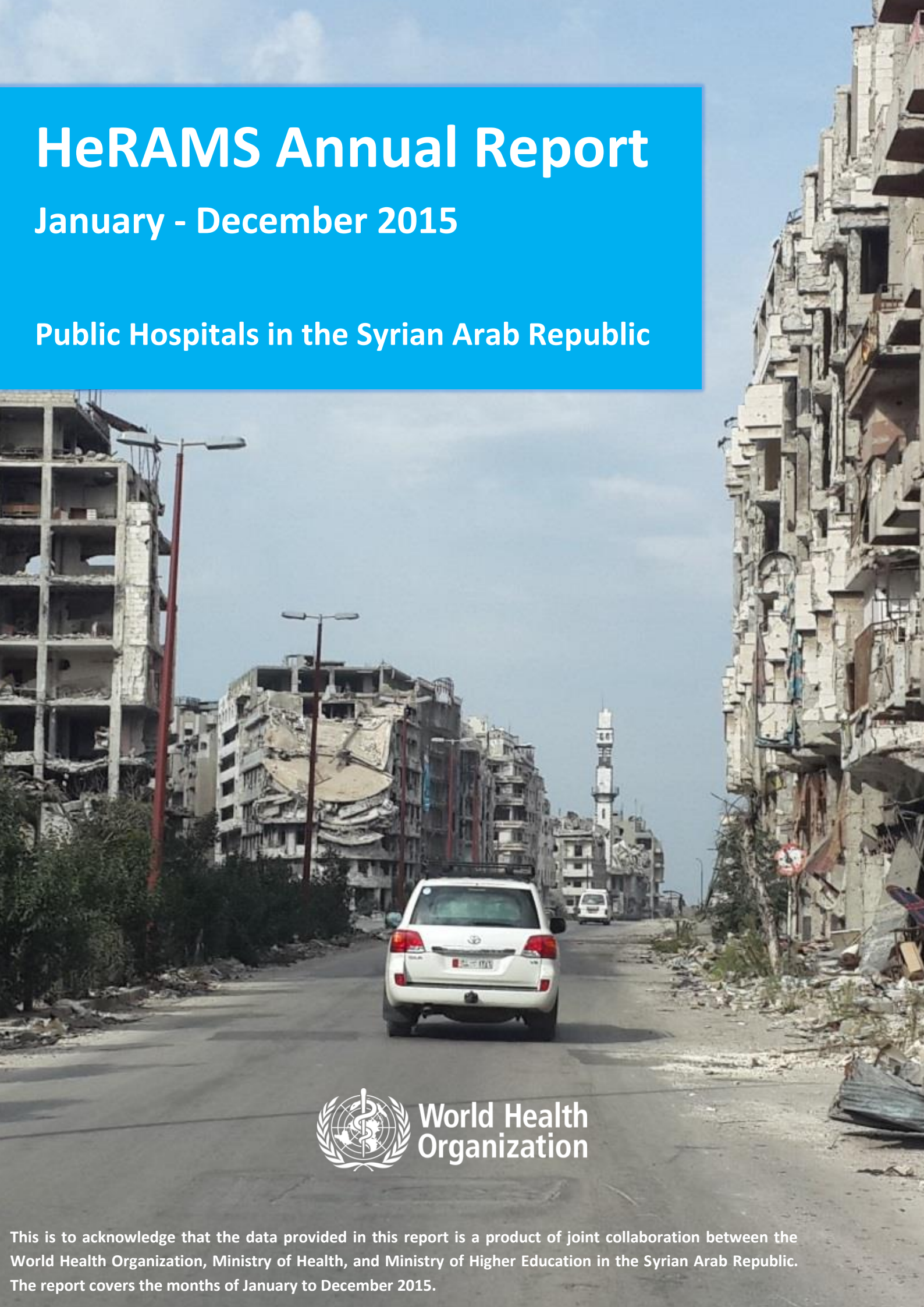
HeRAMS Annual Report

January - December 2015

Public Hospitals in the Syrian Arab Republic



World Health Organization

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 2015.

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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 Mapping System
HIS	Health Information System
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
WHO	World Health Organization

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 Mapping 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 during 2014 and 2015.

Completeness of Hospitals' reporting remained 100%, where all 99 (MoH) hospitals and 14 (MoHE) hospitals reported to HeRAMS by end of December 2015.

Functionality status of the public hospitals

By the end of December 2015, and out of the **113** assessed public hospitals [MoH & MoHE], 43% (49) were reported fully functioning, 31% (35) hospitals were reported partially functioning, while 26% (29) were reported non-functioning.

Accessibility status of the public hospitals

By the end of December 2015, 60% (68) hospitals were reported accessible, 18% (20) hard-to-access, and 22% (25) were inaccessible.

Infrastructure of the public hospitals

By the end of December 2015, 42% (48) hospitals were reported damaged [13% fully damaged and 29% partially damaged], while 55% (62) of public hospitals were reported intact while the infrastructure of three public hospitals were unknown.

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 40% (34) are using main pipelines, 7% (6) are mainly using wells, 49% (41) are using both (main pipeline and well), while 4% (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 40% (34) of functional public hospitals across Syria are in need for electrical generators, mainly reported from 11 governorates: Quneitra, Aleppo, Deir-ez-Zor, Dar'a, Rural Damascus, Al-Hasakeh, Hama, Damascus, Homs, Lattakia and Tartous.

Human Resources for Health

The emergency physicians remain the lowest proportion of health staff in public hospitals (0.3%), followed by dentists (1%), pharmacists (1%), Midwives (5%), Laboratory personnel (7%), specialists (15%), resident doctors (17%), and nurses (54%).

Trend analysis of available number of medical doctors and nurses during 2015 has shown consistent decline. In functional public hospitals the number of **medical doctors** [specialists, emergency doctors, resident doctors, dentists] has decreased by 11% in December 2015 compared to January 2015, similarly the number of **nurses** and number of **midwives** has decreased by 9% and 13%, respectively .

Analysis of proportions of **medical doctors** [specialists, emergency doctors, resident doctors, dentists] working at MoHE hospitals versus MoH hospitals has shown that 31% of medical doctors work in MoHE, while 69% are in MoH hospitals.

Analysis of availability of medical doctors by gender has shown that lowest proportions of Female to Male medical doctors are in Al-Hasakeh, Deir-ez-Zor and Ar-Raqqa governorates.

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 2015 by category (i.e., general clinical services, surgical & trauma care, maternal healthcare, child healthcare, nutrition, NCDs, 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.

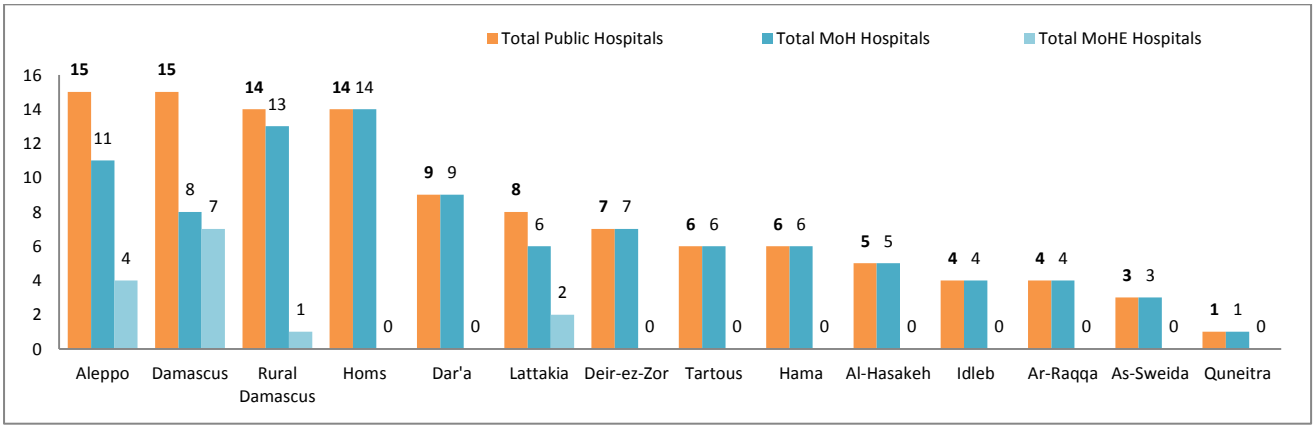
The key identified gaps of medicines and consumables at functional hospitals include the hepatitis vaccine (87%), tetanus shots (85%), medicines affecting the blood, such as heparin (58%), antidotes for poisoning (57%), specific antibiotics for multi-resistant bacteria (57%), dermatological preparation (57%), delivery related medicines (51%), dialysis consumables (49%), Albumin (35%), etc.

1. Completeness of Hospitals Reporting

The completeness of reporting from public hospitals across Syria remained at 100%, where all the 99 Ministry of Health (MoH) Hospitals and the 14 Ministry of Higher Education (MoHE) hospitals continued to report to HeRAMS in December 2015.

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 2015.

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

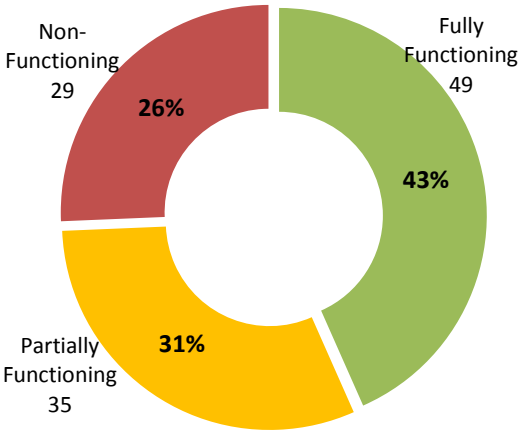
The following sub-sections provide analysis on the functionality and accessibility status of the public hospitals at governorate level.

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).
- **Not functioning**: a hospital is out of service, because it is either fully damaged, inaccessible, no available staff, or no equipment.

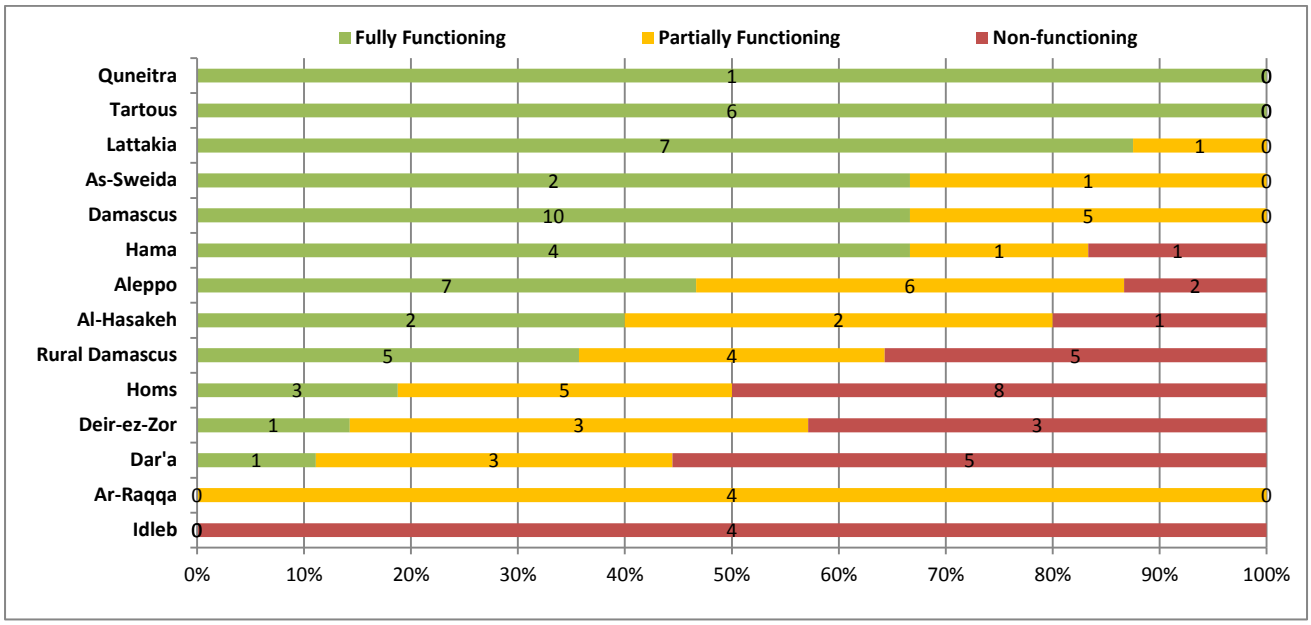
Figure 2: Functionality Status- Dec 2015



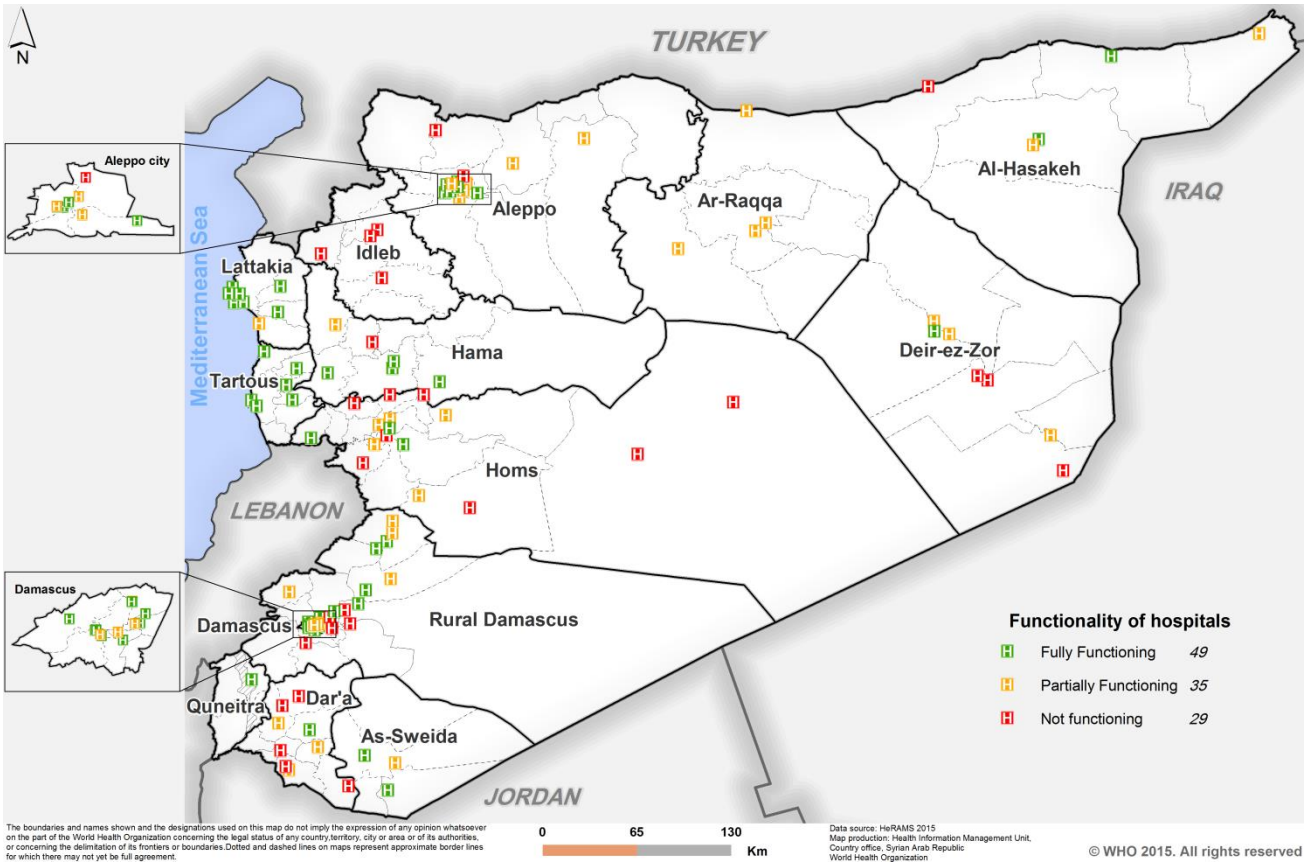
By the end of December 2015, and out of the **113** assessed public hospitals [MoH & MoHE], 43% (49) were reported fully functioning, 31% (35) hospitals were reported partially functioning, while 26% (29) were reported non-functioning [Figure 2].

The hospitals reported partially functioning or non-functioning are in 12 out of a total 14 govrnorates (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 2015

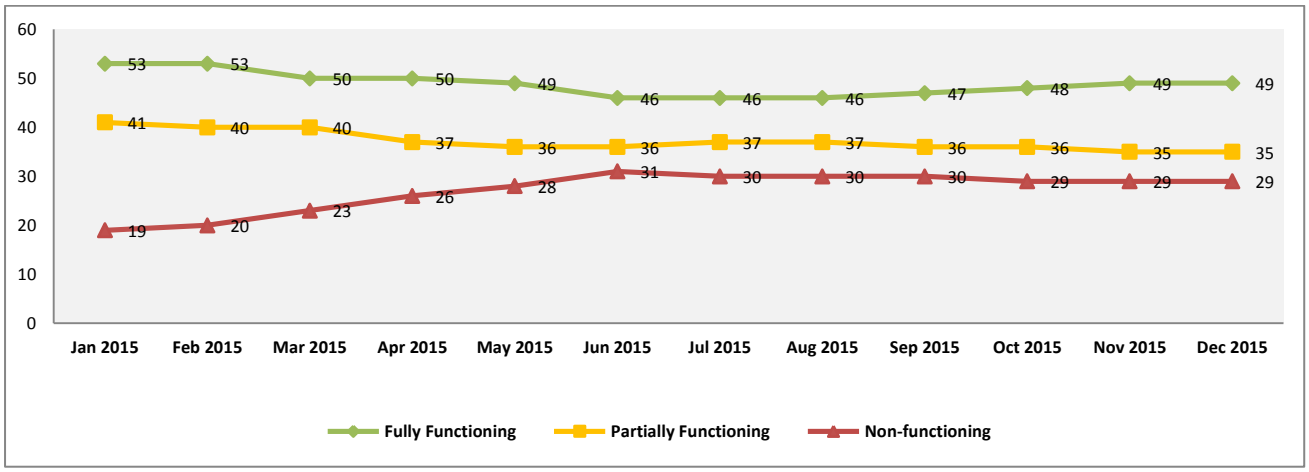


Map 1: Distribution and Functionality status of public Hospitals, December 2015



Constant deterioration of functionality status of public hospitals has been observed during 2015; **29** hospitals were reported out-of-service in December 2015 compared to **19** in January 2015, while June marked a record high of 31 non-functional hospitals [Figure 4].

Figure 4: Trend analysis of functionality status of public hospitals, January to December 2015

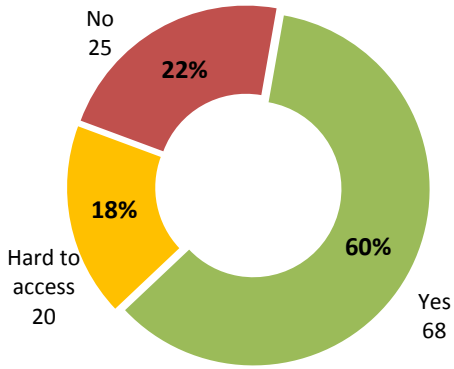


2.2 Accessibility to public hospitals

Accessibility to public hospitals is defined at three levels:

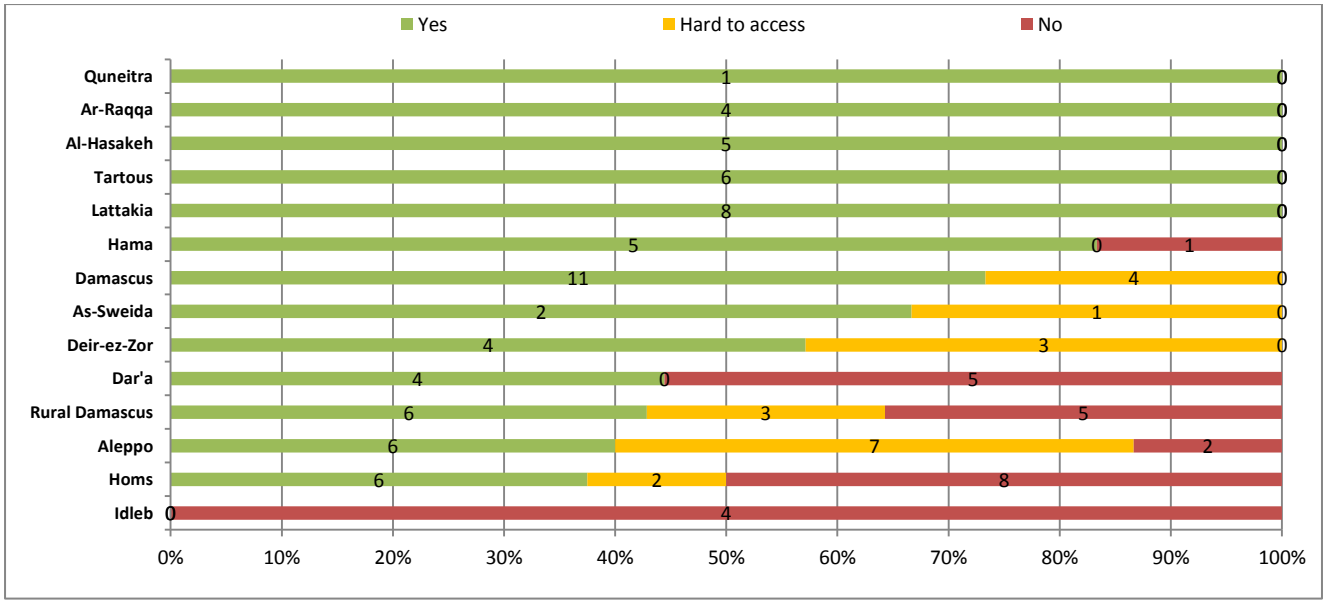
- **Accessible:** a hospital is easily accessible for patients and health staff.
- **Hard-to-reach:** a hospital is hardly reached, due to security situation or long distance.
- **Inaccessible**: a hospital is not accessible because of the security situation, or a hospital is accessible only to a small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

Figure 5: Accessibility status- Dec 2015

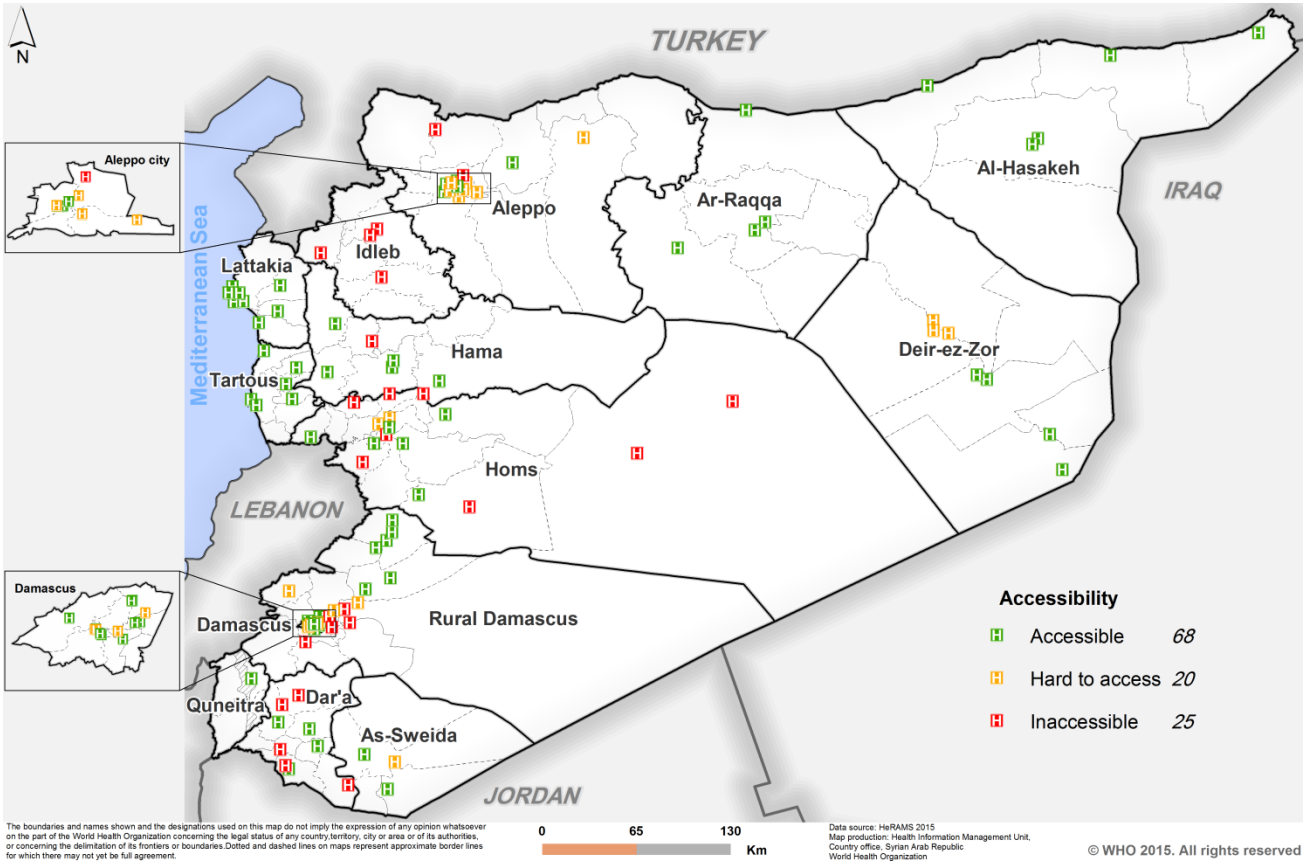


By the end of December 2015, 60% (68) hospitals were reported accessible, 18% (20) hard-to-access, and 22% (25) were inaccessible [Figure 5]. Distribution of public hospitals by accessibility status is presented in Map 2.

Figure 6: Accessibilty status of the public hospitals per governorate, December 2015

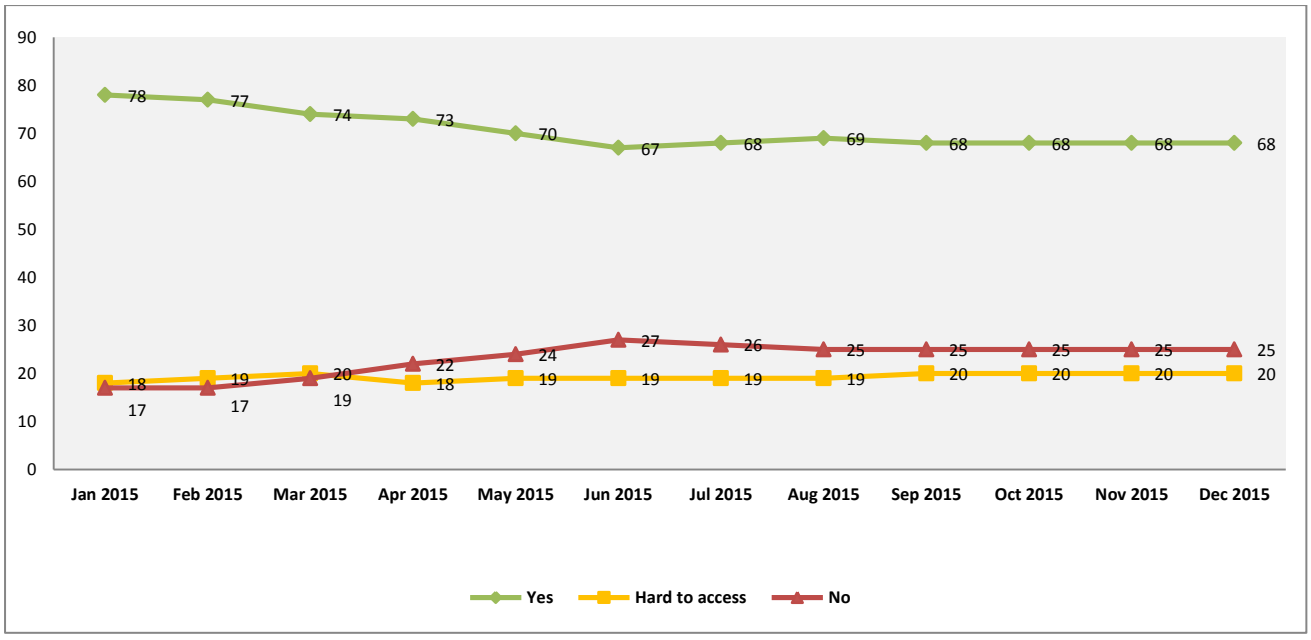


Map 2: Accessibility to public hospitals [MoH & MoHE], December 2015



Trend analysis on accessibility to public hospitals [MoH & MoHE] from January to December 2015, is presented in Figure 7.

Figure 7: Trend analysis of accessibility to public hospitals, January to December 2015



3. 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.

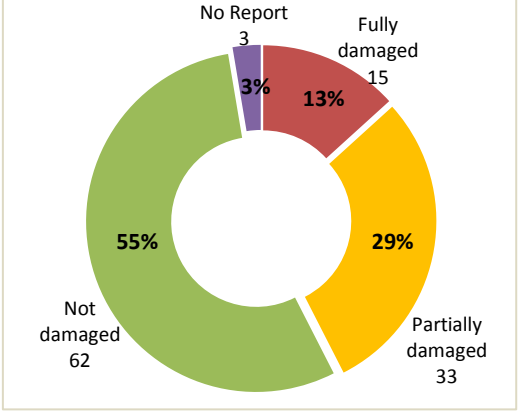
3.1 Level of Damage of the hospitals' buildings

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.

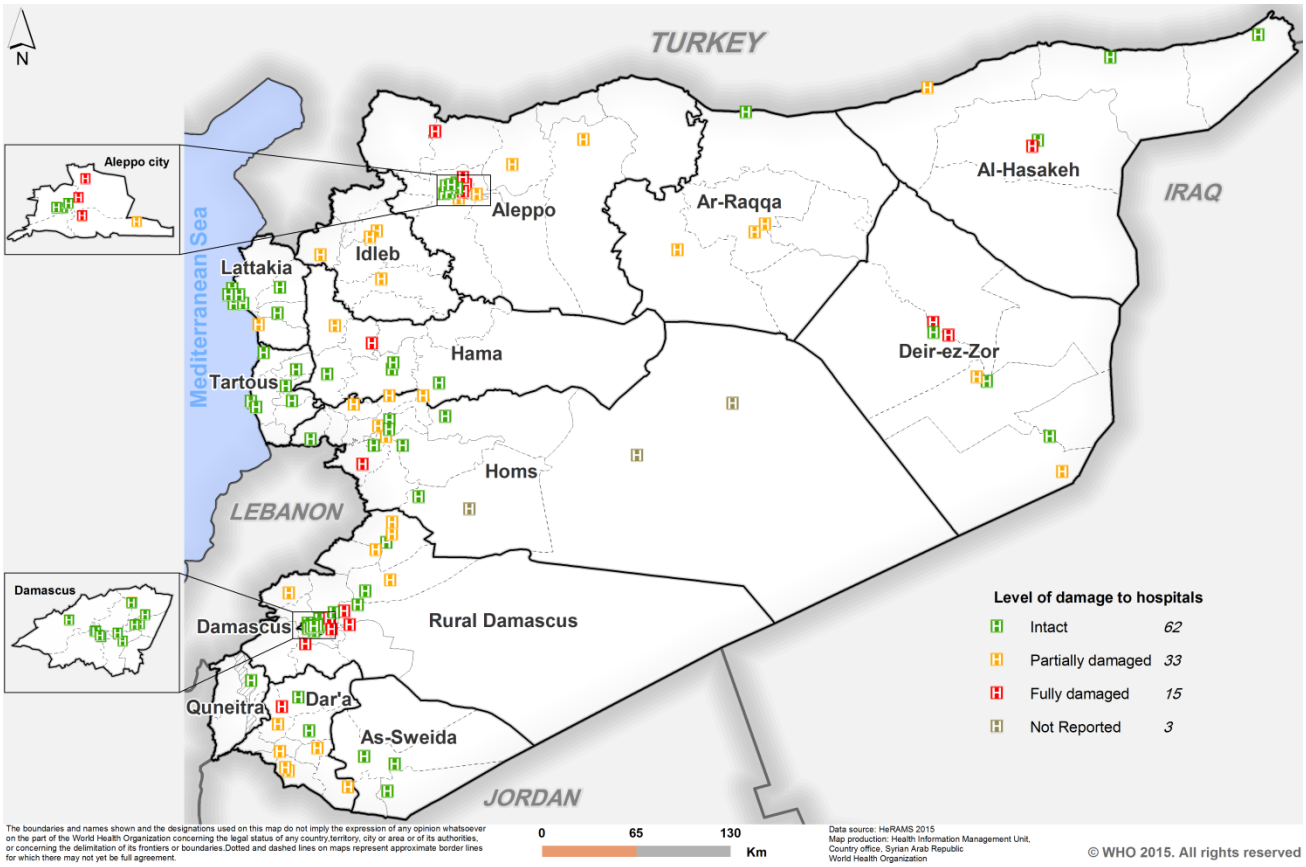
Analysis of the level of damage provides good indication on the potential costs for reconstruction.

Figure 8: Level of Damage - Dec 2015



By the end of December 2015, 42% (48) hospitals were reported damaged [13% fully damaged and 29% partially damaged], while 55% (62) of public hospitals were reported intact. The level of damage of three hospitals was unconfirmed due to escalating security situation: Al-Bassel Tadmor, Al-Bassel Al-Qaryatein and Al-Bassel Sokhneh hospitals in Homs governorate [Figure 8]. Distribution of public hospitals by level of damage is presented in Map 3, while more details are provided at governorate's level in Figure 9.

Map 3: Level of Damage of the Hospitals' buildings, by governorate [MoH & MoHE], December 2015

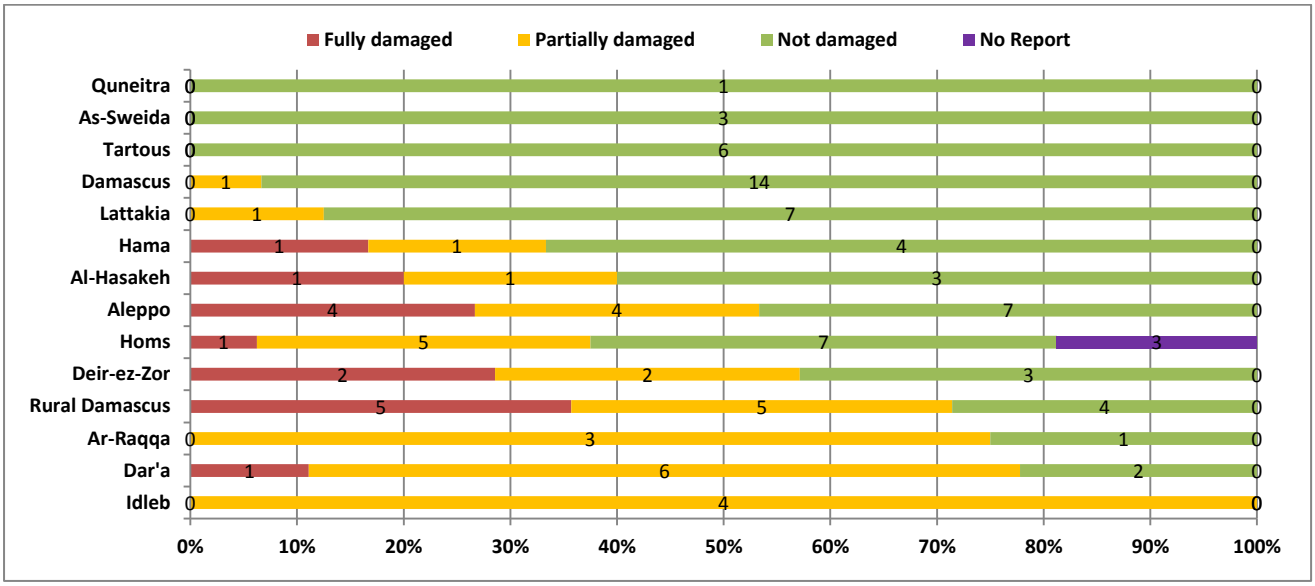


It is essential to cross-analyze the infrastructural damage of the public hospitals in relation to the functionality status (i.e. provision of services). Some hospitals have resiliently continued to provide services

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:

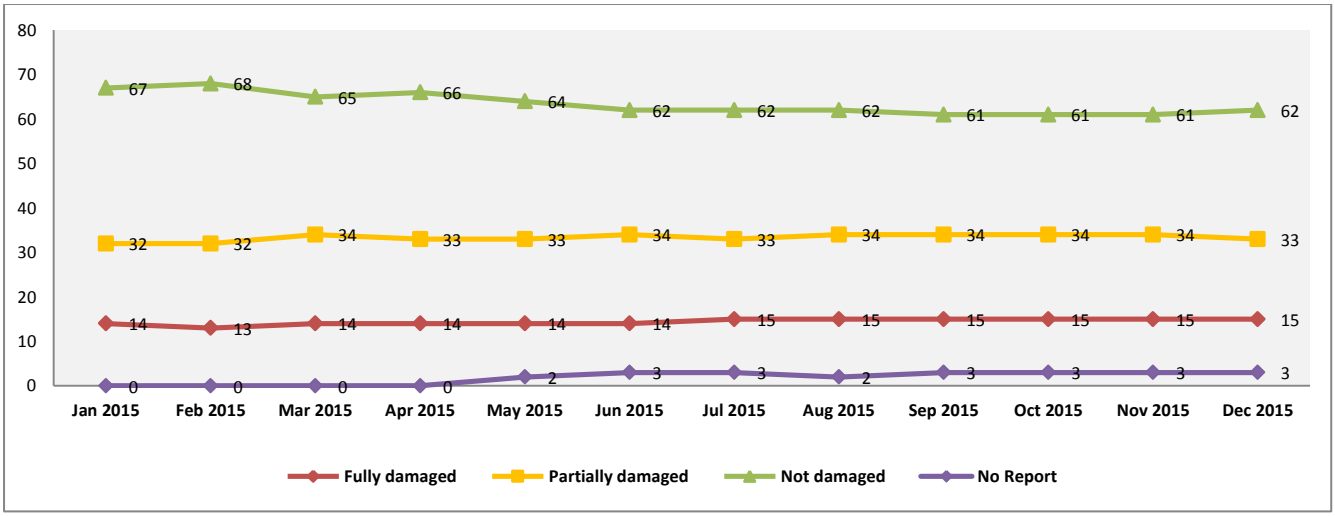
- Out of the **33 partially damaged hospitals**, 17 hospitals were reported partially functioning and 14 out of service (non-functioning), while two hospitals (Yabroud in Rural Damascus, and Ebn Khaldoun Psychiatric hospital in Aleppo) were reported to be fully functioning providing all services through salvaging medical equipment from the damaged section of the hospital with full staffing capacity.
- Out of the **15 fully damaged hospitals**, 10 were reported non-functioning while 5 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 5 hospitals are available in the HeRAMS database.*
- Then again, hospitals with **intact buildings** (**62 hospitals**) does not directly reflect full functionality, only 47 of the 62 intact hospitals are fully functioning, while 13 are partially functioning and 2 hospitals are not functioning all together, 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 9: Number and percentage of the public hospitals by level of damage, per governorate, December 2015



Trend analysis on condition of the public hospitals (level of damage of the building) from January to December 2015 is presented in Figure 10.

Figure 10: Trend analysis of public hospitals' level of damage, January to December 2015



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	Harasta general hospital	Rural Damascus	Harasta	MoH
3	Al-Mleha hospital	Rural Damascus	Harasta	MoH
4	An-Nashabeyeh hospital	Rural Damascus	An-Nashabeyeh	MoH
5	Darayya general hospital	Rural Damascus	Darayya	MoH
6	Zahi Azraq general hospital	Aleppo	The fourth	MoH
7	E'zaz national hospital	Aleppo	E'zaz	MoH
8	Children hospital	Aleppo	Third	MoH
9	Al-Qusayr general hospital	Homs	Al-Qusayr	MoH
10	Helfaya hospital	Hama	Muhardeh	MoH
11	Children hospital	Al-Hasakeh	Al-Hasakeh	MoH
12	Maternity and Paediatric specialized hospital	Deir-ez-Zor	Deir-ez-Zor	MoH
13	Alfurat general hospital	Deir-ez-Zor	Deir-ez-Zor	MoH
14	Jassem general hospital	Dar'a	Nawa	MoH
15	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	Affili-ation	New location
1	Zahi Azraq general hospital	Aleppo	The fourth	General	Fully damaged	MoH	Ar-Razi hospital
2	Children hospital	Aleppo	Third	Specialized	Fully damaged	MoH	Ar-Razi hospital + Maternity hospital
3	Children hospital	Al-Hasakeh	Al-Hasakeh	Specialized	Fully damaged	MoH	Al-Hasakeh National hospital
4	Maternity and Paediatric specialized hospital	Deir-ez-Zor	Deir-ez-Zor	Specialized	Fully damaged	MoH	Al-Assad hospital
5	Alfurat general hospital	Deir-ez-Zor	Deir-ez-Zor	Specialized	Fully damaged	MoH	Al-Assad hospital

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

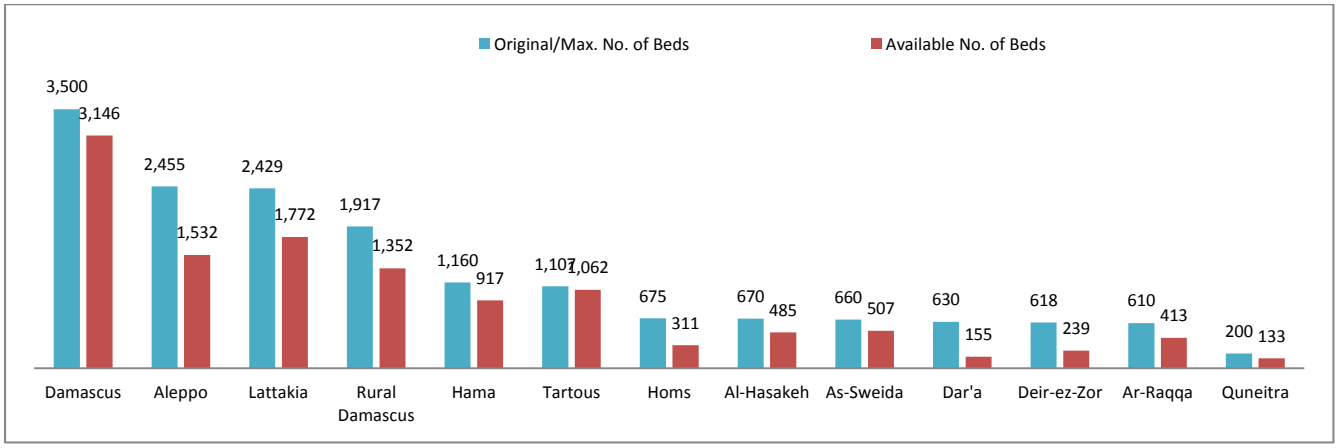
#	Hospital name	Province	District	Type	Condition	Affili-ation	New location
1	Martyr Basil al-Assad in Deir Atia/Qalamoun Autonomous hospital	Rural Damascus	Al-Nabak	General	Partially damaged	MoH	Deir- Atia Health Centre
2	Qaara/ Qalamoun Autonomous hospital	Rural Damascus	Al-Nabak	General	Partially damaged	MoH	One floor in Qara Municipal (they moved the functional medical equipment to the new location)
3	Ophthalmology hospital	Aleppo	Third	Specialized	Partially damaged	MoH	Part of the hospital operating from Al-Razi hospital, while the other from the Obs. & Gyn. Hospital in Aleppo

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.

3.2 Analysis of the inpatient capacity

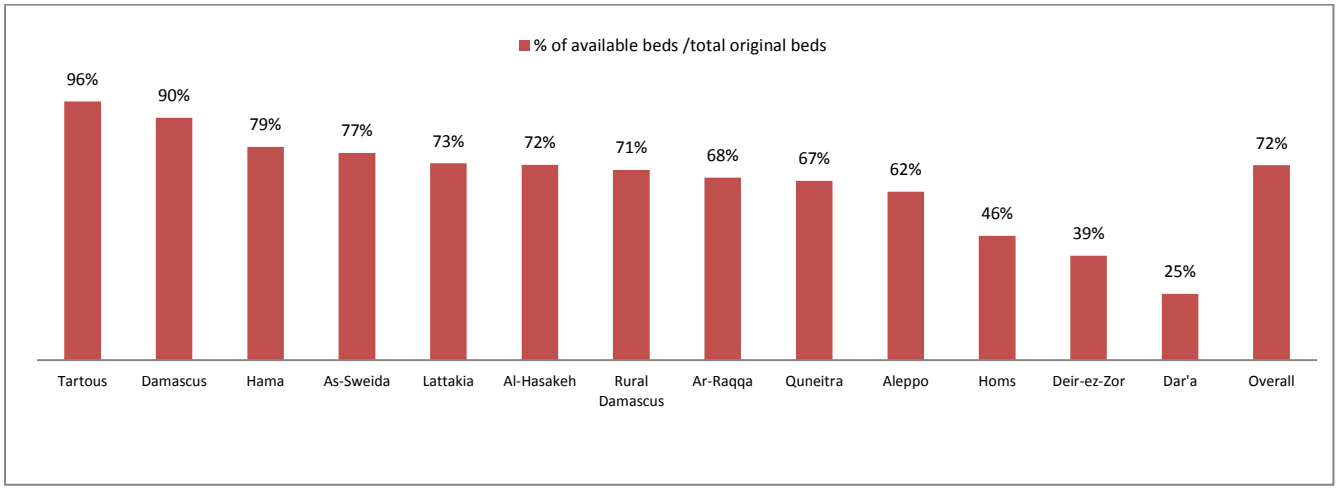
The inpatient capacity has been analyzed in terms of the total number of beds available in functional hospitals by end of 2015 compared to the original number of beds in these hospitals pre-crisis or the maximum inpatient capacity) [Figure 11].

Figure 11: Comparison of inpatient capacity (available vs. maximum) in functional hospitals per governorate, December 2015



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. Figure 12 illustrates the proportion of available beds in functional hospitals versus the original inpatient capacity at governorate levels.

Figure 12: Percentage of available number of beds in functional hospital versus the original inpatient capacity, December 2015



The lowest percentage (25%) of available beds in functional hospital versus original inpatient capacity is observed in Dar'a governorate, mainly reported from the national hospital [the current number of beds are 14, while the original hospital capacity is 60 beds].

3.3 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 2015 and out of 84 functional public hospitals, 40% (34) are using main pipelines, 7% (6) are mainly using wells, 49% (41) are using both (main pipeline and well), while 4% (3) are using other sources of water [Figure 13].

Detailed analysis on distribution of water sources at functional public hospitals is presented at governorate level on [Figure 14].

Figure 13: Main Sources of Water, Dec 2015

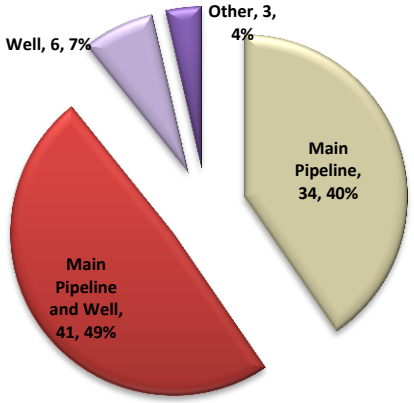
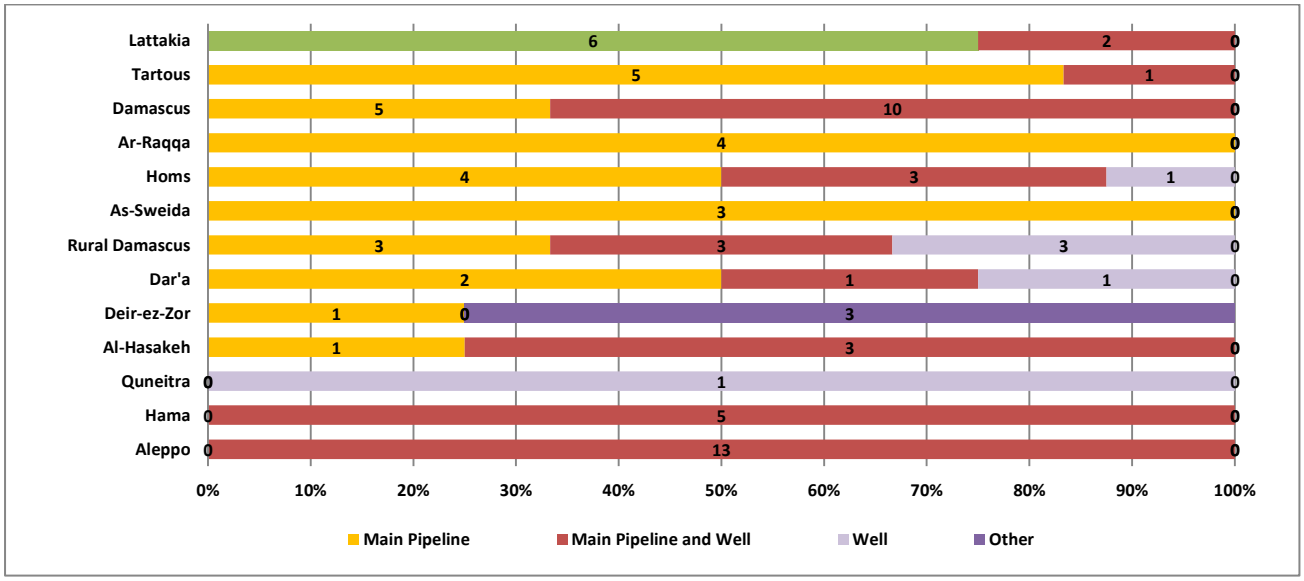
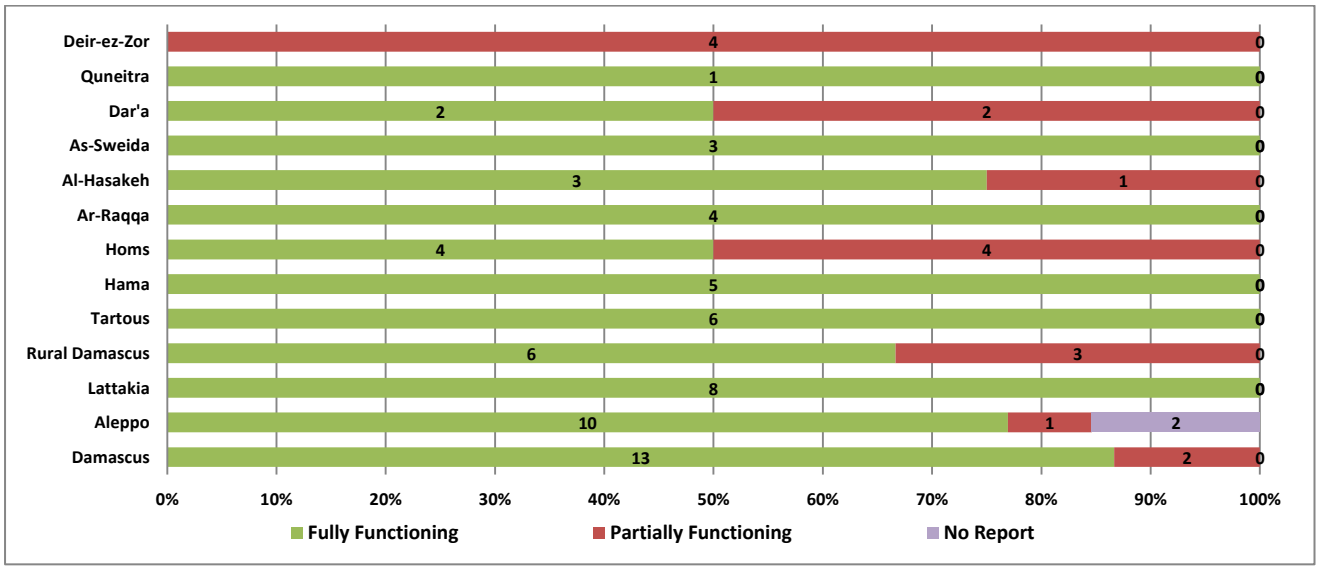


Figure 14: Distribution of water sources/ types at functional public hospitals, per governorate, December 2015



Functionality status of the water sources was measured at three levels; fully functional, partially functional, and not functional. Figure 15, provides details on functionality status of water sources at functional hospitals, (84/113) per governorate.

Figure 15: Functionality status of the water sources at functional public hospitals, December 2015

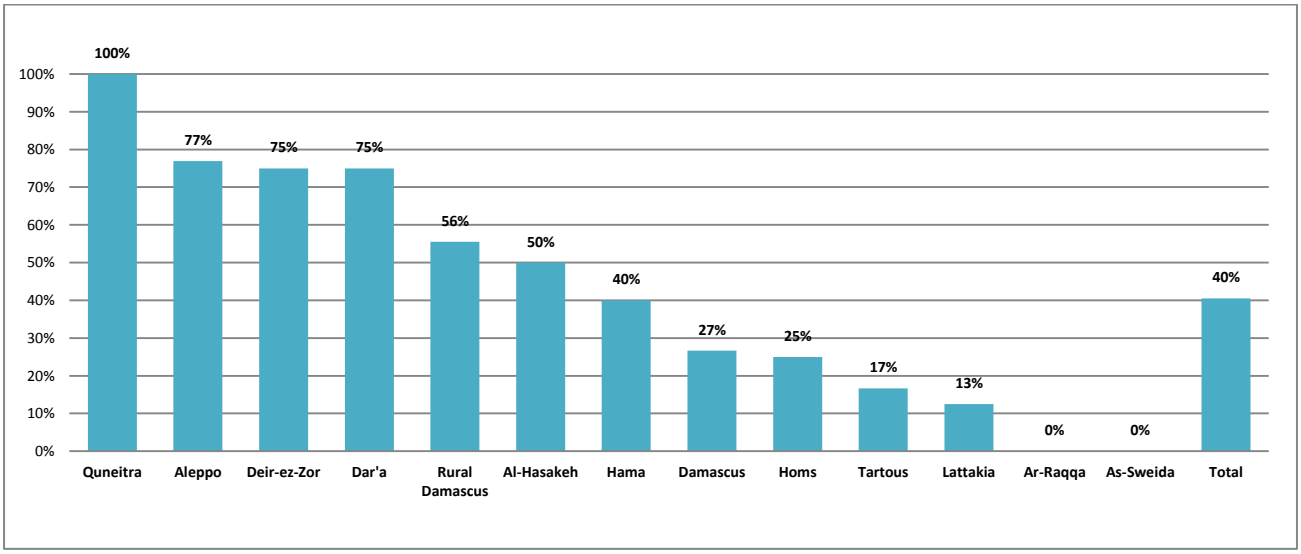


3.4 Availability of electricity generators

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. The percent of hospitals in need for electricity generators out of the total functional hospital is summarized at governorate level [Figure 16].

40% (34) of functional public hospitals across Syria are in need for electrical generators, mainly reported from 11 governorates: Quneitra, Aleppo, Deir-ez-Zor, Dar'a, Rural Damascus, Al-Hasakeh, Hama, Damascus, Homs, Tartous and Lattakia [Figure 16].

Figure 16: Percent of hospitals in need for generators out of total functional hospitals, December 2015

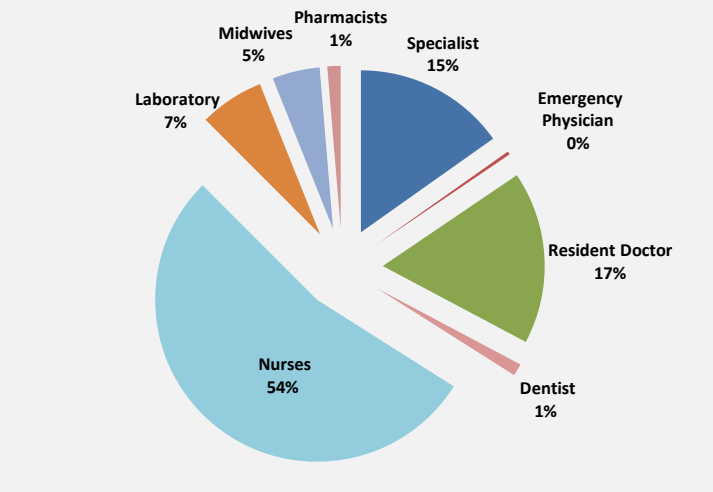


4. Availability of Health Human Resources

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

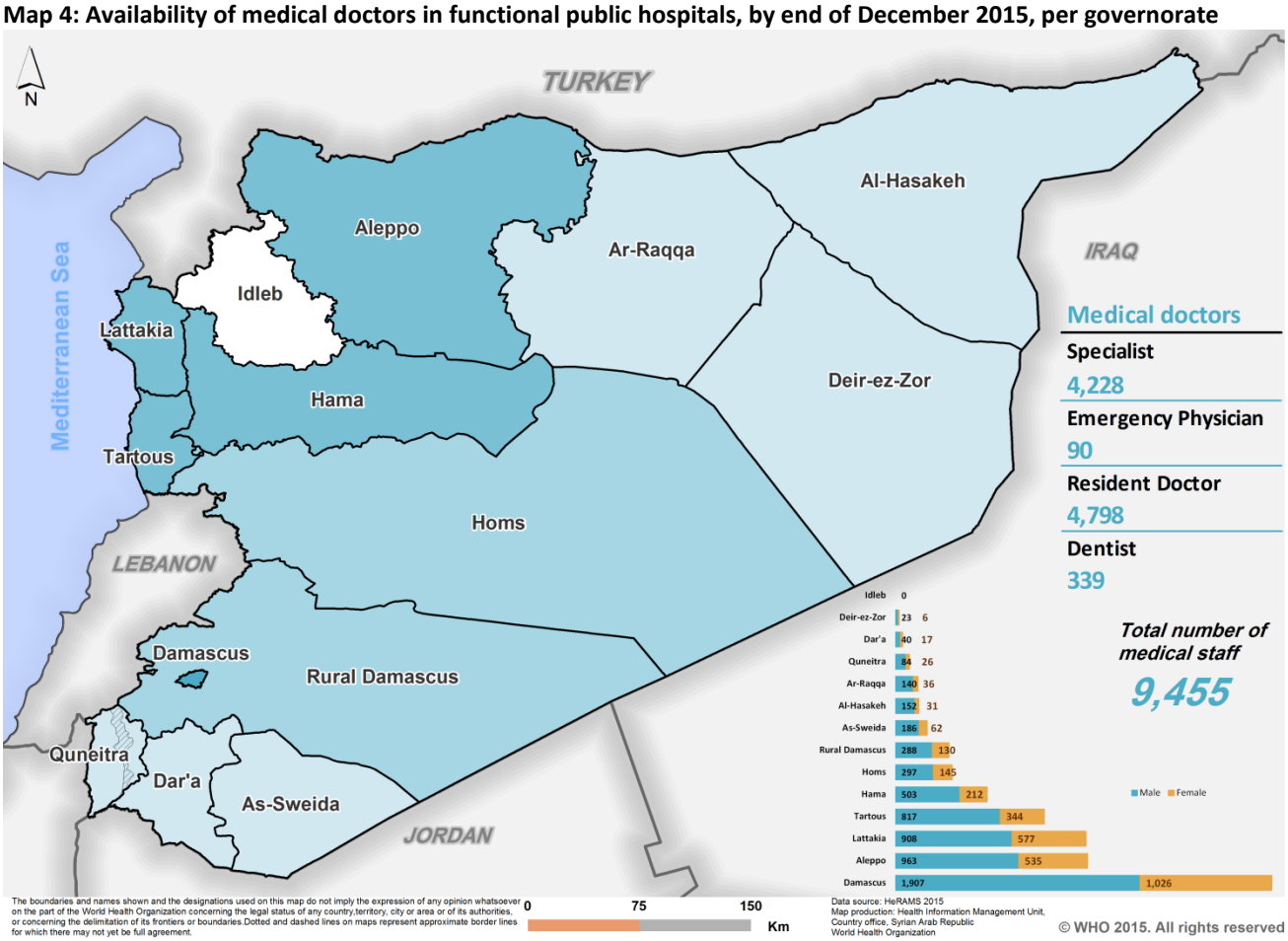
Figure 17: Proportion of Health Staff in Hospitals, December 2015



The **proportion** between different categories of health staff, among the total functional (fully and partially) MoH and MoHE hospitals (84/113), by the end of December 2015, is as follows: the emergency physicians remain the lowest proportion of health staff in public hospitals (0.3%), followed by dentists (1%), pharmacists (1%), Midwives (5%), Laboratory personnel (7%), specialists (15%), resident doctors (17%), and nurses (54%); [Figure 17].

The availability and level of medical staffing (by category and gender) in public hospitals a, as is summarized at governorate's level in Map 4. The categories of staff included in the map are: specialists, emergency physicians, resident doctors, and dentists.

Map 4: Availability of medical doctors in functional public hospitals, by end of December 2015, per governorate



4.1 Availability of medical staff by category and affiliation

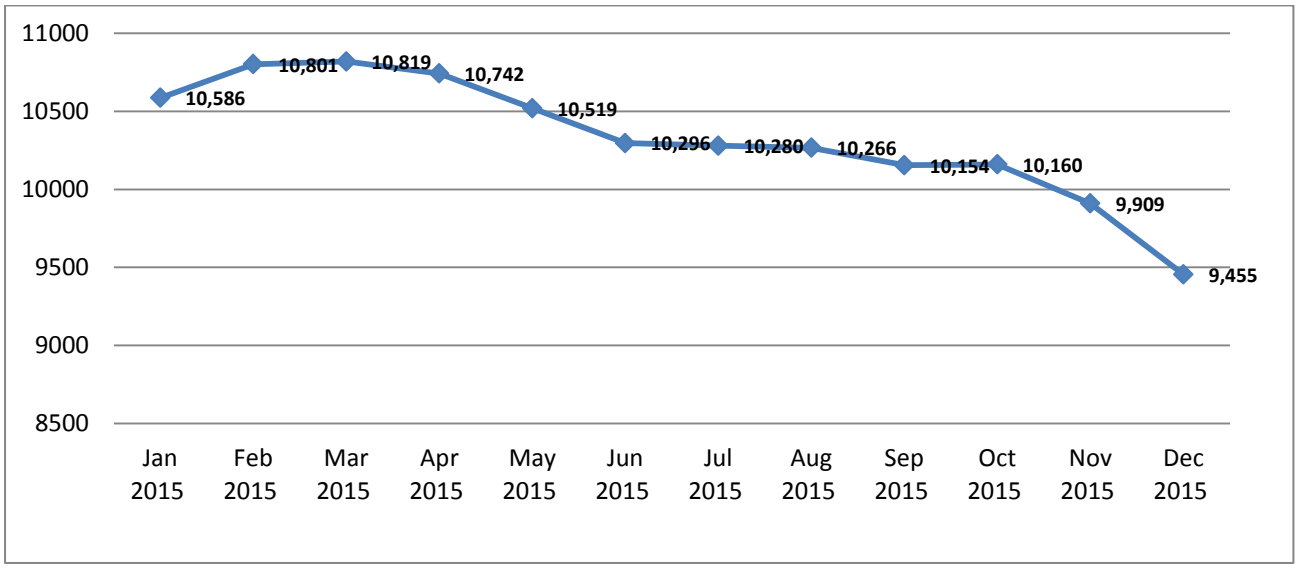
The availability medical staff in functional public hospitals is analyzed by category [i.e., medical doctors[1], nurses, and midwives] and affiliation [MoH vs. MoHE hospitals], as follow:

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

The number of medical doctors in public hospital has slightly decreased by 11% in December 2015 (**9,455** compared to January 2015 (**10,586**).

Figure [18] shows the trend analysis of reported medical doctors from January to December 2015, in functional public hospitals.

Figure 18: Trend analysis of number of doctors (a total of Specialists, Emergency Physicians, Resident Doctors, and Dentists) in public hospitals during 2015

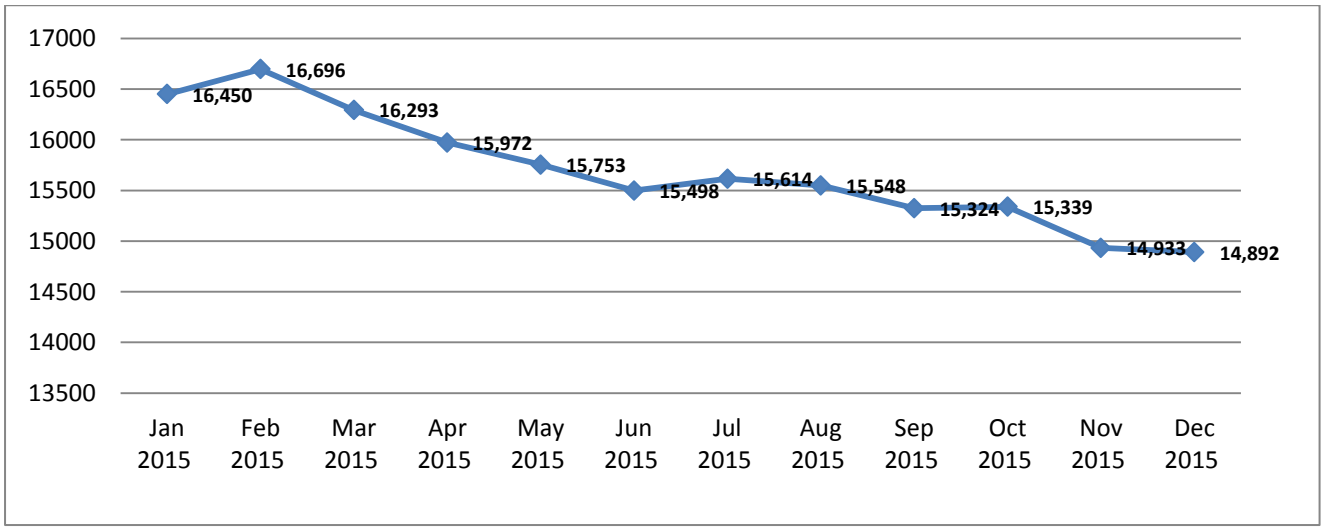


ii. Trend analysis of Nurses:

The number of **nurses** in public hospital has slightly decreased by 9% in December 2015 (**14,892)**, compared to January 2015 (**16,450**).

Figure [19] shows trend analysis for the reported number of nurses from January to December 2015.

Figure 19: Trend analysis of number of Nurses in public hospitals during 2015



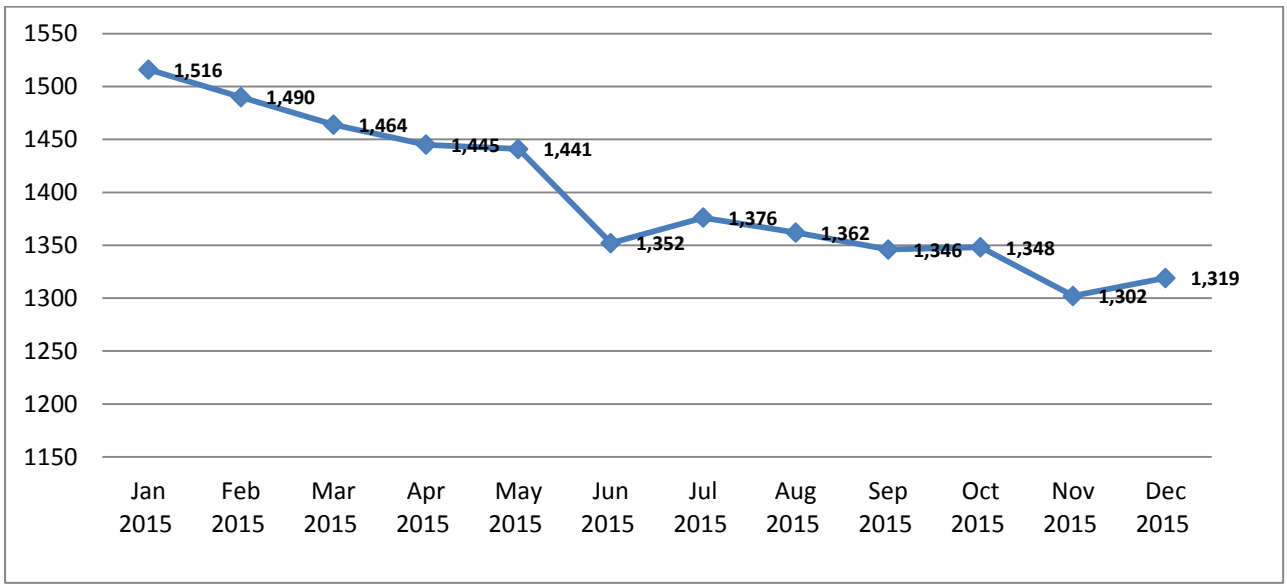
[1] A total of specialists, Emergency doctors, resident doctors, and dentists

iii. Trend analysis of Midwives:

The number of **midwives** in public hospital has slightly decreased by 13% in December 2015 (**1,319)**, compared to January 2015 (**1,516**). The drop is mainly observed in Deir-ez-Zor governorate.

Figure [20] shows trend analysis for the reported number of midwives from January to December 2015.

Figure 20: Trend analysis of number of midwives in public hospitals during 2015

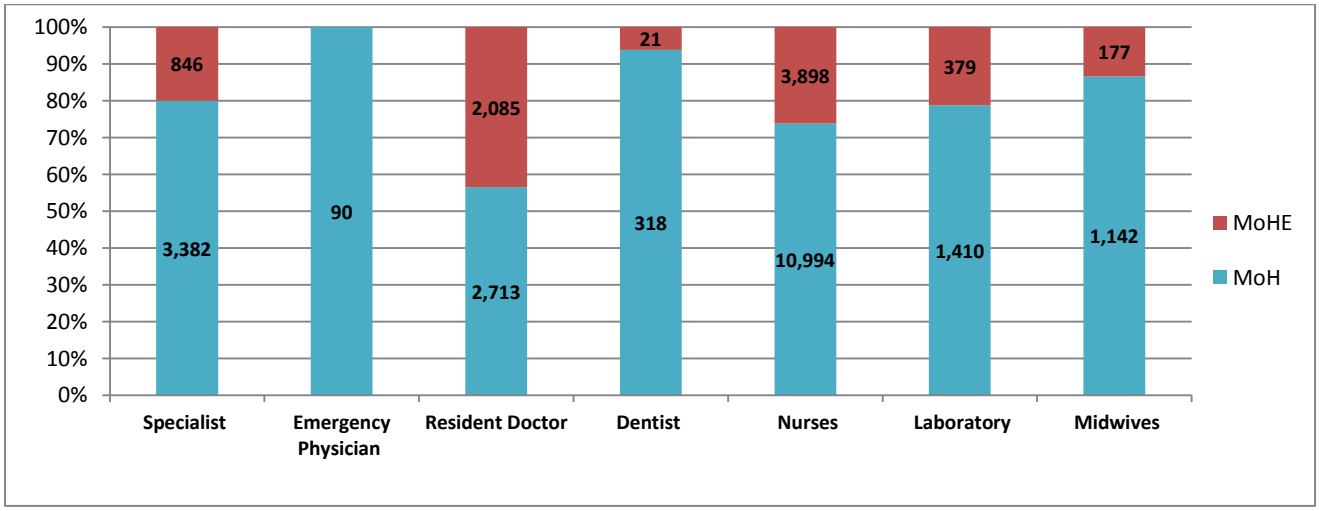


4.2 Availability of medical doctors by affiliation (MoH vs. MoHE hospitals)

Analysis of **proportions of medical doctors** [specialists, emergency doctors, resident doctors, dentists] working at MoHE hospitals versus MoH hospitals in December 2015 has shown that **31%** (2,952) of medical doctors (specialists and resident doctors) work in MoHE, while **69%** (6,503) are in MoH hospitals.

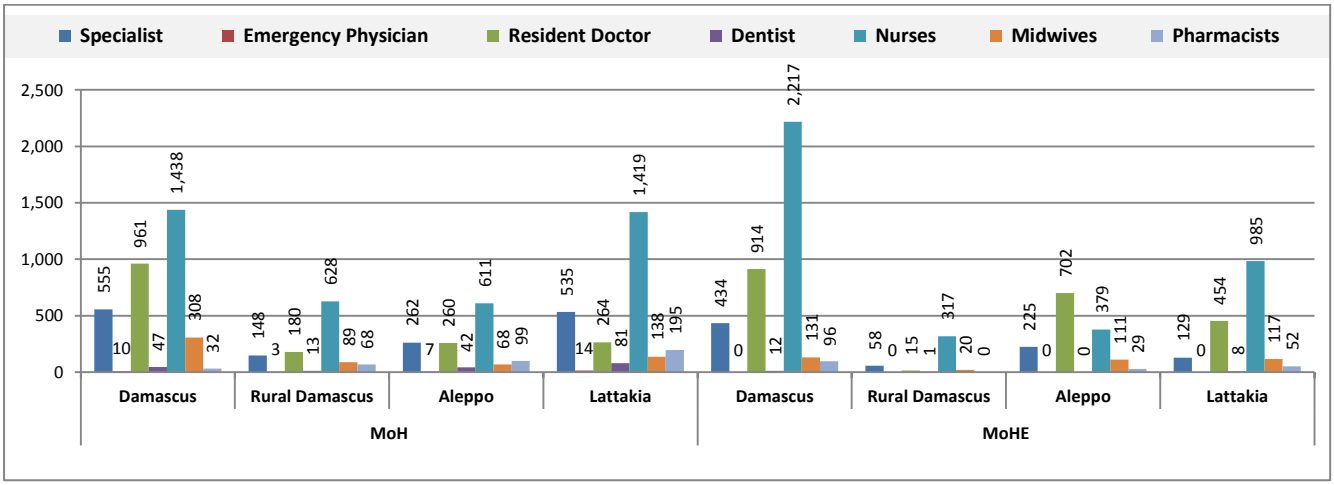
20% out of total Specialists (4,228) work in public hospitals are in MoHE hospitals; **43%** out of total resident doctors (4,798) are in MoHE hospitals; and **25%** out of total the nurses & midwives (16,211) are in MoHE hospitals. Details on proportions and numbers of key staff work in MoH vs. MoHE hospitals, by end of December 2015, are presented in [Figure 21].

Figure 21: Proportions and numbers of key staff work in MoH vs. MoHE hospitals, December 2015



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 22].

Figure 22: Comparison of the medical staff of MoH vs. MoHE hospitals, December 2015



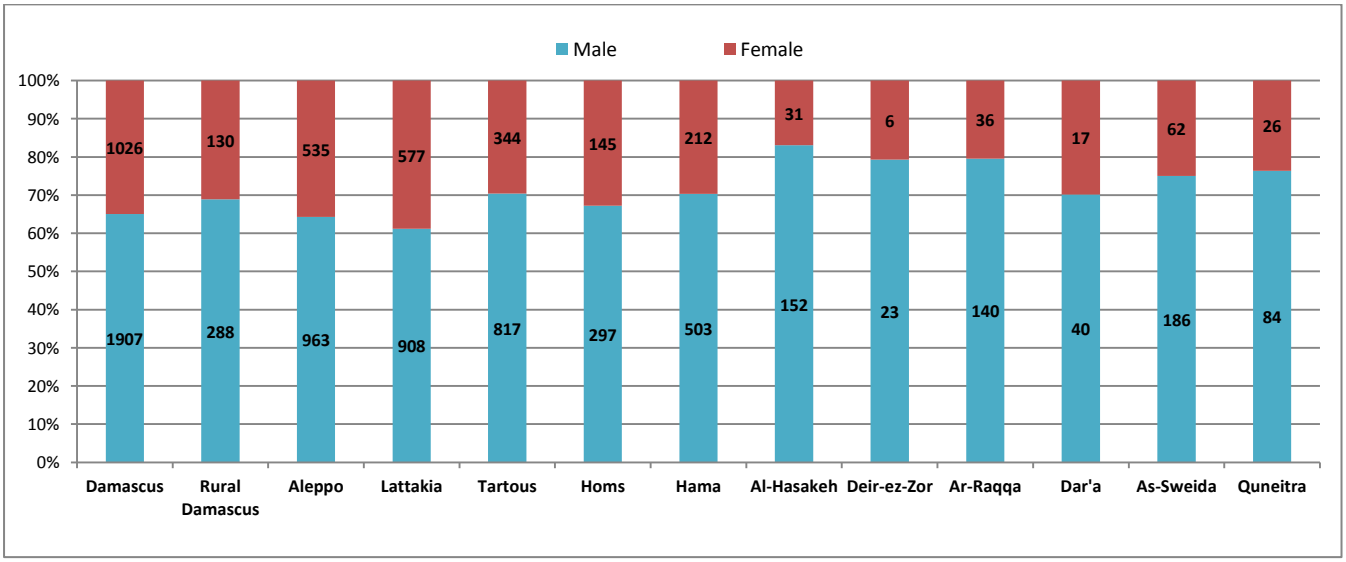
A comparative analysis for the number of **medical doctors** [specialists, emergency doctors, resident doctors, dentists] working in MoH hospitals between June and December 2015, has shown a drop of 386 (3,338 in June compared to 2,952 in December 2015); similarly, a drop of 455 (6,958 to 6,503) in MoHE hospitals.

This could be interpreted as fleeing of specialized medical staff out of the country in some cases, and relocation / reassignment of medical staff to DoHs/ health centres on other cases, based on functionality status of the hospitals, and security situation in the area.

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

By analyzing the proportion of male to female doctors (a total of: Specialists, Emergency Physicians, Resident Doctors, Dentists), lowest proportions are seen in Al-Hasakeh, Deir-ez-Zor and Ar-Raqqa governorates [Figure 23].

Figure 23: Proportion of Doctors (a total of Specialists, Emergency Physicians, Resident Doctors, Dentists), by gender, per governorate, December 2015

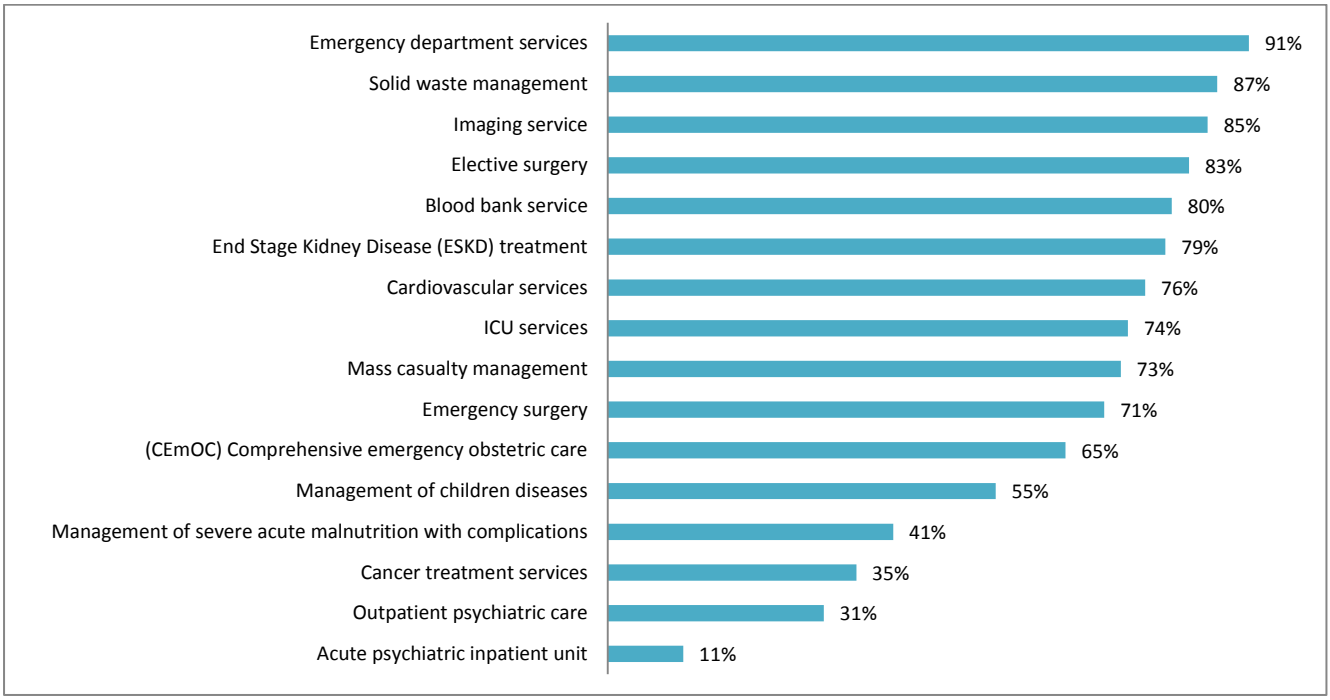


5. Availability and Utilization of the Health Services

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, Non-communicable Diseases, and Mental Health).

Analysis of availability of health services has been conducted across all functional public hospitals [MoH & MoHE]: (84/113). 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 24].

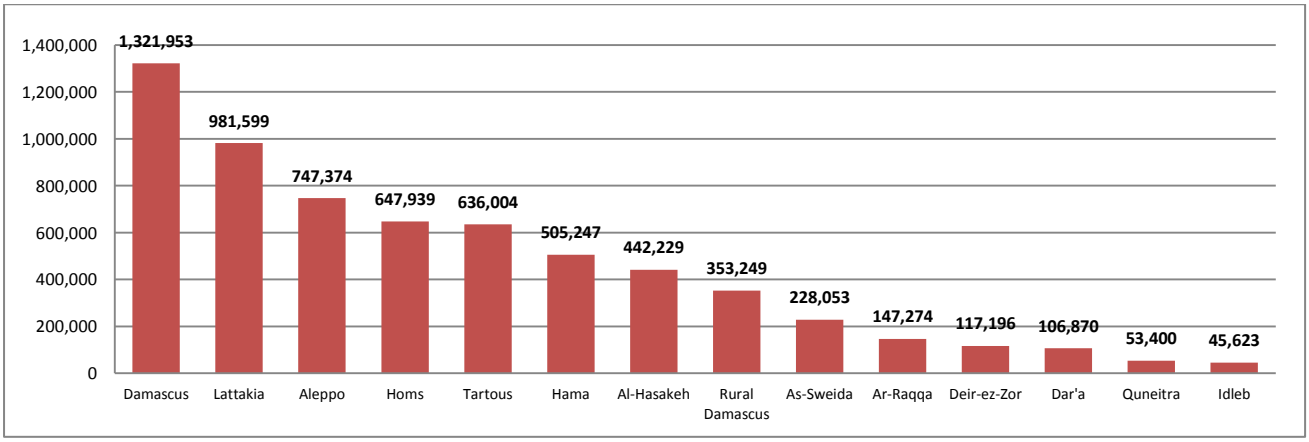
Figure 24: Availability of Health Services in the functional Public Hospitals, December 2015



**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 2015 per governorate [Figure 25]. In 2015, the total estimated caseload in functional public hospitals is **6,334,010**.

Figure 25: Estimated caseload of functional public hospitals (outpatient consultations and emergency cases), January to December 2015

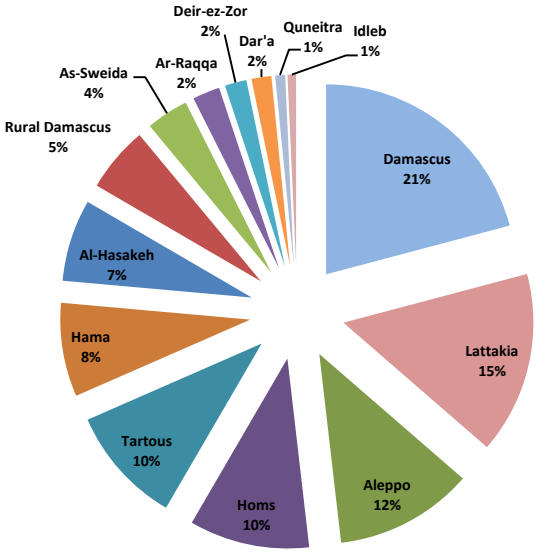


The proportion of workload of functional hospitals per governorate is provided on Figure 26.

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. Non-communicable diseases
7. Mental Health

Figure 26: Proportions of workload during 2015, per governorate



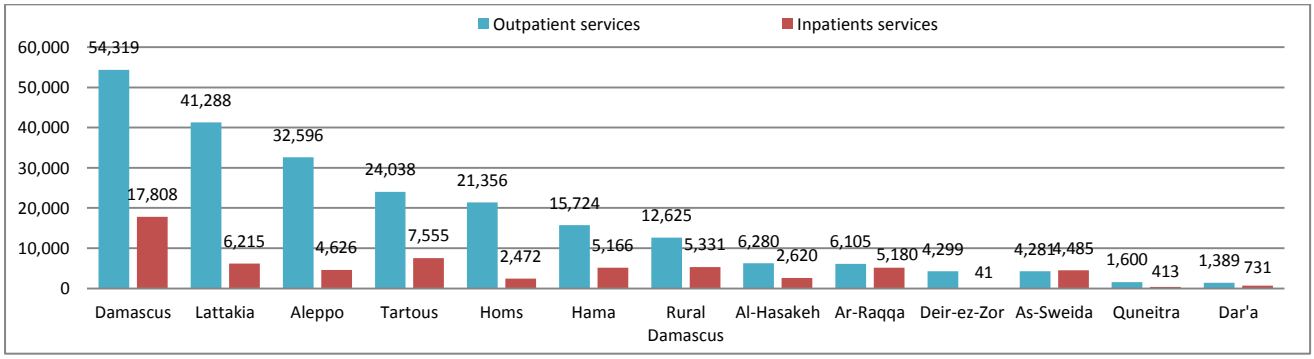
5.1 General Clinical services

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

i. Outpatient and inpatient:

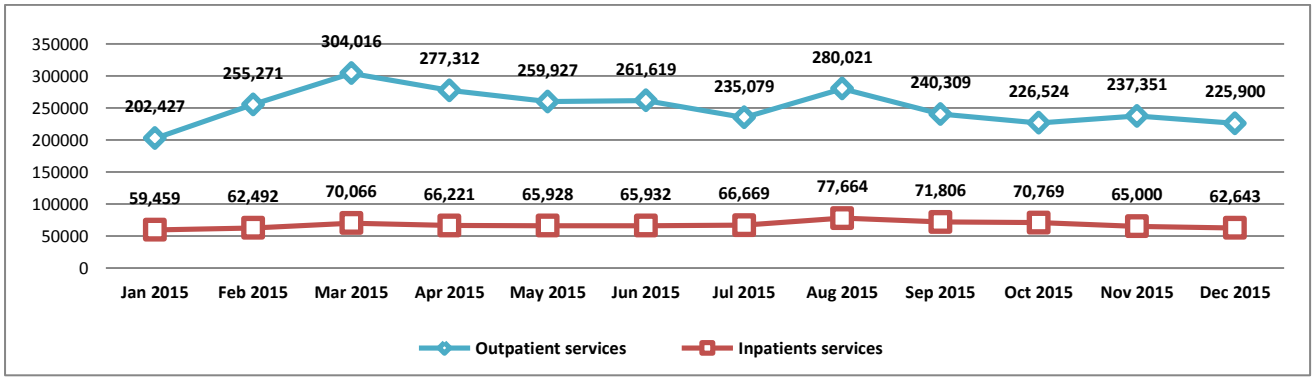
The number of outpatients to inpatients was assessed at a hospital level, and the total numbers reported in December 2015 were summarized and analyzed at governorate level [Figure 27].

Figure 27: The number of Outpatient and Inpatient in public hospitals, December 2015



Trend analysis of total reported numbers of Outpatient and Inpatient from functional public hospitals [MoH & MoHE], for twelve months (January to December 2015), is presented in [Figure 28]. In 2015, the total reported outpatients are **3,005,756** while the inpatients are **804,649**.

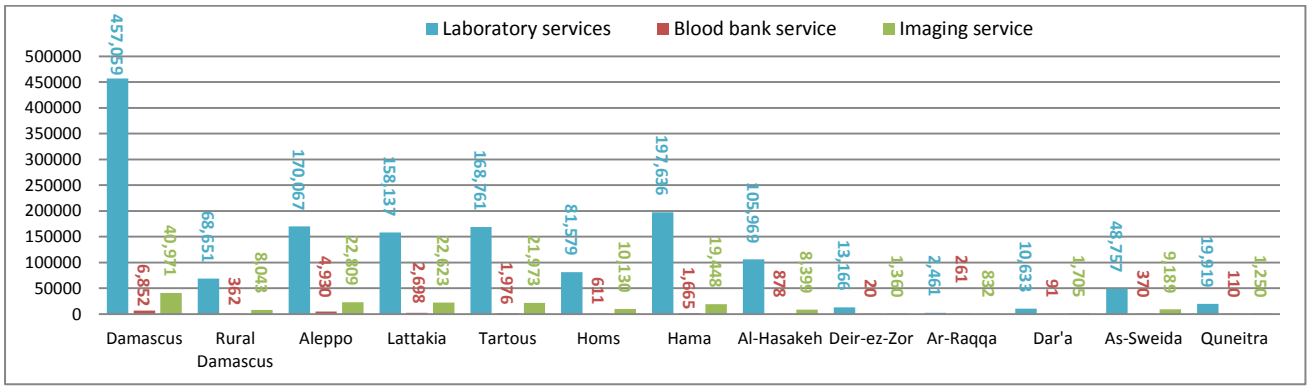
Figure 28: Trend analysis of Outpatient and Inpatient in public hospitals, January to December 2015



ii. Laboratories, blood bank, and imaging services

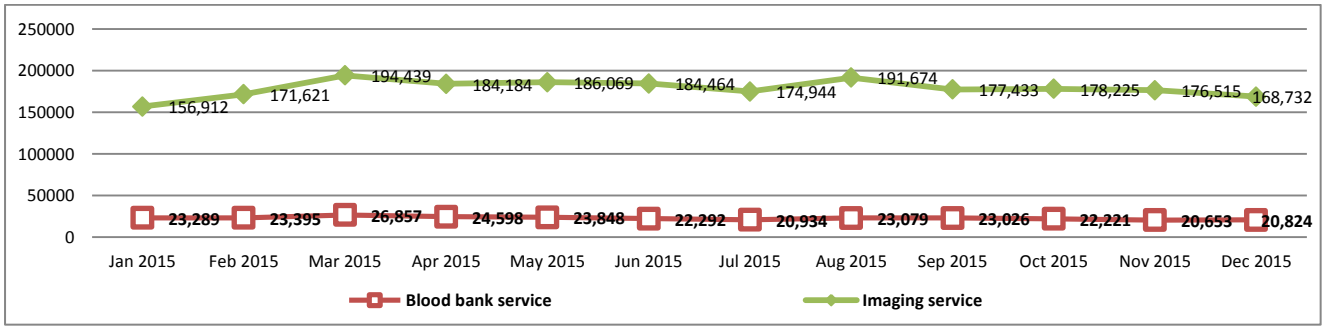
The number of patients received services in hospitals' laboratories, blood bank, and imaging departments was assessed at a hospital level, and the total number of cases from January to December 2015 analyzed at governorate level [Figure 29].

Figure 29: The number of patients received services in laboratories, blood bank, and imaging services in public hospitals, December 2015



Trend analysis of number of patients received services in hospitals' blood banks and imaging departments, from January to December 2015, is presented in [Figure 30]. In 2015, the total reported patients received services in blood banks are **275,016** while patients received imaging services are **2,145,212 [**of note: the total performed service (X-Ray, MRI, and CT Scan pictures) in 2015 are **3,005,823]**.

Figure 30: Trend analysis of number of patients received services in blood banks and imaging services in public hospitals, January to December 2015



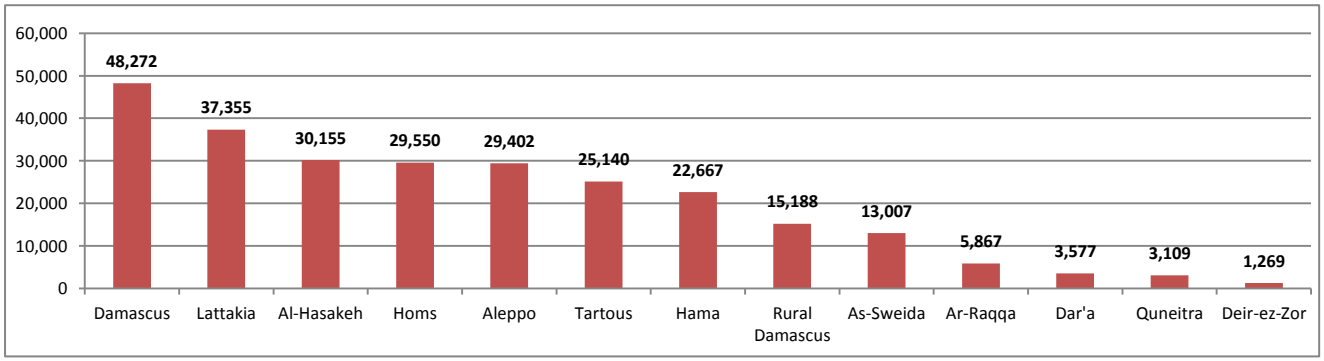
5.2 Surgical and Trauma care

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, mass causalities, and surgeries (elective and emergency).

iii. Emergency cases reported in emergency departments

Figure 31 presents the total number of cases in emergency departments, reported during December 2015 from functional public hospitals at governorate level.

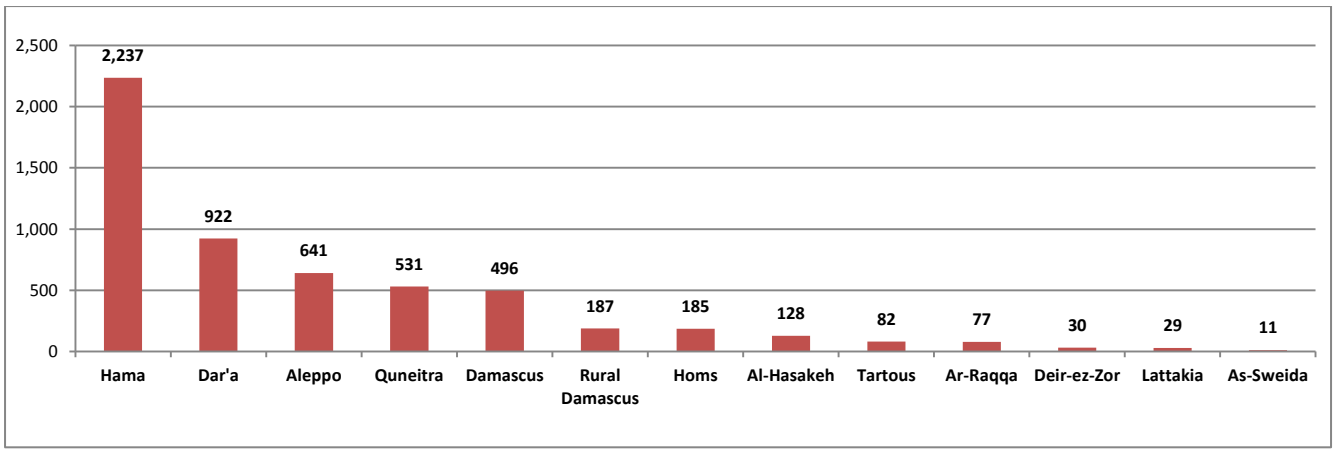
Figure 31: The number of reported cases in emergency department in public hospitals, December 2015



iv. Mass causalities

Figure 32 presents the total number of mass causality cases, reported during December 2015 from functional public hospitals at governorate level.

Figure 32: The number of reported cases of mass casualties in public hospitals, December 2015



v. Emergency and Elective surgeries:

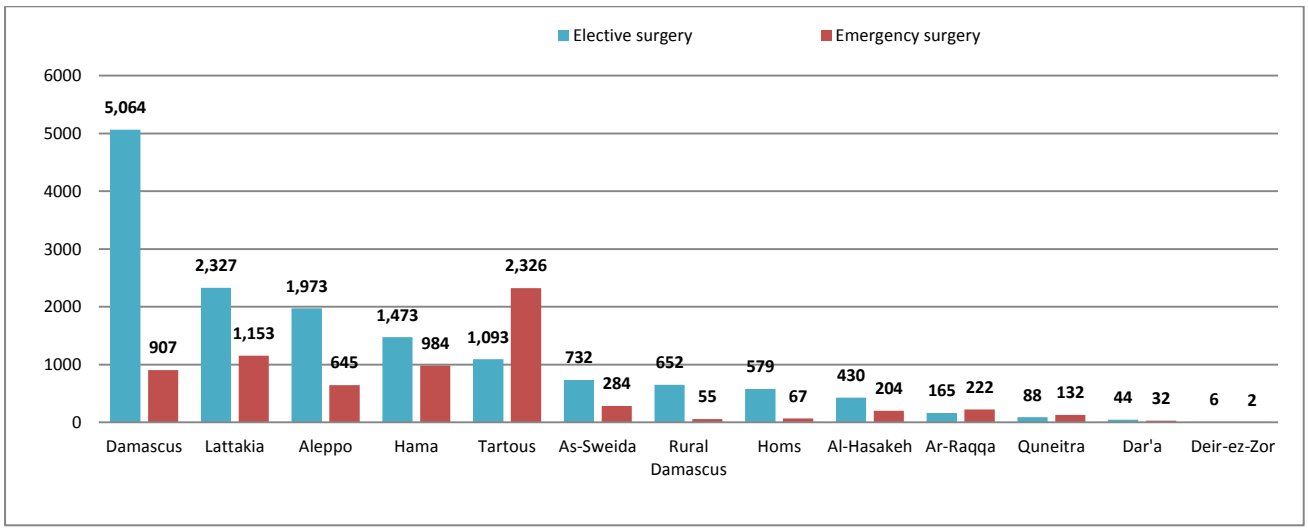
The number of emergency surgeries to elective surgeries was assessed at a hospital level, and total numbers were summarized and analyzed at governorate level [Figure 33].

During December 2015, the highest workload of elective surgeries is reported from Damascus MoH Hospital (Al-Mojtahid: 983 surgeries), followed by Al-Assad university hospital in Damascus (817 surgeries), Al-Assad university hospital/ Lattakia (817 surgeries), Aleppo university hospital (794 surgeries), Hama national hospital (789 surgeries), Ar-Razi MoH hospital in Aleppo (732), Al-Bassel Heart Institute in Damascus (663), and Al-Mouwasat university hospital (625).

While the highest workload of emergency surgeries is reported from Al-Bassel hospital in Tartous (2,004), followed by National hospital in Lattakia (574), then Al-Mouwasat MoHE hospital (494), and Ar-Razi MoH hospital in Aleppo (351), As-Salameyeh national hospital (307), Hama national hospital (295), and Zaid Ash-Shariti hospital in As-Sweida (259).

***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 33: The number of emergency surgeries vs. elective surgeries in public hospitals, December 2015



By analyzing the percent of total emergency surgeries to elective surgeries during December 2015, the highest percent of emergency surgeries across different governorates is reported in Tartous, Quneitra , Ar-Raqqa , Dar'a, and Hama governorates. Across all reported functional public hospitals, 32% of surgeries are emergency while 68% are elective [Figure 34].

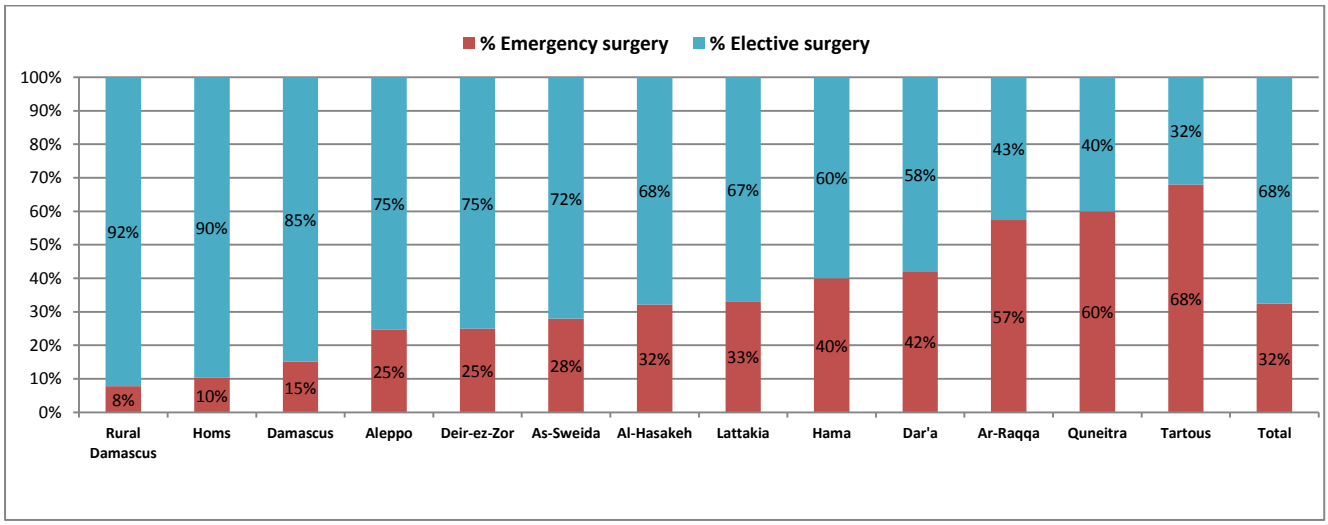
In **Tartous**, the highest figures are reported from Al-Basil surgical hospital, which is the biggest hospital in Tartous, located in the south eastern part of the governorate and adjacent to Hama and Homs. The location of this hospital is also very close to the highway, and majority of the road incidents are received there.

In **Ar-Raqqa**, the number of emergency surgeries is relatively high because of emergency cases received from surrounding in-secure areas.

In **Hama**, the number of emergency surgeries is relatively high because of emergency cases received from surrounding in-secure areas (Rural Hama, Idleb, and Rural Lattakia).

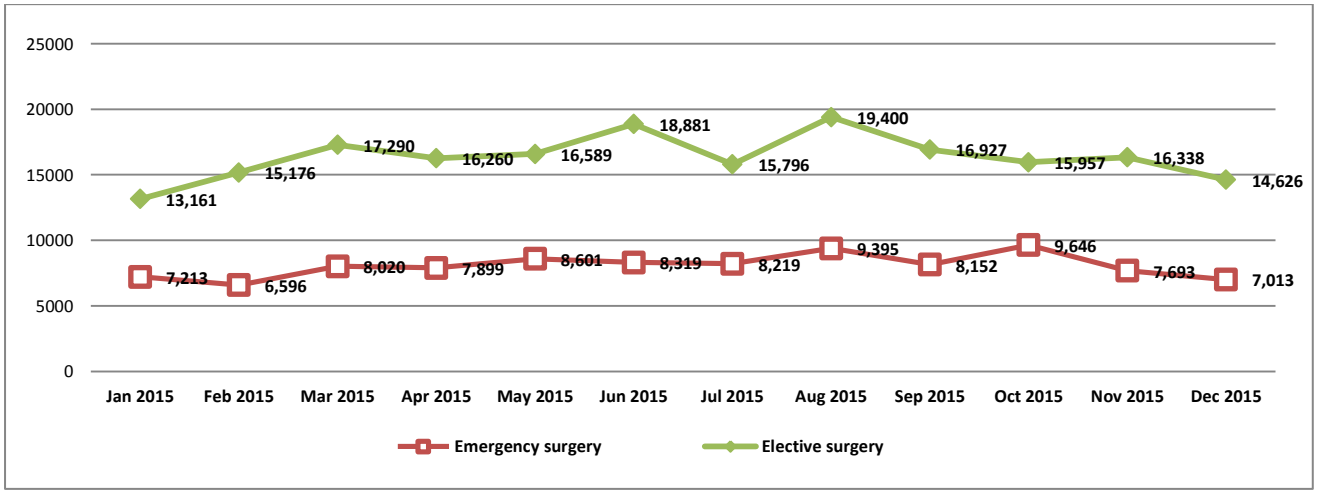
In **Dar'a** and **Quneitra**, the high percent of emergency surgeries is due to the escalating security situation; emergency surgeries are given higher priority than cold surgeries.

Figure 34: Percentage of total emergency surgeries to elective surgeries in public hospitals per governorate, December 2015



Trend analysis of total number of elective and emergency surgeries reported in functional public hospitals [MoH & MoHE], from January to December 2015 is presented in Figure 35. In 2015, the total reported emergency surgeries are **96,766** while the elective surgeries are **196,401**.

Figure 35: Trend analysis of number of patients received emergency surgeries and elective surgeries in public hospitals, January to December 2015



5.3 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 2015 summary figures by governorate
- Percentage of CSs to normal deliveries, of December 2015
- Trend analysis of the monthly normal deliveries vs. caesarean sections, January to December 2015

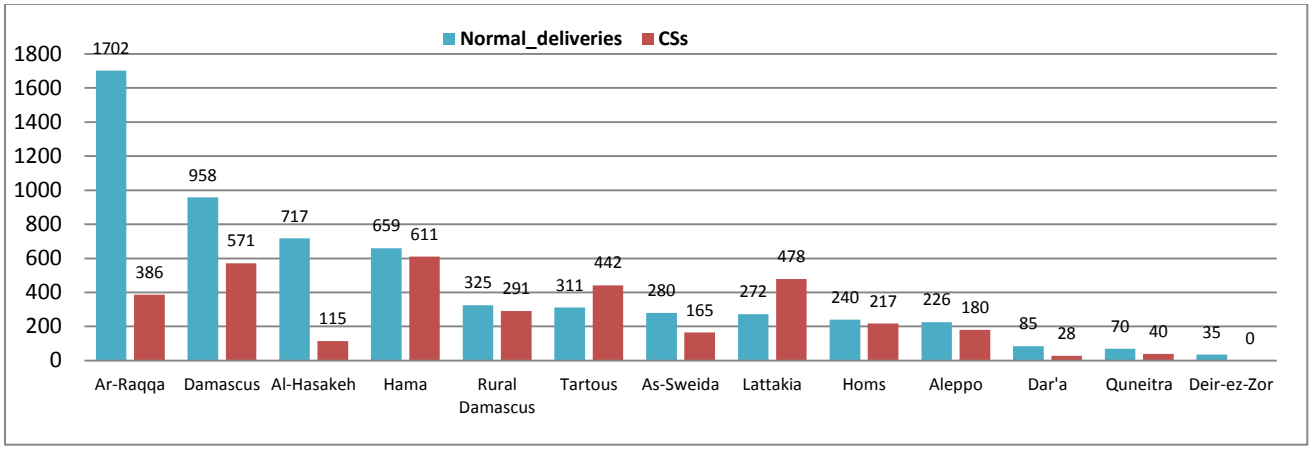
i. Utilization of service (caesarean sections vs. normal deliveries)

The numbers of caesarean sections performed at public hospitals (in December 2015) versus the normal deliveries have been analyzed at governorates' level [Figure 36].

The highest numbers are reported from Maternity hospital in Ar-Raqqa [normal deliveries are 1,500 while CSs are 355]. Of note, the maternity hospital in Ar-Raqqa is the only reported provider for delivery services in the governorate, after closure of the maternity specialized centre in the city in addition to the high cost of delivery in private centres, which is unbearable cost for the residing population

The high figures reported in Damascus hospitals are from the Obs. and Gyn. MoHE Hospital [normal deliveries are 567 while CSs are 468] followed by Al-Zahrawi MoH Hospital [normal deliveries 391 while the CSs are 103 case.

Figure 36: The No. of normal deliveries and caesarean sections (CSs) performed at public hospitals, December 2015



ii. Percentage of CS to normal deliveries

The global norm for the percentage of CS to normal deliveries is 5% to 15%. Based on [Figure 34], 12 governorates are above the threshold.

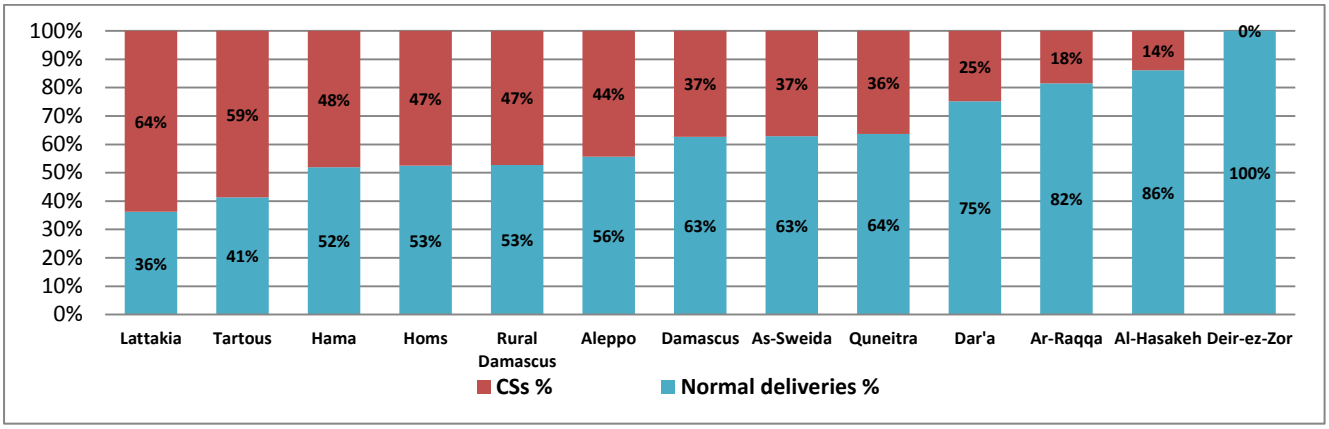
The highest figures of caesarian sections in December 2015 are reported in Lattakia (478 CSs compared to 272 normal deliveries) and Tartous (442 CSs compared to 311 normal deliveries), which are due to cultural preferences, where the pregnant women opt for cesarean sections for several reasons, such as:

- Reducing the pain associated with childbirth
- Choosing a fixed date for delivery, in relation to other social occasions

In Homs, Rural Damascus, and Aleppo the high numbers of CSs are due to the fact that majority of the pregnant women prefer to do caesarean sections, because of the security situation and hassles they could go through if they opted for normal delivery.

Across all reported functional hospitals in December 2015, 37% (3,524) of deliveries are CSs while 63% (5,880) are normal deliveries. Details on percent of CSs to normal deliveries per governorate in December 2015, is provided in [Figure 37].

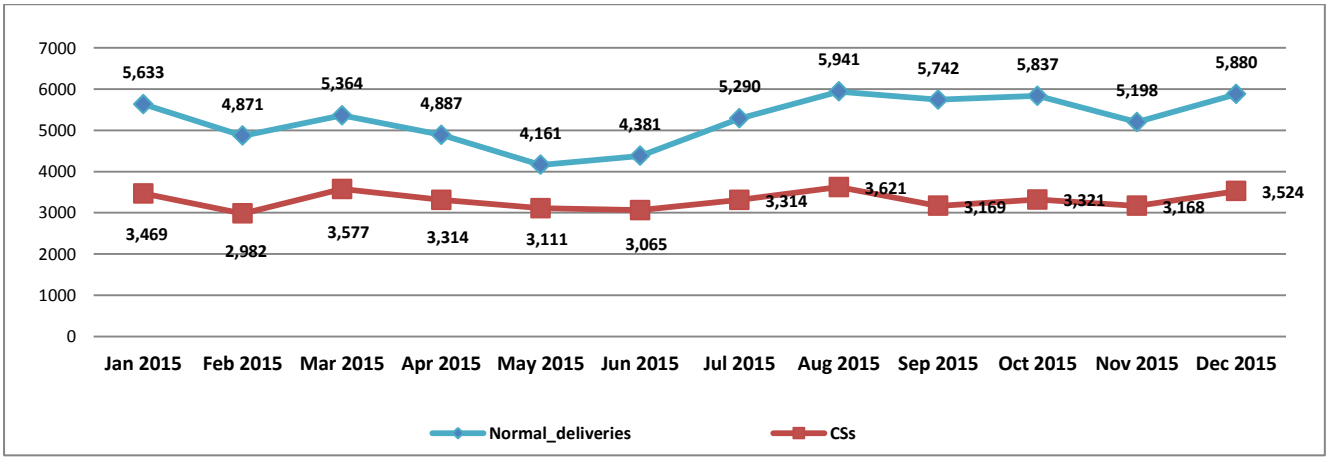
Figure 37: percentage of caesarean sections to normal deliveries in public hospitals, December 2015



iii. Trend analysis of the monthly numbers of normal deliveries vs. caesarean sections

Trend analysis of the monthly numbers of normal deliveries vs. caesarean sections reported from the MoH & MoHE hospitals, from January to December 2015 is shown in Figure 38. In 2015, the total reported normal deliveries are **63,185** while the caesarean sections are **39,635**.

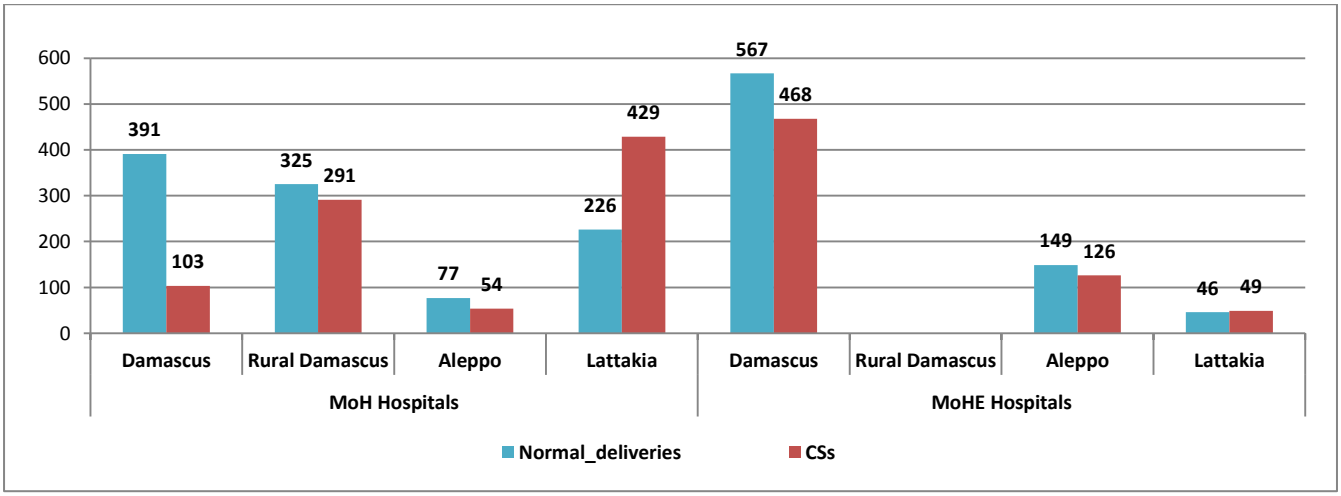
Figure 38: Trend analysis of the monthly numbers of normal deliveries vs. caesarean sections in public hospitals, January to December 2015



iv. 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, has shown higher workload for the MoHE Hospitals mainly in Damascus governorate (Al-Tawleed [Obstetrics and Gynecology] hospital for MoHE); [Figure 39].

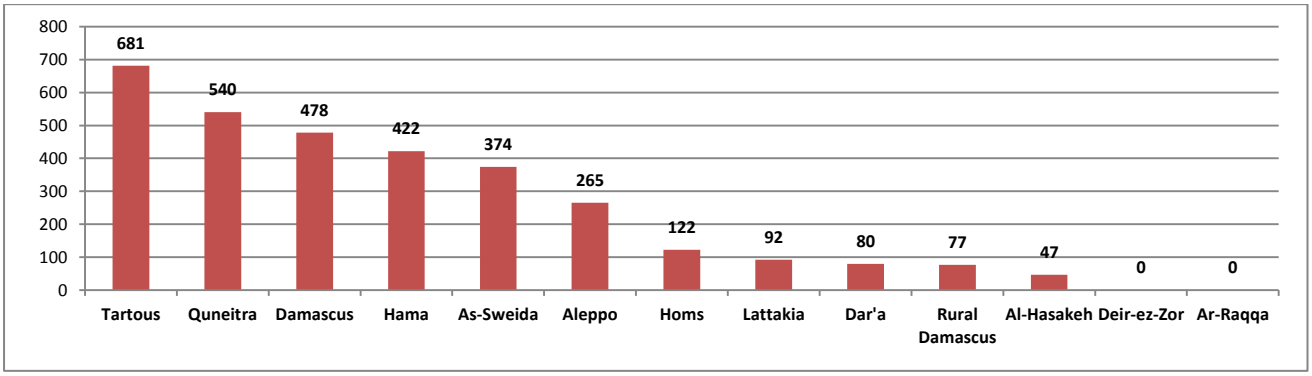
Figure 39: Comparison of MoH & MoHE hospitals workload of normal deliveries vs, CSs, December 2015



5.4 Child Health

Management of severe children diseases (such as acute respiratory diseases, Meningitis, blood diseases cancer, etc…) are assessed at hospitals level. Figure 40 shows the distribution of total reported cases of children with severe diseases by governorate.

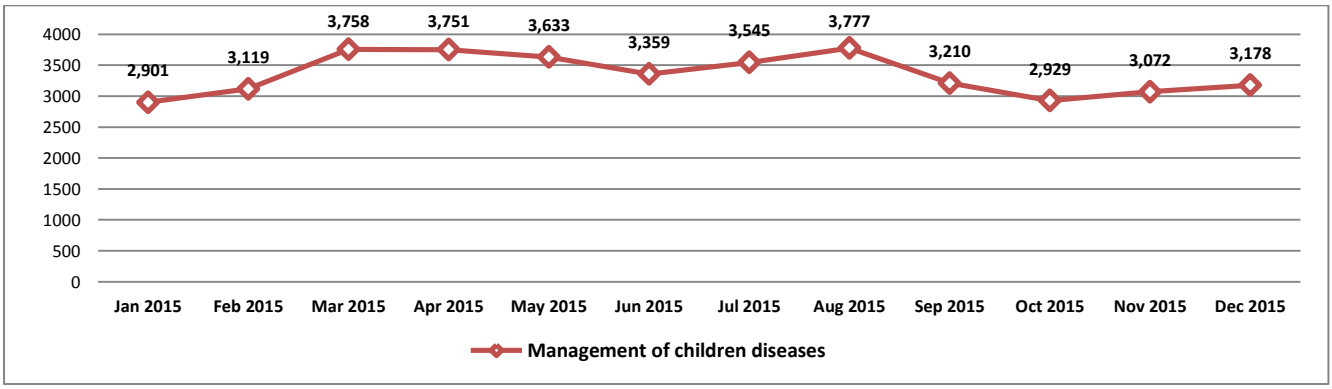
Figure 40: Number of children with severe diseases in public hospitals, December 2015



The high reported figures in Tartous, Quneitra, Damascus, Hama, and As-Sweida are due to the high numbers of IDPs, and also availability of MoHE referral hospitals for children in some of these areas. While in Quneitra it was due to bad weather condition.

Trend analysis of reported cases of severe children diseases from January to December 2015, is presented in [Figure 41]. In 2015, the total reported cases of severe children diseases are **40,232**.

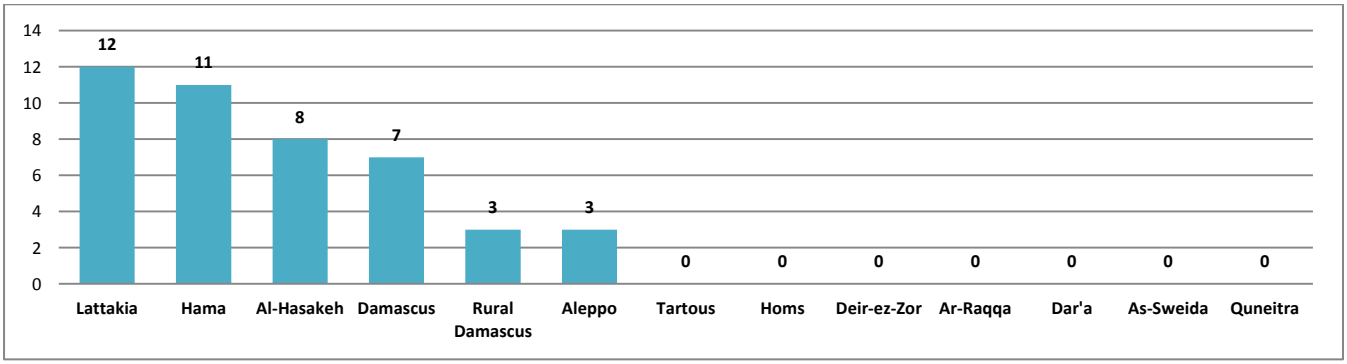
Figure 41: Trend analysis of reported cases of severe children diseases in public hospitals, January to December 2015



5.5 Nutrition

Monitoring of cases of severe acute malnutrition with complications is systematically conducted at public hospitals level; Figure 42 demonstrates the number of cases reported in December 2015, at governorate level.

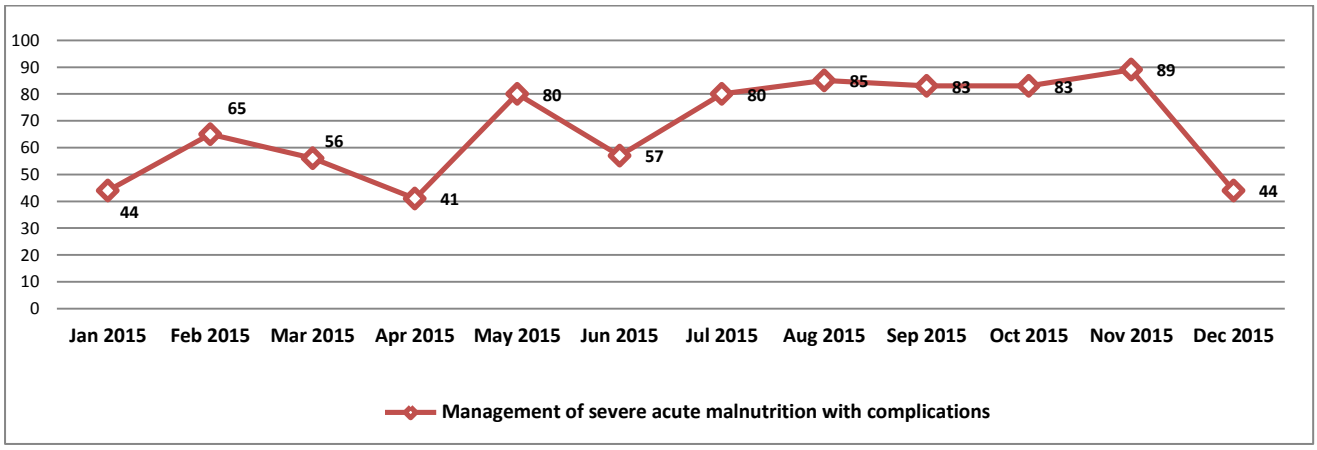
Figure 42: The number of children with severe acute malnutrition with complications in public hospitals, December 2015



The high reported figures in Lattakia, Hama, Al-Hasakeh, and Damascus are due to the high numbers of IDPs.

Trend analysis of reported cases of severe acute malnutrition from January to December 2015, is presented in [Figure 43]. In 2015, the total reported children with severe acute malnutrition are **807**.

Figure 43: Trend analysis of number of children with severe acute malnutrition with complications in public hospitals, January to December 2015



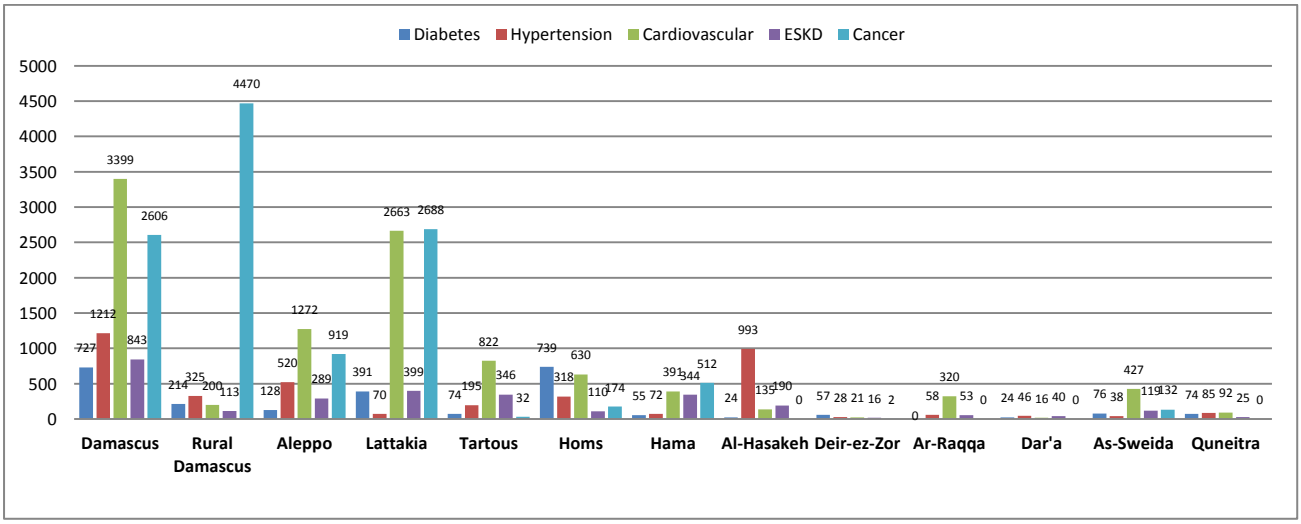
5.6 NCDs (non-communicable diseases)

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, Hypertension, Cardiovascular, Kidney and Cancer diseases) are from Damascus hospitals.

Among all NCDs, Cancer patients' consultations are the highest reported figures, mainly in Damascus, Rural Damascus (has one cancer specialized hospital), and Lattakia (has one cancer specialized hospital) public hospitals, where cancer referral hospitals are located. 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 were high in Damascus (has two cardiovascular specialized hospitals), Lattakia (has one cardiovascular specialized hospital), Aleppo (has two cardiovascular specialized hospitals), Tartous, and Homs in December 2015 [Figure 44].

Figure 44: The number of NCDs' consultations in public hospitals, December 2015



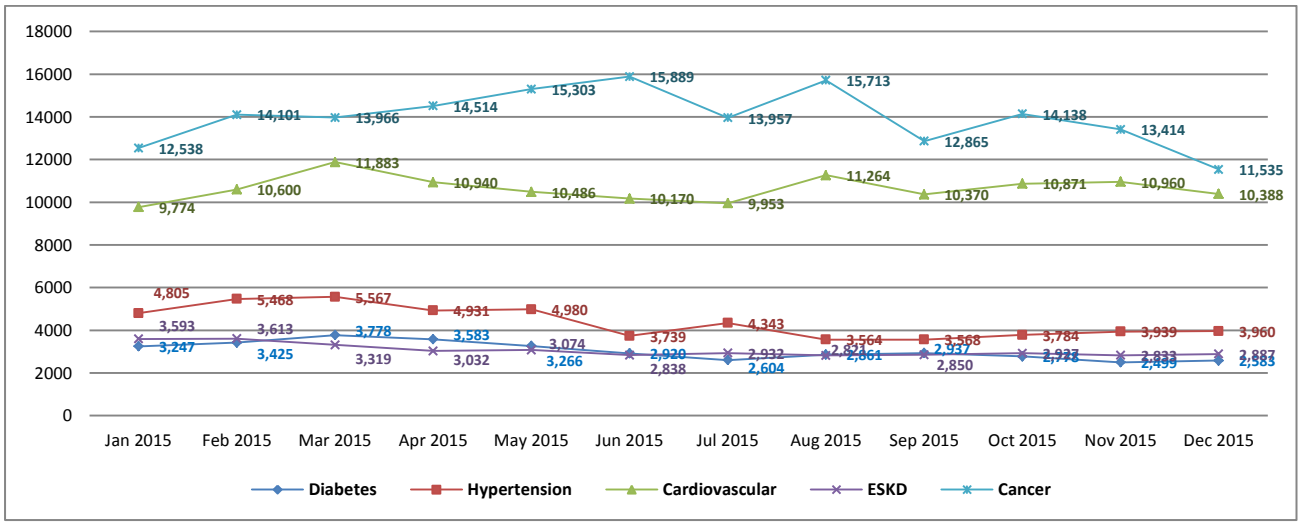
*ESKD: End Stage Kidney Disease

The monthly trend of reported NCDs' consultations at functional public hospitals from January to December 2015 is shown in [Figure 45].

In 2015, the total reported NCDs' consultations are as follow:

- Diabetes: **36,481**
- Hypertension: **52,648**
- Cardiovascular: **127,659**
- ESKD: **36,719** [of note: the total performed ESKD Sessions in 2015: **279,283**]
- Cancer: **167,933**

Figure 45: Trend analysis of total monthly number of NCDs' consultations reported in public hospitals, January to December 2015



The high numbers were reported mainly from Al-Bairouni MoHE hospital in Rural Damascus (4,468), which is the biggest cancer specialized hospital.

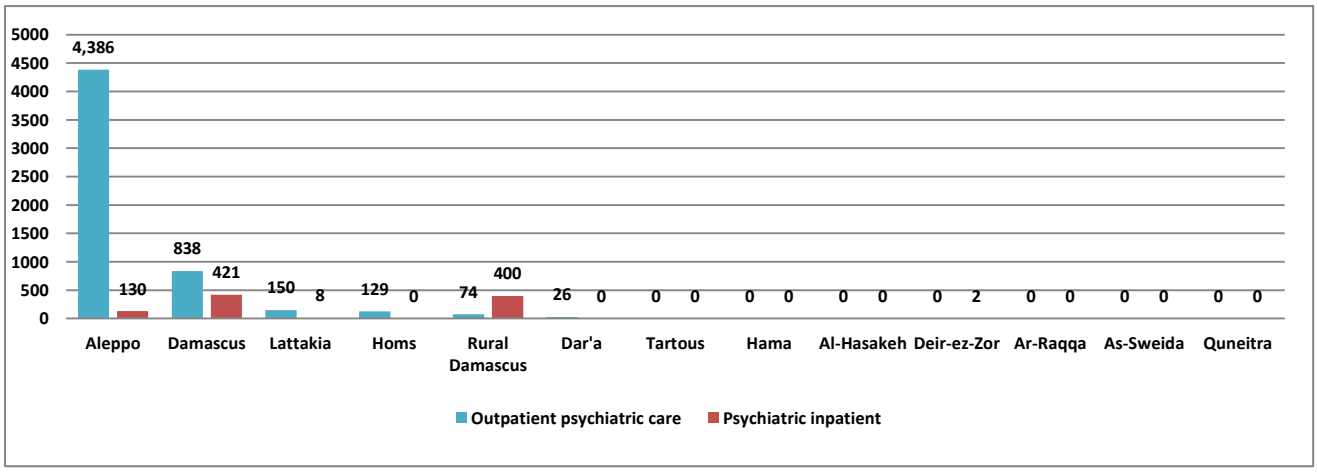
5.7 Mental Health

Availability and utilization of mental health services were assessed through HeRAMS by checking the outpatient and inpatient services at hospitals level and the number of patients. Summary of the total reported consultations (outpatient) and inpatients at public hospitals, per governorate level is shown in [Figure 46].

The high figures of **outpatients** in Aleppo are reported from Ibn-Khaldoun mental health specialized hospital/ MoH (4,334 cases) and Zahi Azraq MoH hospital (52 cases), while in Damascus high reporting is received from Ibn-Roshod mental health specialized hospital/ MoH (407 cases), followed by Al-Mojtahid [Damascus MoH Hospital] (222 cases), Al-Mouwasat MoHE hospital (173 cases), and Children MoHE hospital (36 cases).

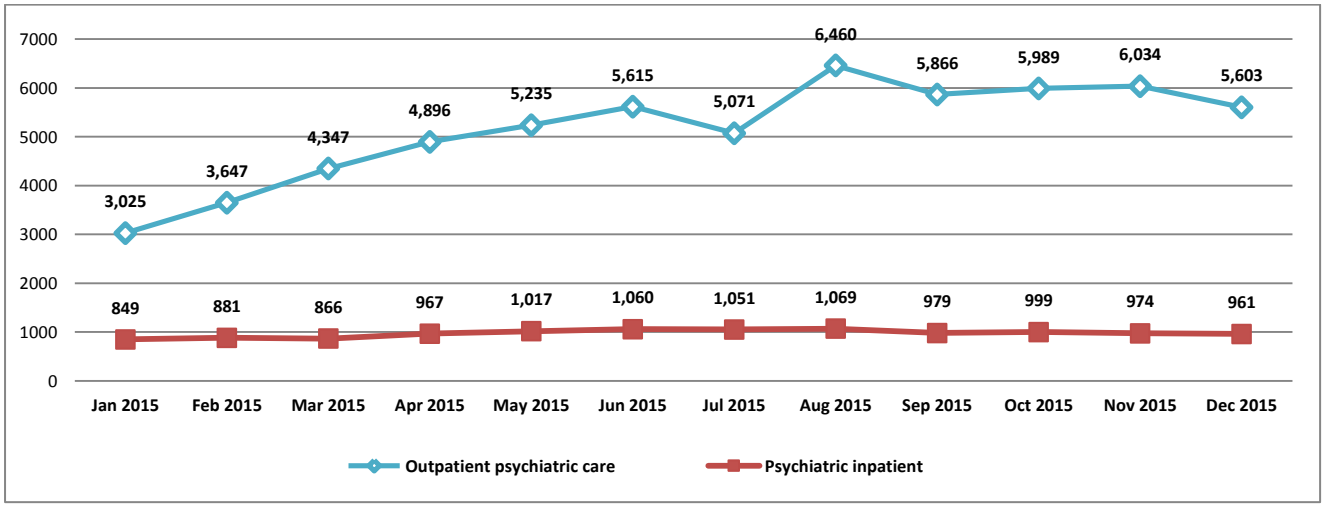
The key figures of **inpatients** are reported from Damascus (Ibn-Roshod hospital (407 cases), followed by Al-Mouwasat MoHE hospital (14 cases); Rural Damascus (Ibn-Sina Psychiatric MoH hospital (400 cases); and Aleppo (Ibn-Khaldoun MoH hospital (130 cases)).

Figure 46: The number of outpatient psychiatric cases vs. the number of inpatients in public hospitals, December 2015



Trend analysis of monthly reported number of outpatient psychiatric cases vs. the number of inpatients in public hospitals [MoH & MoHE] from January to December 2015 is shown in [Figure 47]. In 2015, the total reported outpatient psychiatric cases are **61,788** while the psychiatric inpatient cases are **11,673**.

Figure 47: Trend analysis of number of outpatient psychiatric cases vs. the number of psychiatric inpatient cases in public hospitals, January to December 2015



6. 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 checklist[2].

In its fifth year of crisis, Syria's hospitals 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] (84/113), 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 48] and [Figure 49].

Figure 48: Percentage of functional essential equipment/ total available equipment in functional public hospitals, December 2015

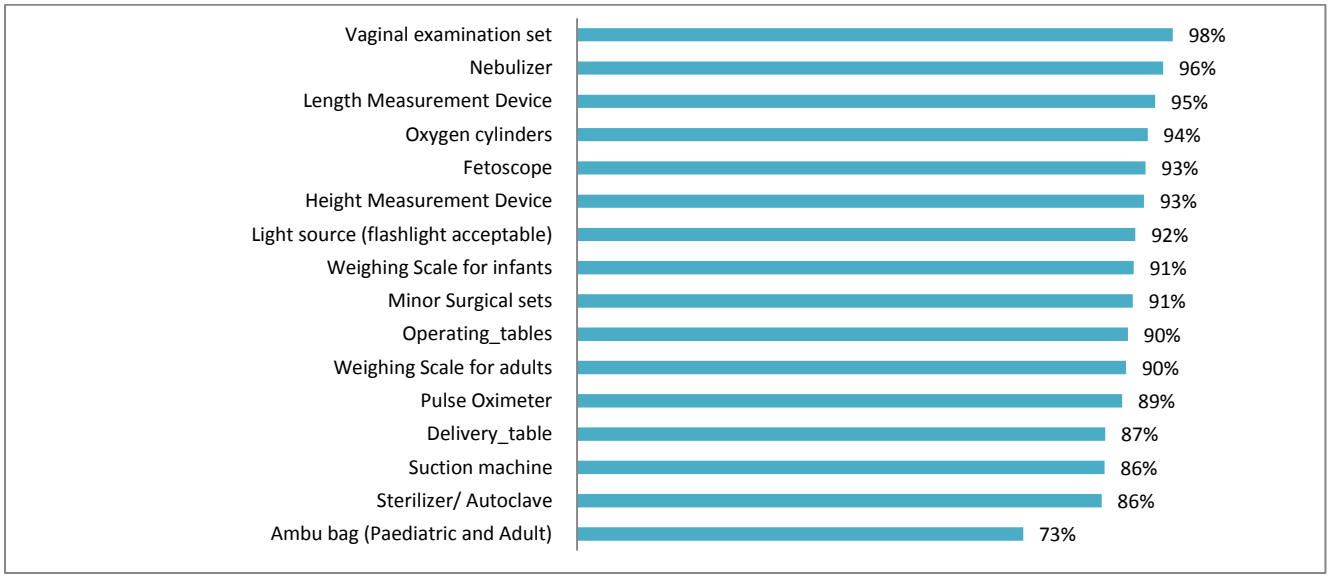
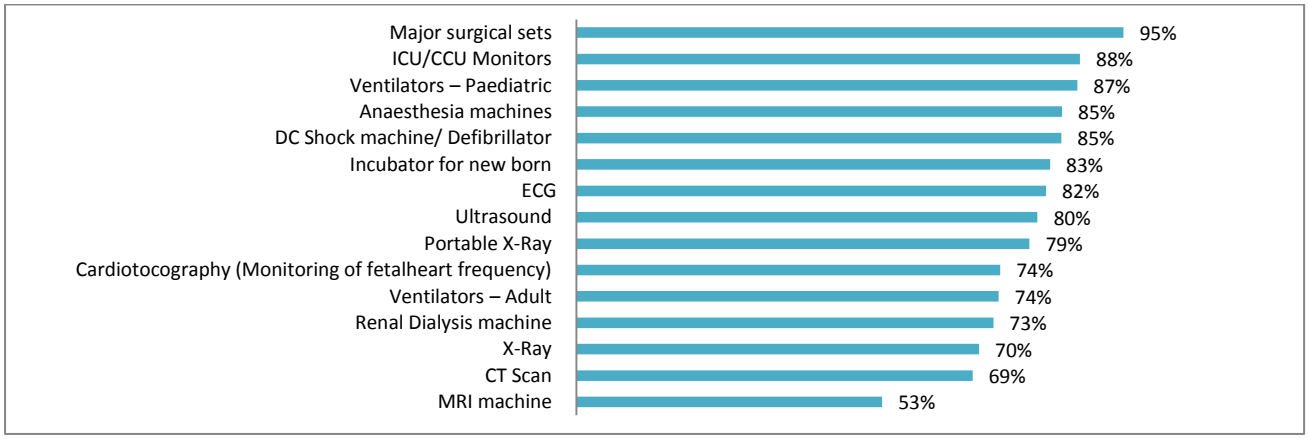


Figure 49: Percentage of functional specialized equipment/ total available equipment in the functional public hospitals, December 2015

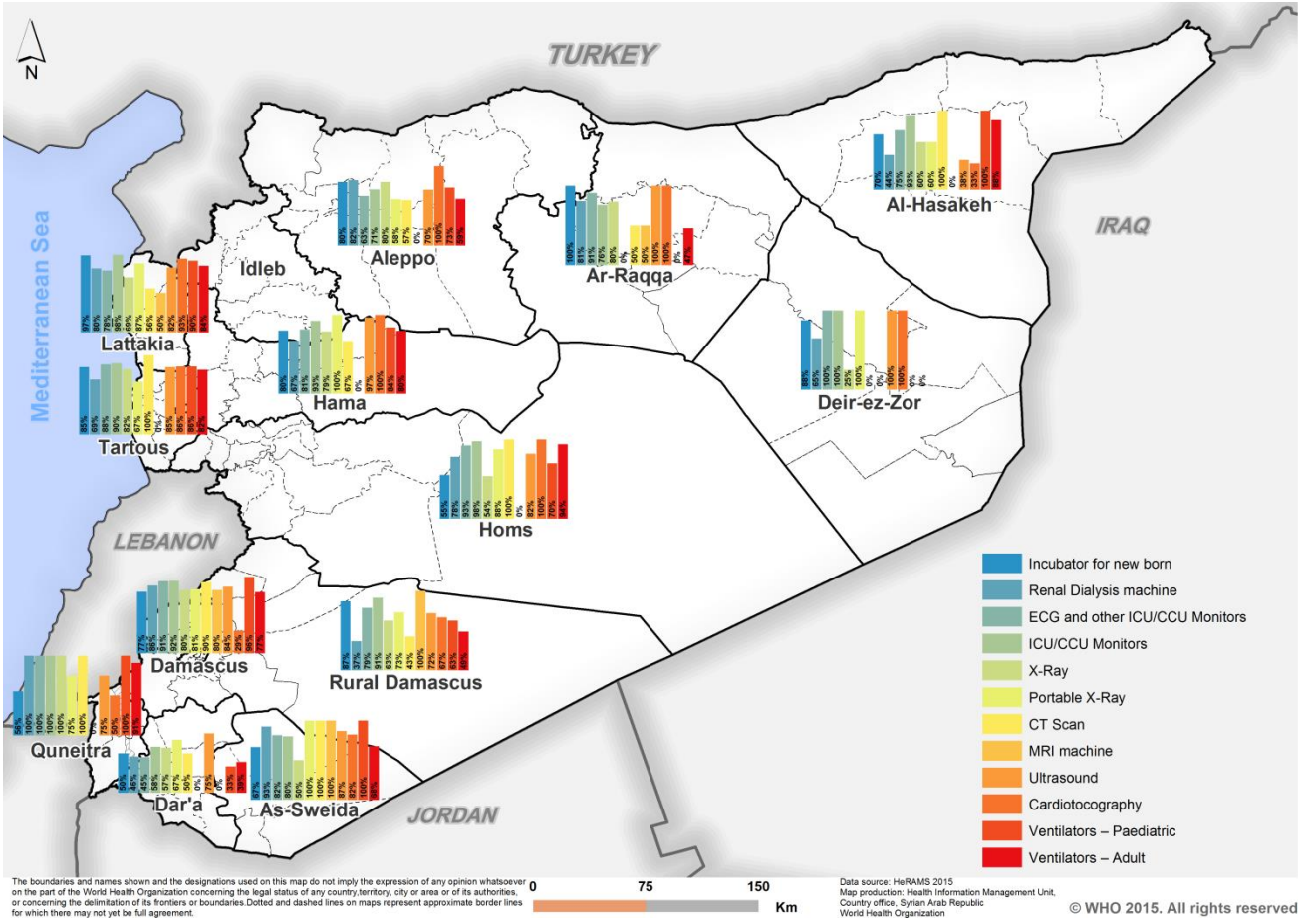


[2] A more detailed list of essential equipment is available upon request.

Analysis of availability of specialized equipment [Figure 49] has highlighted many gaps and urgent needs for equipment and machines at different governorates; such as:

- MRI machines: main gaps are in Damascus, Aleppo, Lattakia, Tartous, Homs, Hama, Al-Hasakeh, Deir-ez-Zor, Ar-Raqqa, Dar'a, Quneitra hospitals.
- Cardio-topography (Monitoring of fetal-heart frequency); main gaps are in Damascus, Rural Damascus, Al-Hasakeh, Dar'a, Quneitra hospitals.
- CT scanners: main gaps are in Rural Damascus, Deir-ez-Zor, Ar-Raqqa, Dar'a hospitals.
- Ventilators for adults: main gaps are Rural Damascus, Deir-ez-Zor, Ar-Raqqa, Dar'a hospitals.
- X-Ray machines: main gaps are in Deir-ez-Zor and As-Sweida hospitals.
- Portable X-Ray: main gaps are in Aleppo, Al-Hasakeh, Ar-Raqqa hospitals.
- Renal dialysis machines: main gaps are in Rural Damascus, Dar'a, Al-Hasakeh hospitals.
- Incubator for new born: main gaps are Homs, Dar'a, Quneitra hospitals.

Map 5: Percent of functional specialized equipment/ total available equipment in functional public hospitals, December 2015

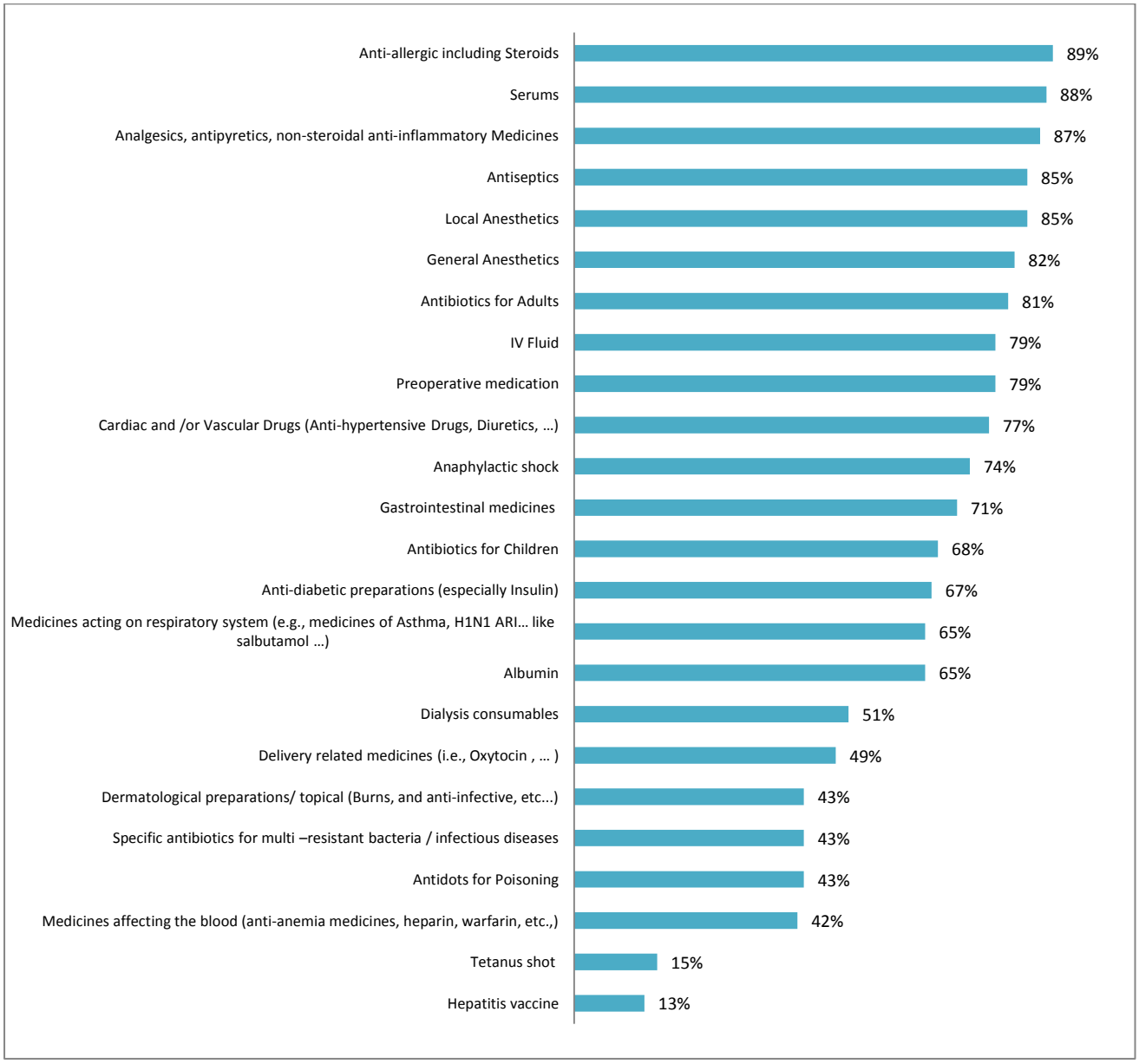


7. Availability of Medicines & Medical supplies

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 47].

The key identified gaps of medicines and consumable at functional hospitals include the hepatitis vaccine (87%), tetanus shots (85%), affecting blood (58%), antidotes for poisoning (57%), antibiotics for multi-resistant bacteria (57%), dermatological preparation (57%), delivery related medicines (51%), dialysis consumables (49%), Albumin (35%), etc.

Figure 50: Availability of medicines and medical supplies for one month in the functional public hospitals, December 2015

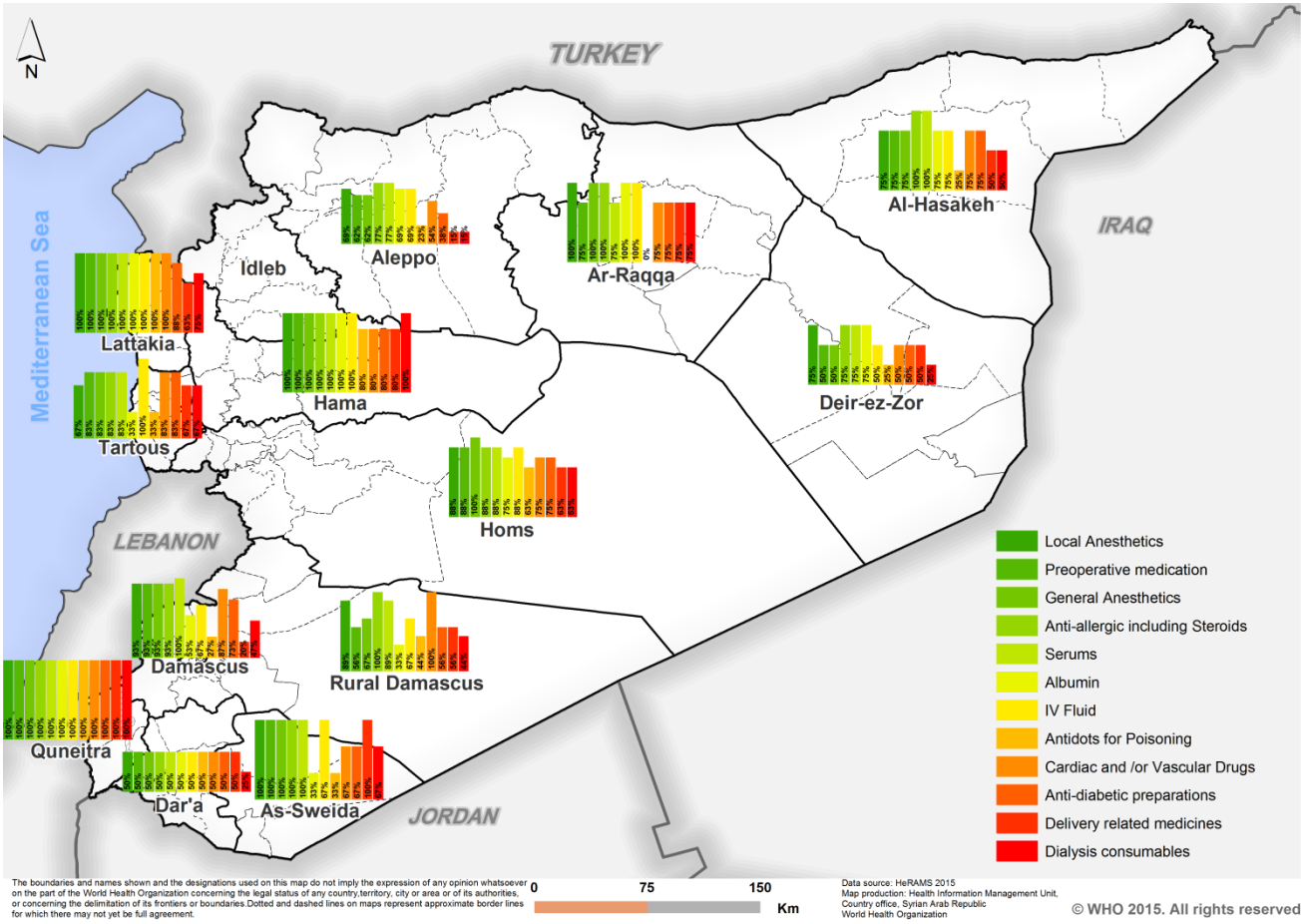


Based on the priority medicines list agreed by MoH and WHO, WHO has managed to address the gaps of medicines identified at all levels of healthcare.

Percentages of available medicines in functional public hospitals, by governorates, are visualized in Map 6.

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

Map 6: Percentage of available medicines in functional public hospitals, December 2015



8. Conclusions and Recommendations

Constant deterioration of functionality status of public hospitals was observed throughout 2015. For example, 29 hospitals were reportedly out-of-service in December 2015 compared to 19 in January of the same year, while June marked a record high of 31 non-functional hospitals. Similarly, access to the public hospitals deteriorated throughout 2015 with 25 hospitals reportedly non-accessible at the close of the year compared to 17 at the beginning of the year in January 2015. 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.

Consistent decline of the available number of medical staff (doctors, nurses and midwives) throughout 2015 was observed, and interpreted as fleeing of specialized medical staff out of the country in some cases, and relocation / reassignment of medical staff to DoHs/ health centres in other cases, based on functionality status of the hospitals, and security situation in the area. 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.

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.

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