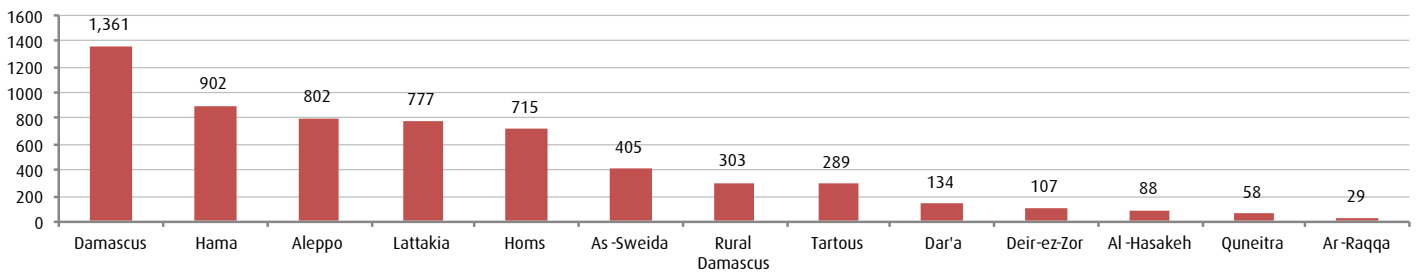


With note that increasing of the number if elective surgeries during July was due to desire of people to perform elective surgeries after the month of fasting in Ramadan (May and June).

v. ICU services

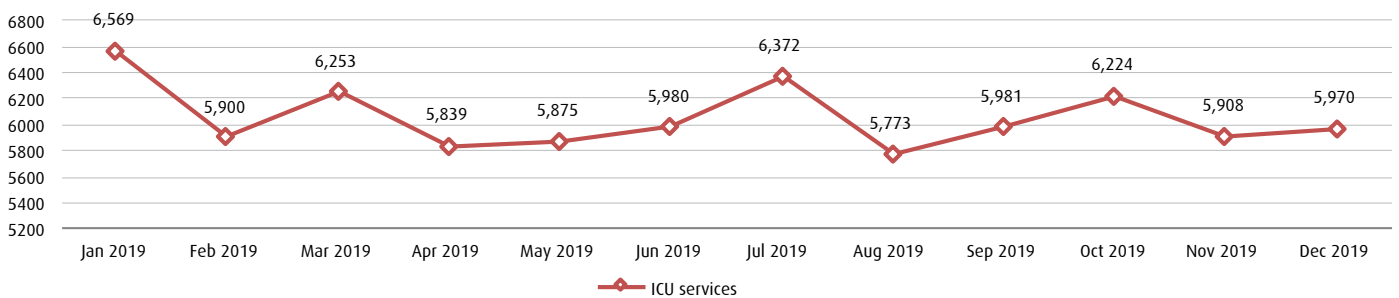
Figure 43 presents the total number of patients received ICU services reported during December 2019 from functional public hospitals at governorate level.

Figure 43: The number of patients received ICU services in public hospitals, December 2019



Trend analysis of total number of patients received ICU services reported in functional public hospitals [MoH & MoHE], from January to December 2019 is presented in Figure 44. In 2019, the total reported total number of patients received ICU services are 72,644.

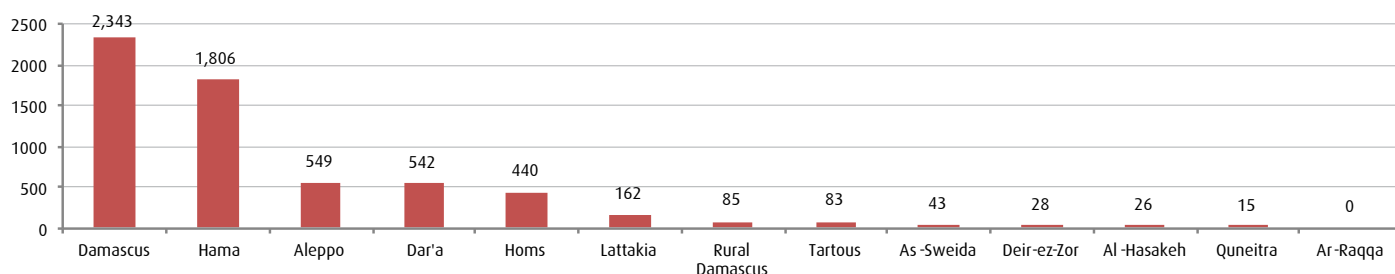
Figure 44: Trend analysis of number of patients received ICU services in public hospitals, January to December 2019



vi. Trauma services

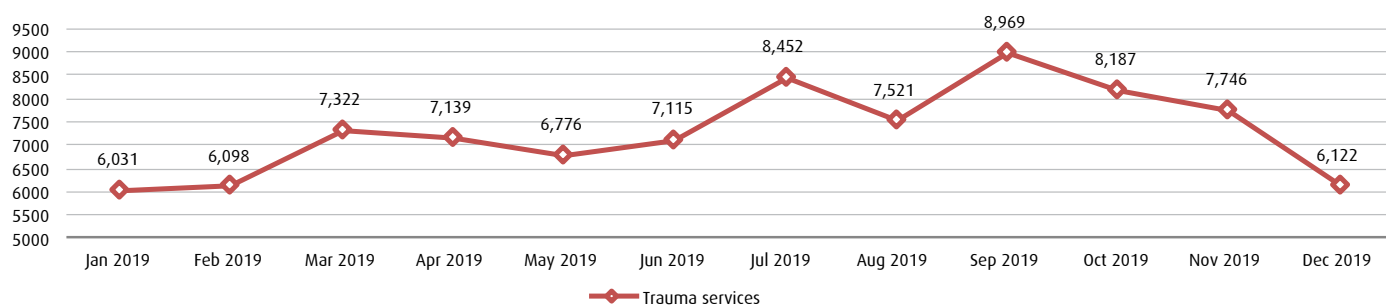
Figure 45 presents the total number of patients received Orthopaedic/trauma ward for advanced orthopaedic care reported during December 2019 from functional public hospitals at governorate level.

Figure 45: The number of patients received trauma services in public hospitals, December 2019



Trend analysis of total number of patients received trauma services reported in functional public hospitals [MoH & MoHE], from January to December 2019 is presented in Figure 46. In 2019, the total reported total number of patients received trauma services are 87,478.

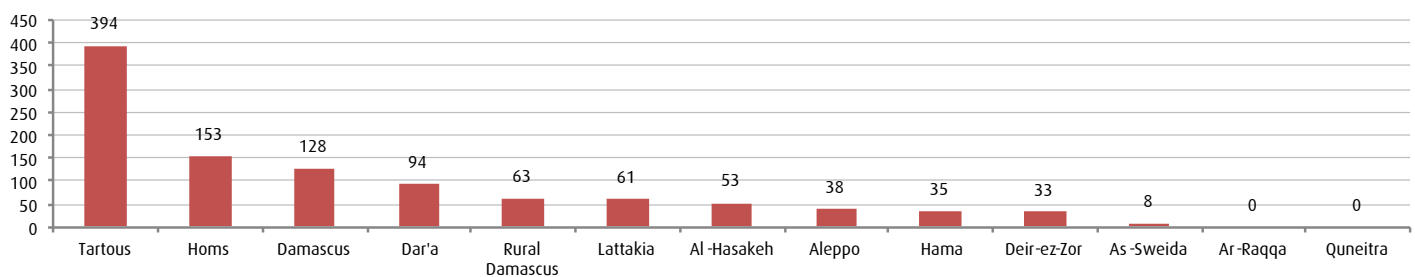
Figure 46: Trend analysis of number of patients received trauma services in public hospitals, January to December 2019



vii. Burn patient management

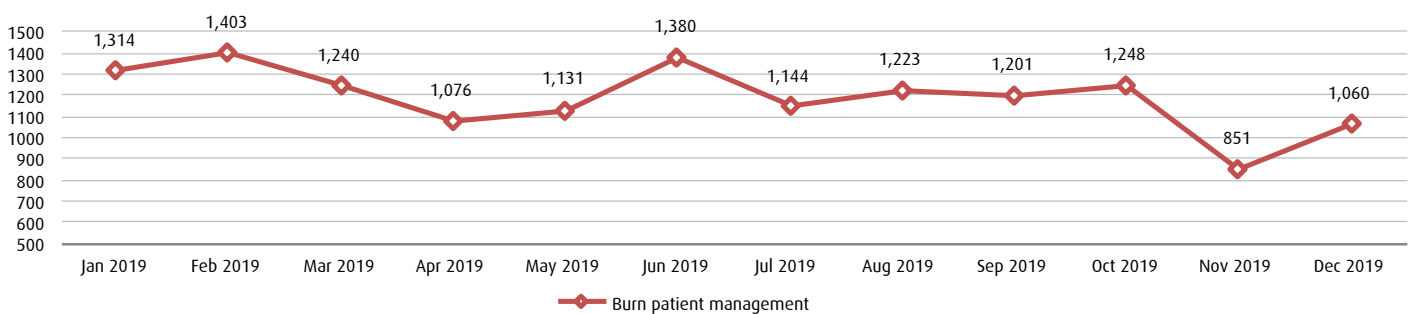
Figure 47 presents the total number of patients received burn patient management reported during December 2019 from functional public hospitals at governorate level.

Figure 47: The number of patients received burn patient management in public hospitals, December 2019



Trend analysis of total number of patients received burn patient management reported in functional public hospitals [MoH & MoHE], from January to December 2019 is presented in Figure 48. In 2019, the total reported total number of patients received burn patient management are 14,271.

Figure 48: Trend analysis of number of patients received burn patient management in public hospitals, January to December 2019



6.3 Maternal health services

Analysis of availability and utilization of maternal health services was conducted considering three scopes:

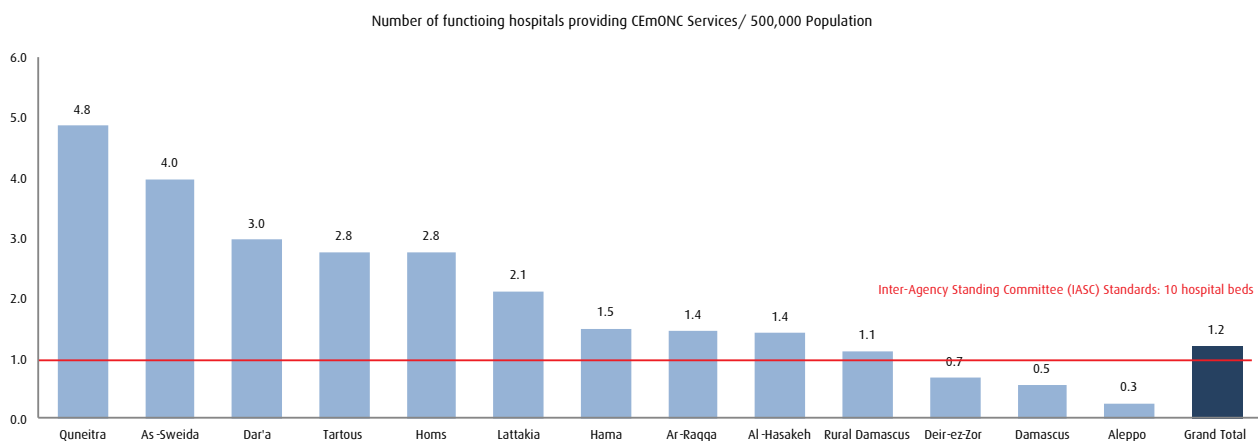
- Utilization of service (caesarean sections (CS) vs. normal deliveries); December 2019 summary figures by governorate
- Percentage of CSs to normal deliveries, of December 2019
- Trend analysis of the monthly normal deliveries vs. caesarean sections, January to December 2019

i. Number of functioning hospitals providing CEmONC services/ 500,000 Population

The follow figure shows the number of functioning hospitals providing (CEmOC) Comprehensive Emergency Obstetric Care (i.e., BEOC + caesarean section + safe blood transfusion) services/ 500,000 Population, given that the benchmark is at least 1 hospital providing CEmONC services (Inter-Agency Standing Committee (IASC) Standards).

Three governorates (Deir-ez-Zor, Damascus, and Aleppo) are below benchmark in [Figure 49].

Figure 49: Number of functioning hospitals providing CEmONC services/ 500,000 Population, December 2019

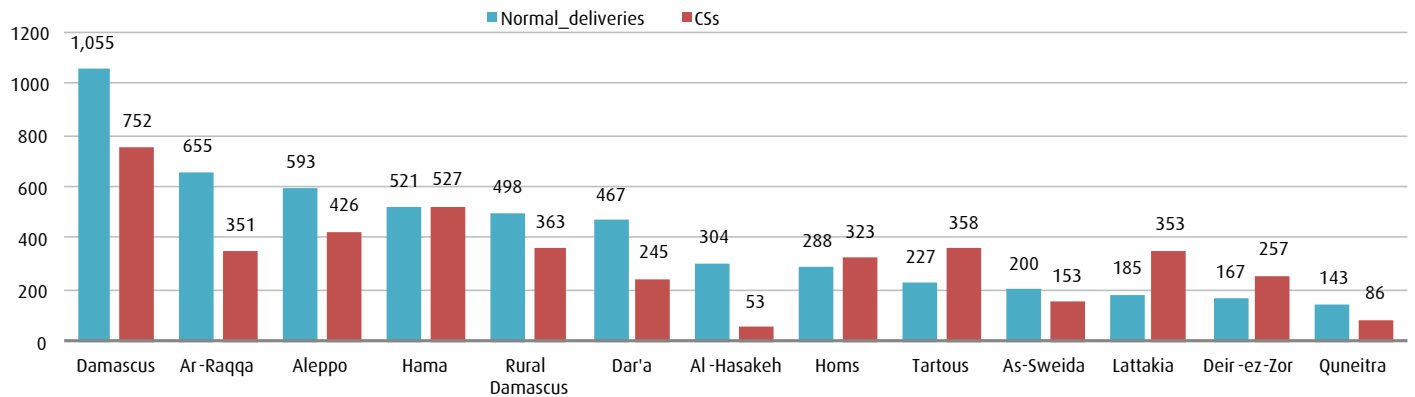


ii. Utilization of service (caesarean sections vs. normal deliveries)

The numbers of caesarean sections performed at public hospitals (in December 2019) versus the normal deliveries have been analysed at governorates' level [Figure 50].

The highest numbers are reported from Obstetrics and Gynecology MoHE hospital in Damascus [normal deliveries are 466 while CSs are 557], followed by Children and Obstetrics hospital in Deir-ez-Zor [normal deliveries are 167 while CSs are 257], Gynecology Hospital in Aleppo [normal deliveries are 341 while CSs are 257], Maternity hospital in Ar-Raqqa [normal deliveries are 380 while CSs are 230], and Az-Zahrawy hospital in Damascus [normal deliveries are 589 while CSs are 195].

Figure 50: The No. of normal deliveries and caesarean sections (CSs) performed at public hospitals, December 2019

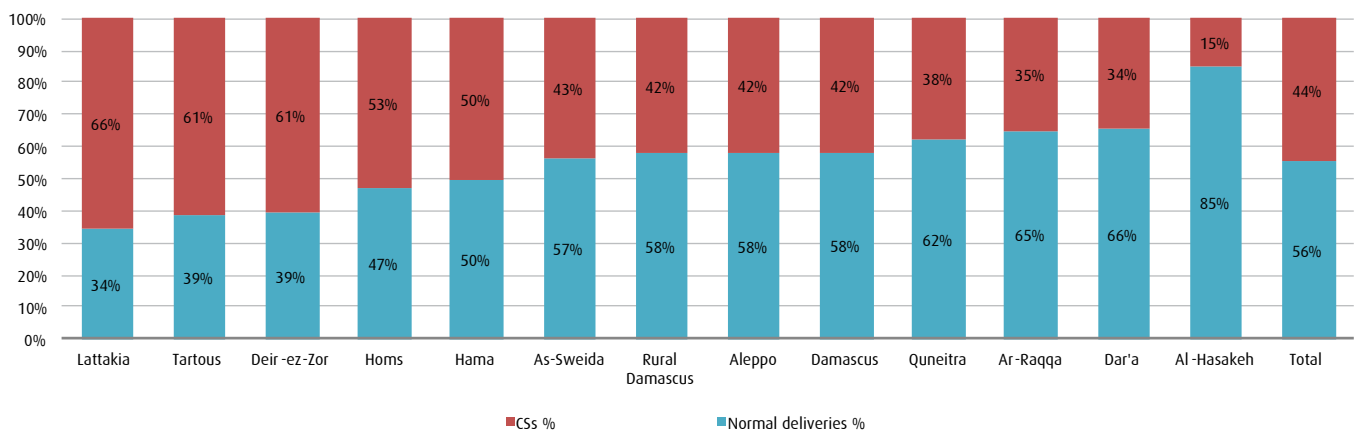


iii. Percentage of CS to normal deliveries

The highest figures of caesarian sections in December 2019 are reported in Deir-ez-Zor (288 CSs compared to 80 normal deliveries), Lattakia (470 CSs compared to 331 normal deliveries), and Tartous (347 CSs compared to 274 normal deliveries).

Across all reported functional hospitals in December 2019, 44% (4,247) of deliveries are CSs while 56% (5,303) are normal deliveries. Details on percent of CSs to normal deliveries per governorate in December 2019, is provided in [Figure 51].

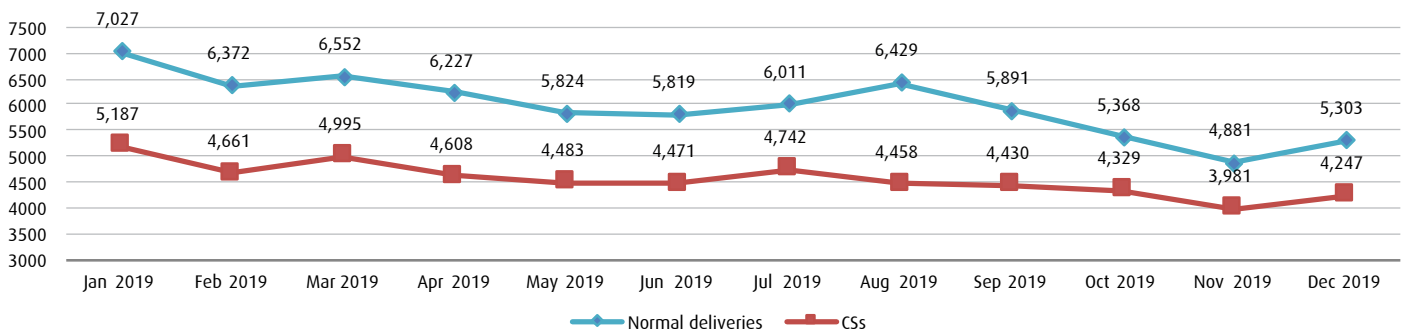
Figure 51: Percentage of caesarean sections to normal deliveries in public hospitals, December 2019



iv. Comparison of MoH and MoHE hospitals workload of normal deliveries vs. CSs:

Trend analysis of the monthly numbers of normal deliveries vs. caesarean sections reported from the MoH & MoHE hospitals, from January to December 2019 is shown in Figure 52. In 2019, the total reported normal deliveries are 71,704 while the caesarean sections are 54,592.

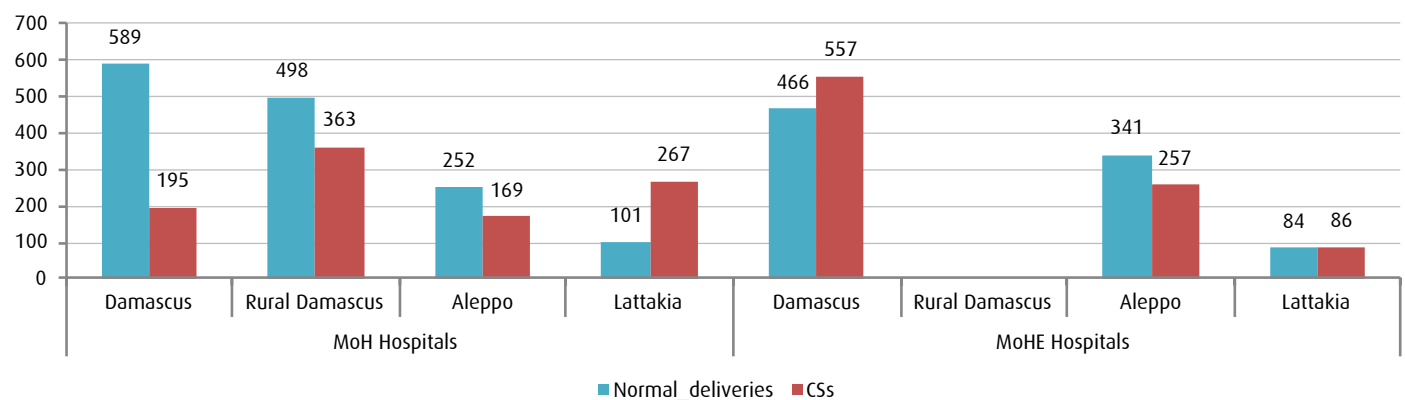
Figure 52: Trend analysis of the monthly numbers of normal deliveries vs. caesarean sections in public hospitals, January to December 2019



v. Comparison of MoH and MoHE hospitals workload of normal deliveries vs. CSs:

Comparison analysis between MoH and MoHE hospitals that provide Obstetrics & Gynecology services across four governorates is shown in [Figure 53].

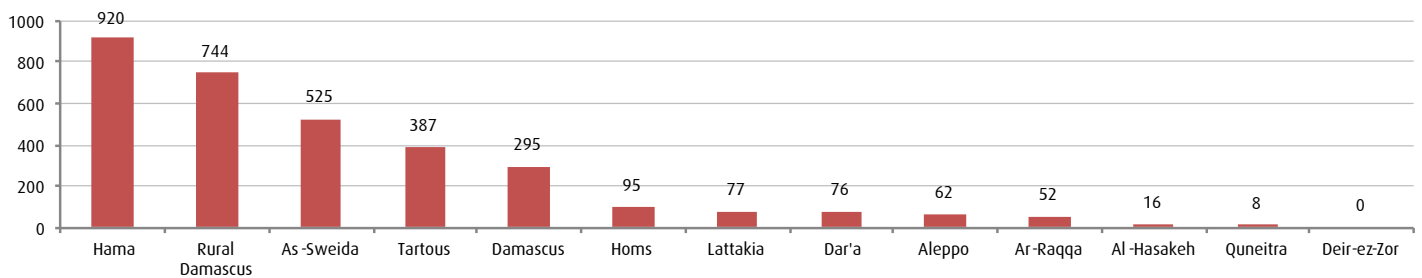
Figure 53: Comparison of MoH & MoHE hospitals workload of normal deliveries vs, CSs, December 2019



6.4 Child health

Management of severe children diseases (such as acute respiratory diseases, Meningitis, blood diseases cancer, etc...) are assessed at hospitals level. Figure 54 shows the distribution of total reported cases of management of children classified with severe or very severe diseases (parenteral fluids and drugs, oxygen) by governorate.

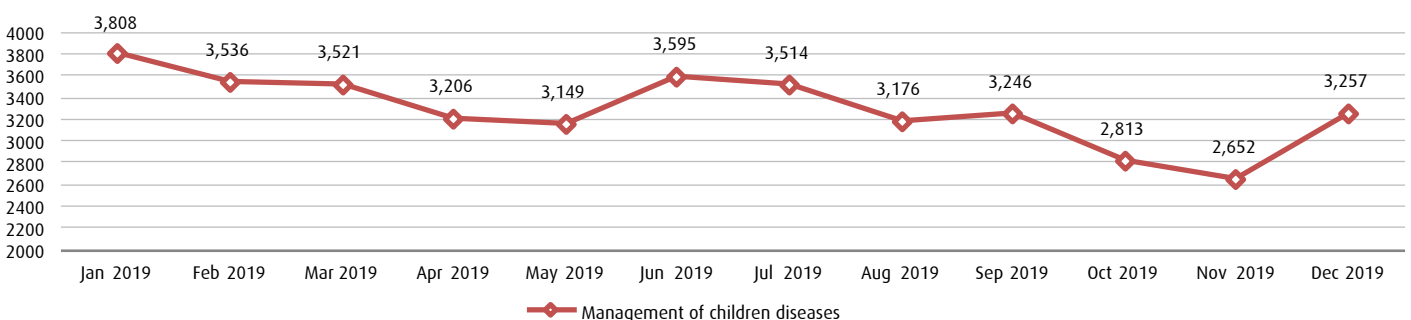
Figure 54: Number of children with severe diseases in public hospitals, December 2019



The high reported figures in Hama, Rural Damascus, As-Sweida, Tartous, and Damascus are due to the high numbers of IDPs, and also availability of MoHE referral hospitals for children in some of these areas.

Trend analysis of reported cases of severe children diseases from January to December 2019, is presented in [Figure 55]. In 2019, the total reported cases of severe children diseases are 39,473.

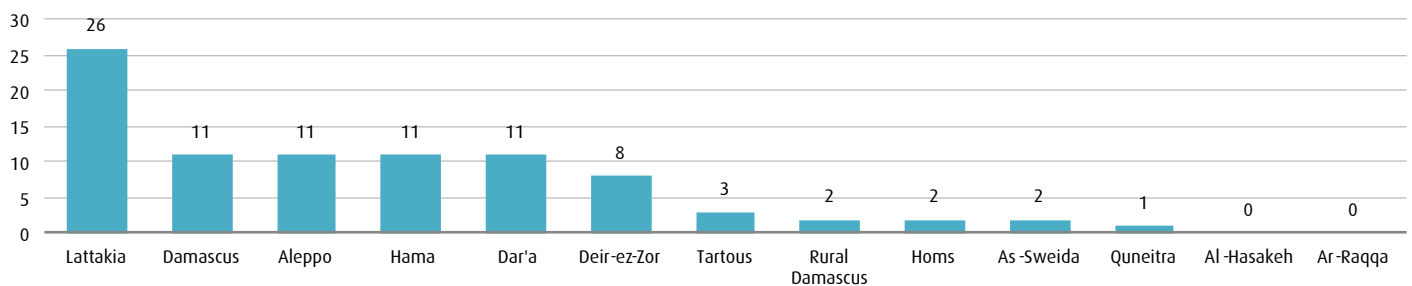
Figure 55: Trend analysis of reported cases of severe children diseases in public hospitals, January to December 2019



6.5 Nutrition

Monitoring of cases in stabilization centre for the management of severe acute malnutrition with medical complications, with availability of ready-to-use therapeutic foods and dedicated trained team of doctors, nurses, and nurse aids, 24/7 is systematically conducted at public hospitals level; Figure 56 demonstrates the number of cases reported in December 2019, at governorate level.

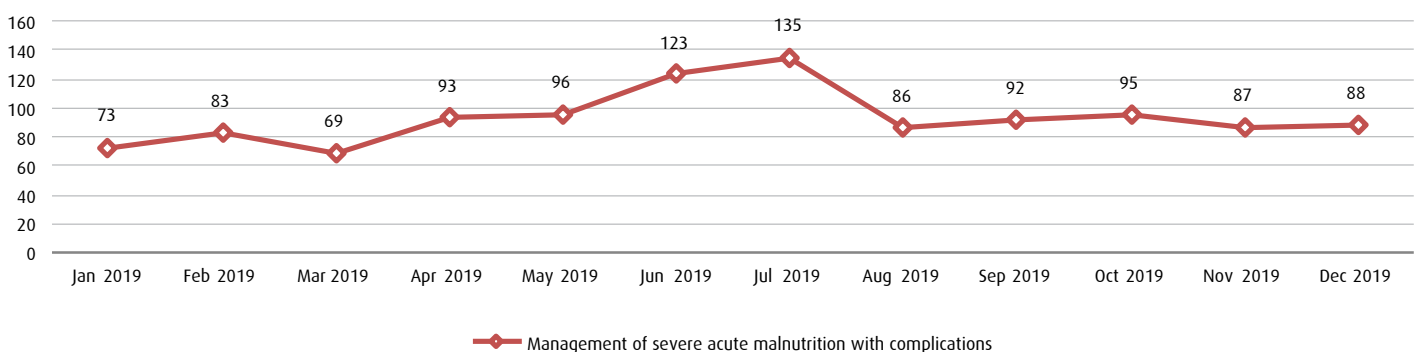
Figure 56: The number of children with severe acute malnutrition with complications in public hospitals, December 2019



The high reported figures in Lattakia, Damascus, Aleppo, Hama, Dar'a and Deir-ez-Zor, due to the high numbers of IDPs.

Trend analysis of reported cases of severe acute malnutrition from January to December 2019, is presented in [Figure 57]. In 2019, the total reported children with severe acute malnutrition are 1,120.

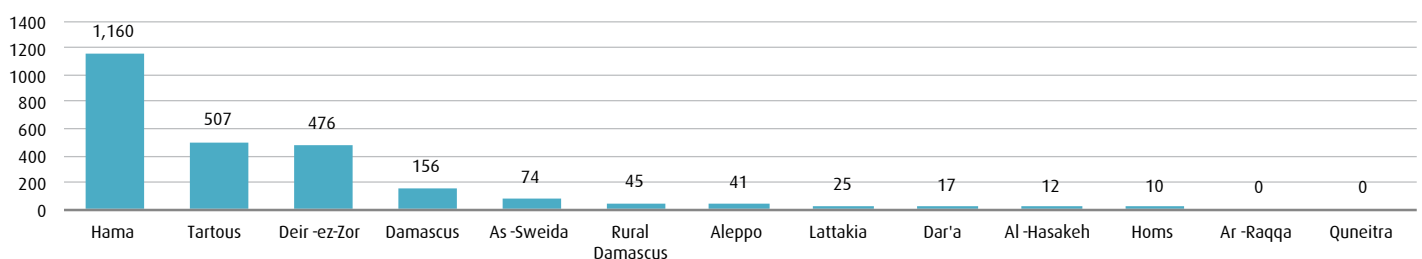
Figure 57: Trend analysis of number of children with severe acute malnutrition with complications in public hospitals, January to December 2019



6.6 Communicable diseases services

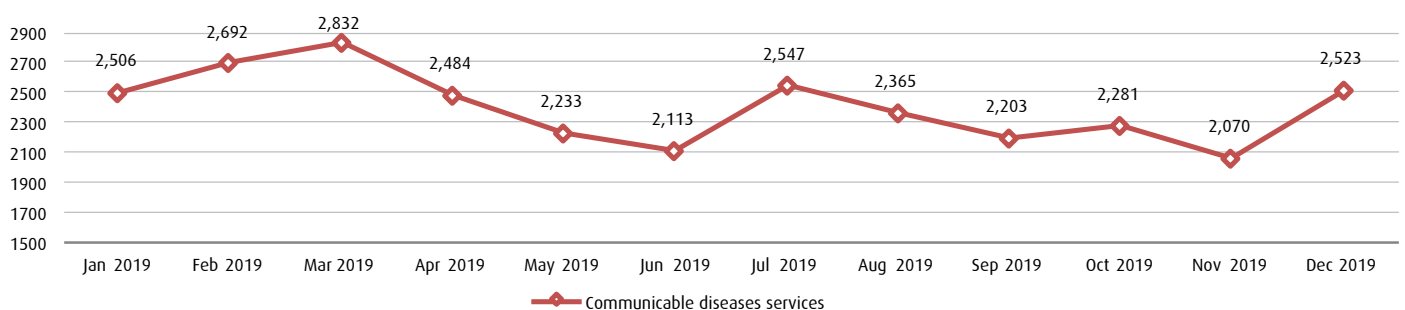
Management of severe and/or complicated communicable diseases (such as meningitis, measles, SARI, others) are assessed at hospitals level. Figure 58 shows the distribution of total reported cases of communicable diseases services by governorate.

Figure 58: The number of patients received communicable diseases in public hospitals, January to December 2018



Trend analysis of reported patients received communicable diseases from January to December 2019, is presented in [Figure 59]. In 2019, the total reported patients are 28,849.

Figure 59: Trend analysis of number of patients received communicable diseases in public hospitals, January to December 2019



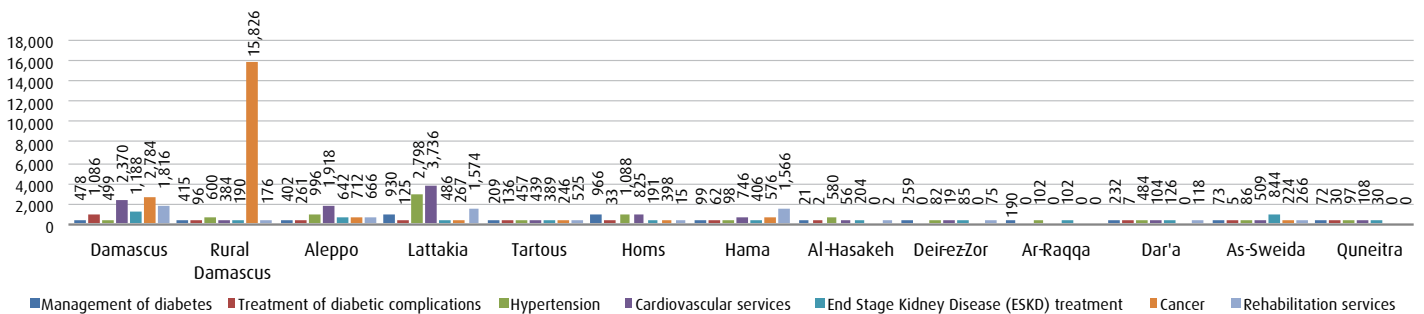
6.7 NCDs (non-communicable diseases)

NCDs were assessed through HeRAMS by checking the availability and utilization of services at hospitals level. The majority of high reported figures of NCDs (Diabetes, Treatment of diabetic complications, Hypertension, Cardiovascular, Kidney, and Cancer diseases) are from Damascus hospitals.

Among all NCDs during 2019, Cancer patients' consultations are the highest reported figures, mainly in Damascus, Rural Damascus (has one cancer specialized hospital). It worth mentioning that cancer is treated at secondary and tertiary levels only, while other NCDs (diabetes and hypertension, etc...) usually managed at primary and secondary care levels, unless patients develop complications.

Cardiovascular consultations are the second highest reported figures during 2019, mainly in Lattakia (has one cardiovascular specialized hospital), Damascus (has two cardiovascular specialized hospitals), and Aleppo (has two cardiovascular specialized hospitals, Homa, Hama, and Tartous [Figure 60].

Figure 60: The number of NCDs' consultations in public hospitals, December 2019

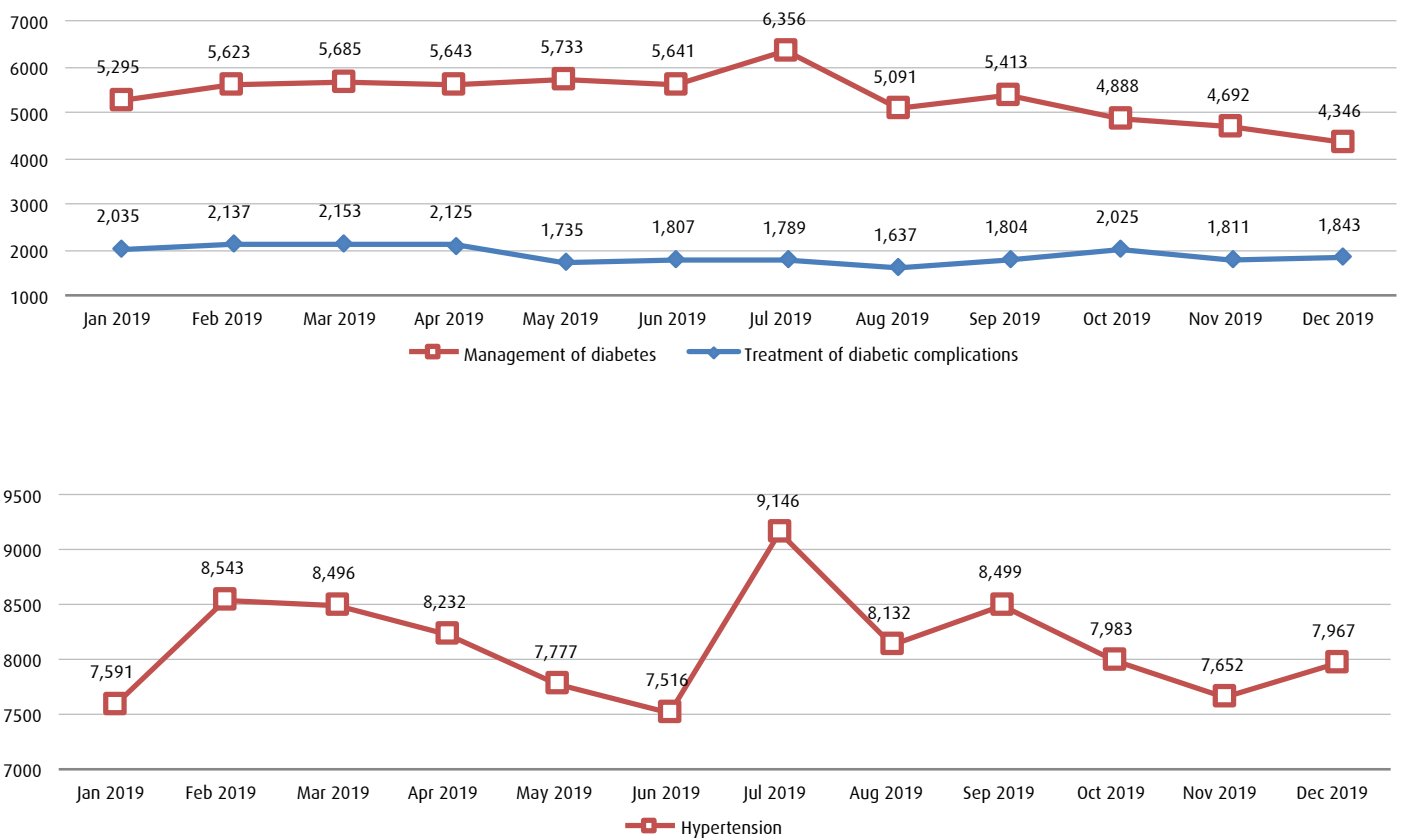


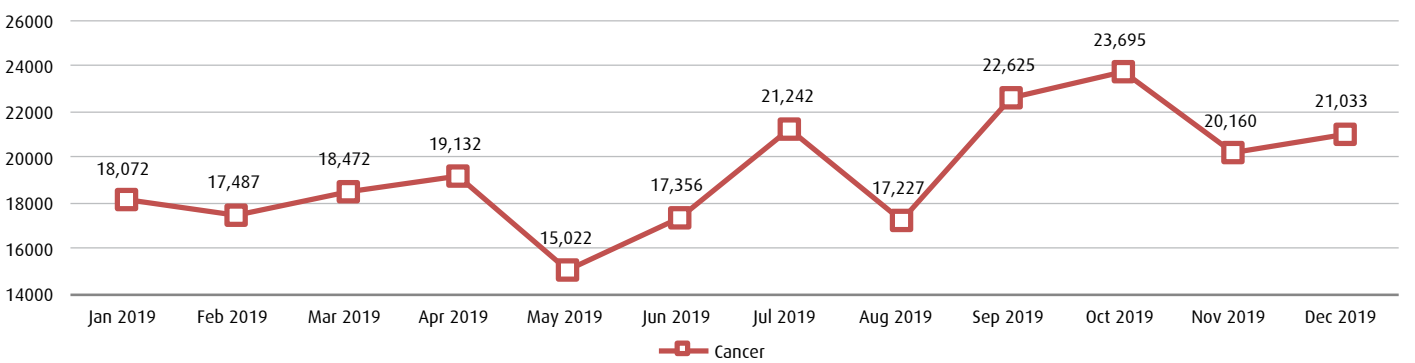
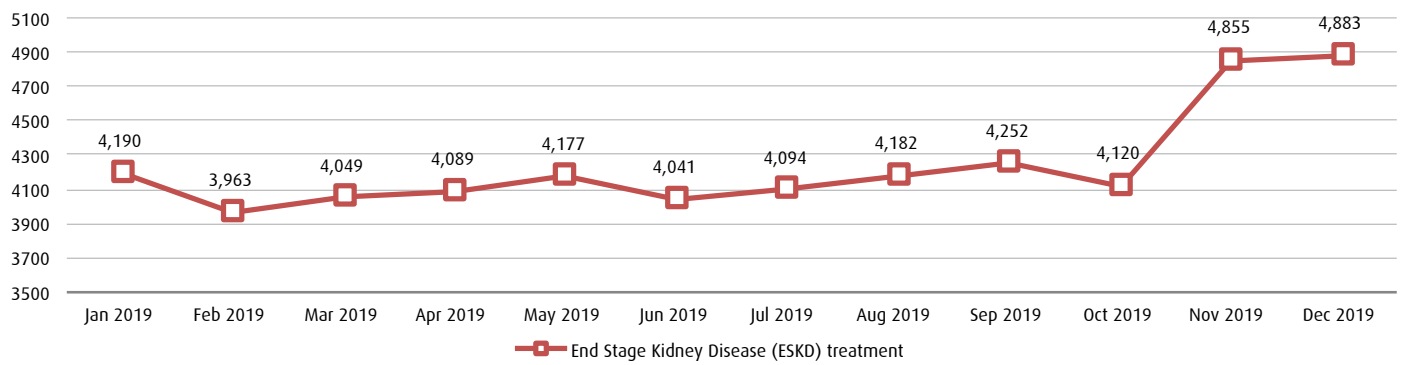
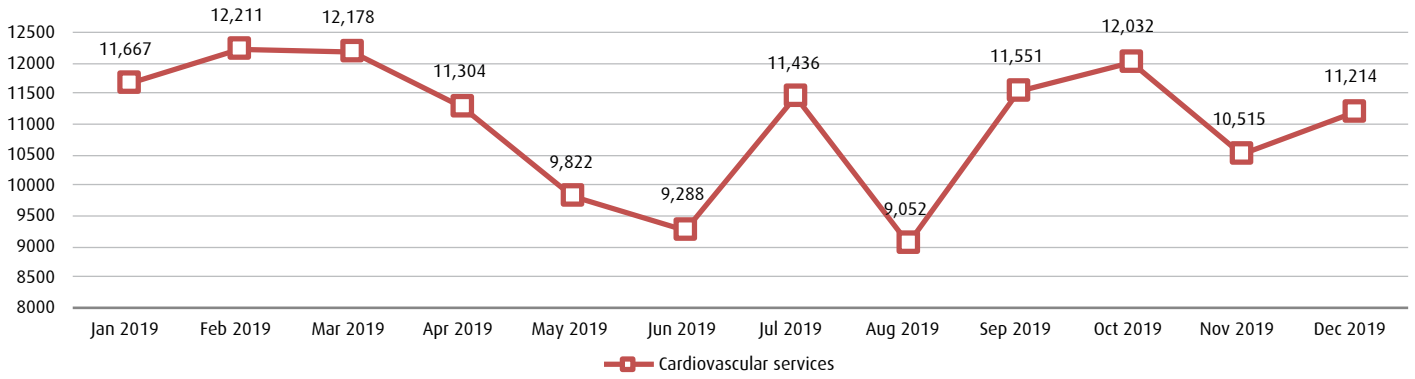
The monthly trend of reported NCDs' consultations at functional public hospitals from January to December 2019 is shown in [Figure 61].

In 2019, the total reported NCDs' consultations are as follow:

- Diabetes: 46,406
- Diabetic complications: 22,901
- Hypertension: 97,534
- Cardiovascular: 132,270
- ESKD: 50,895 [of note: the total performed ESKD Sessions in 2019: 373,311]
- Cancer: 231,523

Figure 61: Trend analysis of total monthly number of NCDs' consultations reported in public hospitals, January to December 2019

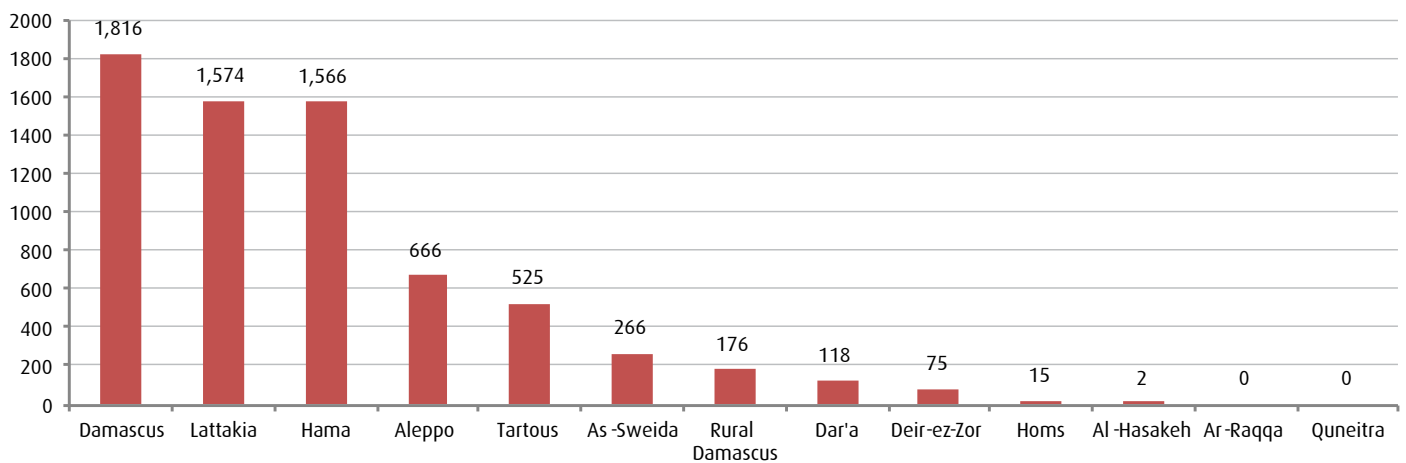




6.8 Rehabilitation services

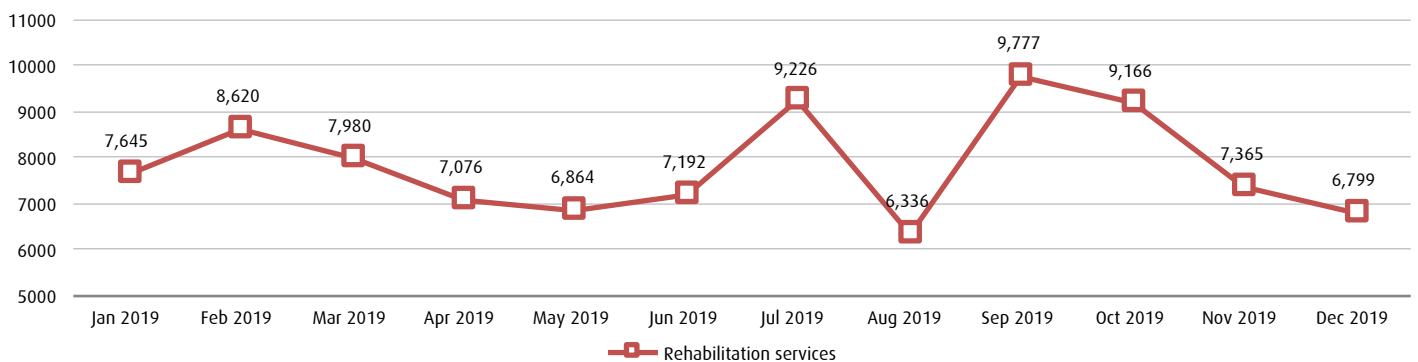
Rehabilitation services and assistive device provision, including post-operative rehabilitation for trauma-related injuries are assessed at hospitals level. Figure 62 shows the distribution of total reported cases of rehabilitation services by governorate.

Figure 62: The number of rehabilitation services in public hospitals, December 2019



Trend analysis of reported patients received rehabilitation services from January to December 2019, is presented in [Figure 63]. In 2019, the total reported patients are 94,046.

Figure 63: Trend analysis of number of rehabilitation services in public hospitals, January to December 2019

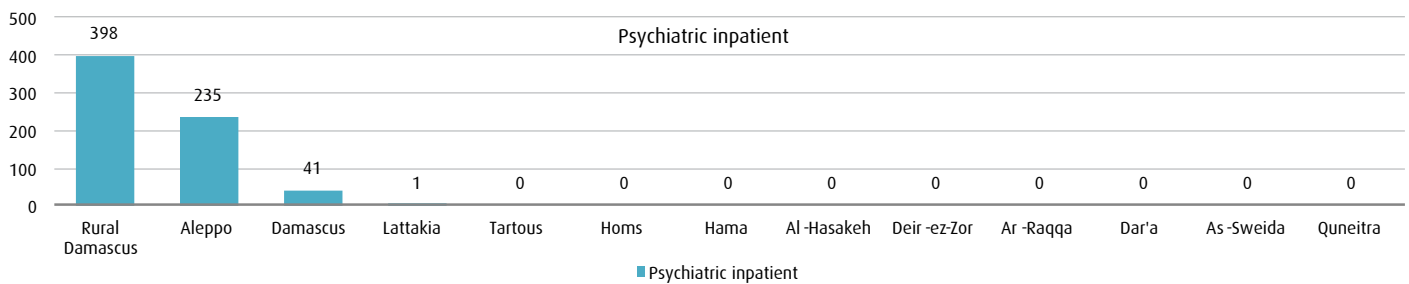


6.9 Mental health

Inpatient care for management of mental disorders by specialized health-care providers are assessed at hospitals level. Figure 64 shows the distribution of total reported cases of Psychiatric inpatient by governorate.

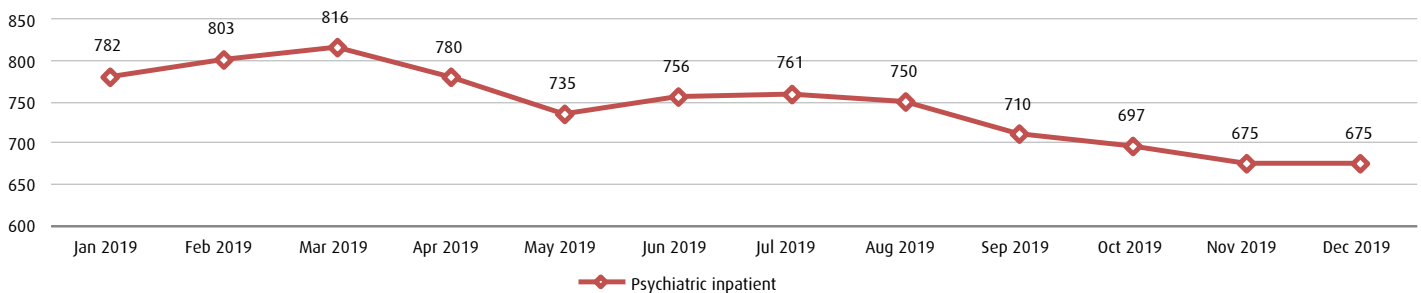
The key figures of Psychiatric inpatient during December 2019 are reported from Rural Damascus (Ibn-Sina Psychiatric MoH hospital (388 cases), followed by Aleppo (Ibn-Khaldoun MoH hospital (235 cases).

Figure 64: The number of psychiatric inpatients in public hospitals, December 2019



Trend analysis of monthly reported number of psychiatric inpatients in public hospitals [MoH & MoHE] from January to December 2018 is shown in [Figure 65]. In 2019, the total reported psychiatric inpatients cases are 8,940.

Figure 65: Trend analysis of number of psychiatric inpatient cases in public hospitals, January to December 2019



7. Availability of medical equipment

The availability of different types of essential and specialized equipment and supplies was assessed at hospital level, based on a standard checklist².

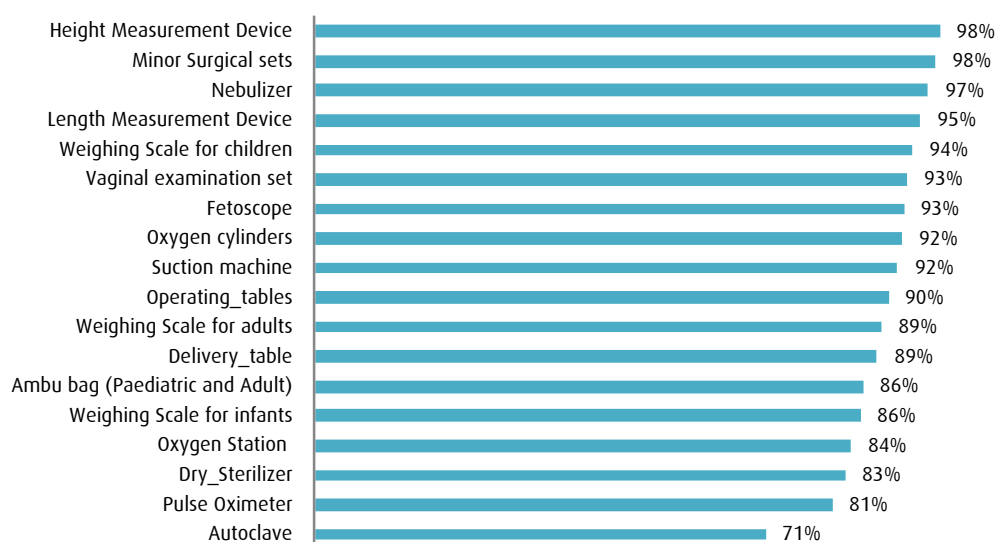
In its ninth year of crisis, Syria's hospitals (have a remarkable improvements) are still suffering from shortages and/or malfunction of medical devices/ equipment to provide secondary care services. In insecure governorates, medical devices are either destroyed, burned, or malfunctioned, while in safe areas the medical devices are overburdened by increased numbers of people (actual numbers of people in the area, in addition to IDPs and patients /injured people from surrounding areas).

Maintenance of malfunctioned devices remains a concern, due to non-availability of spare parts, accredited agent to provide maintenance support, or difficulty of accessibility in many cases.

Analysis of availability of essential and specialized equipment was measured across all functional public hospitals [MoH & MoHE] (85/113), in terms of functional equipment out of the total available equipment in the hospital. The produced analysis provides good indication of the current readiness of the hospitals to provide the health services, and also to guide focused planning for procurement of equipment and machines, to fill-in identified gaps.

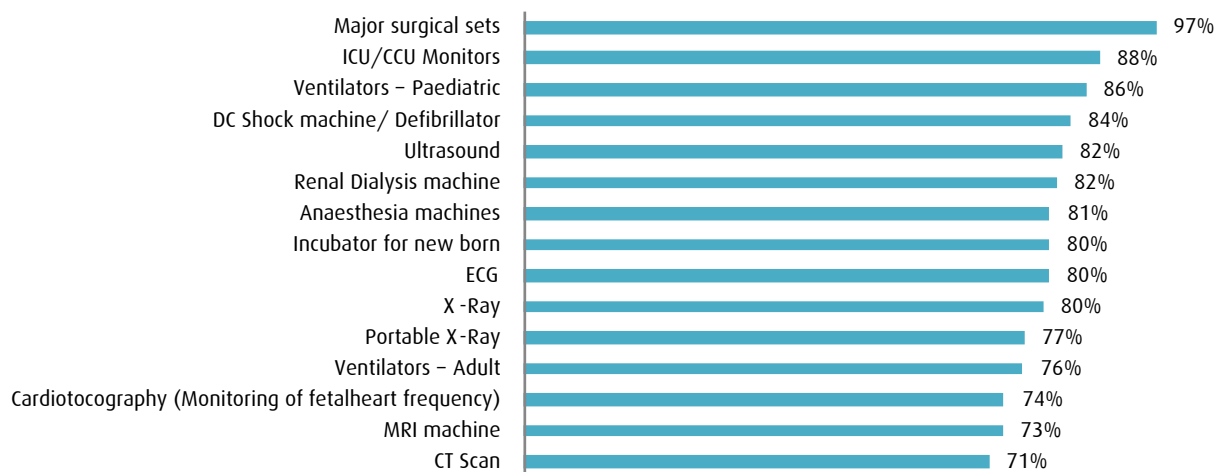
Gaps on essential and specialized equipment and machines were observed, even within the functional public hospitals. Further details are provided on [Figure 66] and [Figure 67].

Figure 66: Percentage of functional essential equipment/ total available equipment in functional public hospitals, December 2019



² A more detailed list of essential equipment is available upon request.

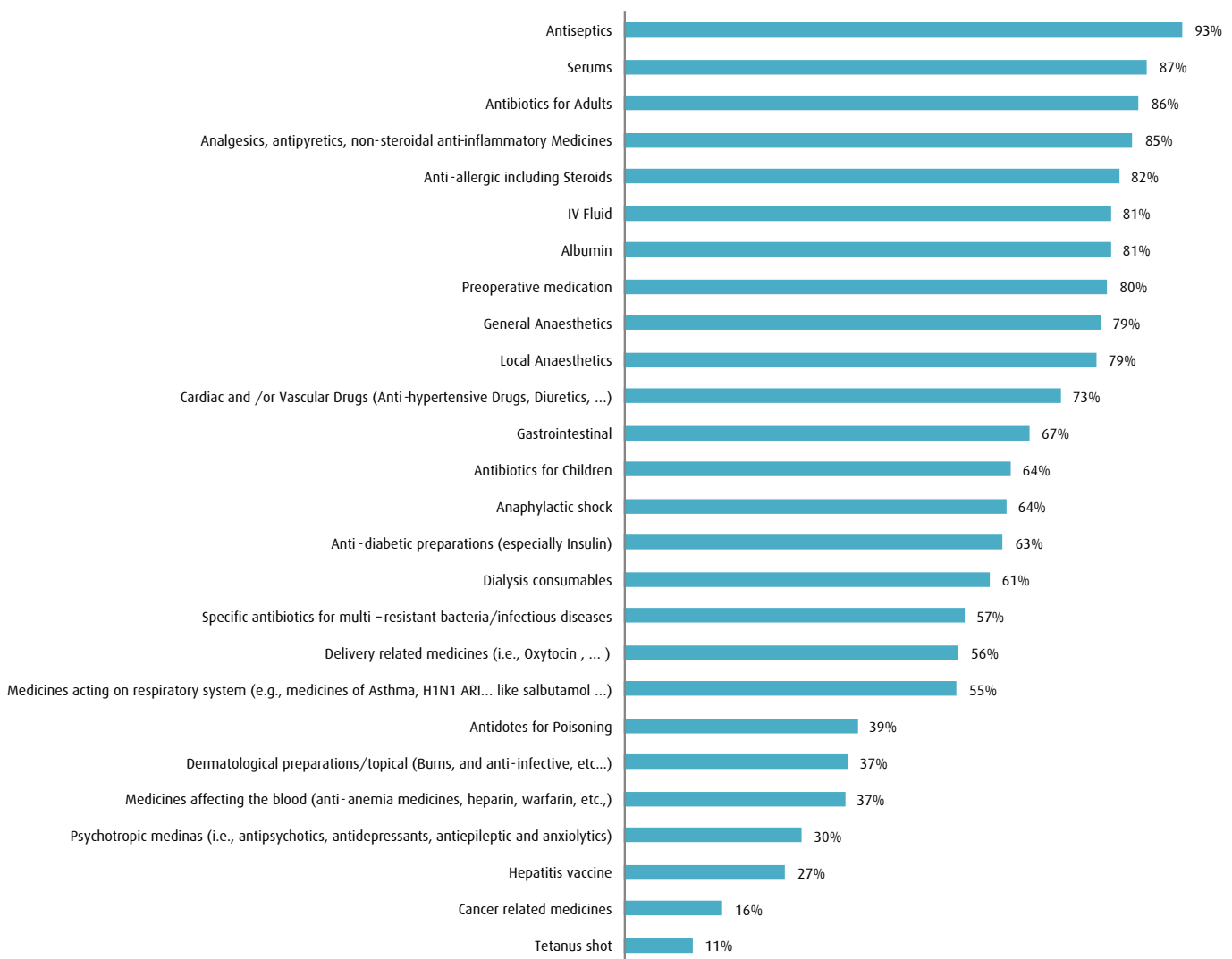
Figure 67: Percentage of functional specialized equipment/ total available equipment in the functional public hospitals, December 2019



8. Availability of medicines & medical supplies

Availability of medicines and medical supplies at hospitals' level was evaluated based on a standard list of identified priority medicines (driven from the national Essential Medicine List), and medical supplies for duration of one month [Figure 68].

Figure 68: Availability of medicines and medical supplies for one month in the functional public hospitals, December 2019



Based on the priority medicines list agreed by MoH and WHO, WHO has managed to address the gaps of medicines identified at all levels of health care.

More details on availability of medicines and medical supplies at governorate level are available in HeRAMS database.

9. Conclusions and recommendations

Slight variation of functionality status of public hospitals was observed throughout 2019. For example, 28 hospitals were reportedly out-of-service in December 2018 compared to 26 in January of the same year. Similarly, access to the public hospitals has minor changes throughout 2019 with 13 hospitals reportedly non-accessible in December 2019 compared to 18 in January of the same year. Functionality status of hospitals was highly affected by the dire security situation and limited access by health staff and patients as well as critical shortages of supplies.

Levels of damages of the hospitals' buildings directly affected the functionality status and provision of health services; however, some hospitals have resiliently continued to provide services regardless of levels of damage to the building and by utilizing intact parts of the building or operating from other neighboring facilities in a few cases. Rehabilitation of the damaged hospitals' infrastructure, in addition to provision of supplies and medical equipment will significantly improve functionality of hospitals, readiness and provision of essential health services at secondary care level.

Slight improvement of the available number of medical staff (doctors, nurses and midwives) throughout 2019 was observed. However, increased capacity building activities and training courses of the national health staff will help in improving technical capacity of healthcare providers and filling gaps in certain areas.

Limited functionality and accessibility to public hospitals in addition to large displacement of people have greatly overburdened the few functional public hospitals' resources. Increasing provision of specialized medical machines, as well as medicines and supplies especially for NCDs (such as cancer treatment, as observed the highest consultations among other NCDs) provides an affordable alternative compared to the high cost of healthcare in the private sector.

Furthermore, the crisis aggravated the inequalities among regions, leaving many people deprived of the minimum level of health services. HeRAMS can help in directing the interventions of different players to the most vulnerable groups and those with the greatest needs, and in assessing the efficiency of interventions.

Conducting a qualitative survey on provision of health services from the populations' point of view, using HeRAMS data as a baseline, will help in concretely measuring the impact of the crisis on public health sector in terms of responsiveness of hospitals and quality of provided services.

