



HeRAMS Annual Report 2014

(Public Hospitals in the Syrian Arab Republic)

100% of public hospitals were assessed for functionality and availability of health resources and services

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 2014.

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Abbreviations

CEmOC	Comprehensive Emergency Obstetric Care
CS	Caesarean Sections
DoH	Department of Health
ECG	Electrocardiography
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 assessments to monitor the impact of the crisis on the health facilities functionality, accessibility, condition status, availability of resources and services, have been conducted using **HeRAMS** (Health Resources & services Availability Mapping System) tool. The report provides descriptive analysis for the public hospitals in all 14 governorates of Syria [including Ministry of Health (MoH) hospitals and Ministry of Higher Education (MoHE) hospitals (a total of 113 hospitals by end of 2014)].

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. Key achievements include expansion of the system to cover MoHE hospitals; improved national HIS capacity through regular workshops and trainings; strengthened operational capacity of HIS units in all governorates, through supplying of ICTs means; developed database system and standardized reporting channel, tools and protocols.

Completeness of Hospitals' reporting remained 100%, where all 99 (MoH) hospitals and 14 (MoHE) hospitals reported to HeRAMS in December 2014.

Functionality status of the public hospitals:

By end of December 2014, and out of the **113** assessed public hospitals [MoH & MoHE], 45% (51) were reported fully functioning, 34% (38) hospitals were reported partially functioning, while 21% (24) were reported non-functioning (completely out of service).

Accessibility status:

By end of December 2014, 72% (81) hospitals were reported accessible, 8% (9) hard-to-reach, and 20% (23) were in-accessible.

Infrastructure of public hospitals:

By end of December 2014, 39% (44) hospitals were reported damaged [12% fully damaged and 27% partially damaged], while 61% (69) of public hospitals were reported intact.

66% (59) of functional public hospitals across Syria are in need for ambulances, and 31% (28) are in need for electrical generators.

Human Resources:

The emergency physicians remain the lowest proportion of health staff in public hospitals (0.3%), followed by pharmacists (0.8%), dentists (1%), midwives (5%), specialists (16%), resident doctors (19%), and nurses (58%). Analysis of proportions of medical doctors [specialists, emergency doctors, resident doctors, dentists] working at MoHE hospitals versus MoH hospitals has shown that 30% of medical doctors work in MoHE, while 70% are in MoH hospitals.

Availability and Utilization of Health Services

Analysis of availability of health services was conducted across all functional public hospitals [MoH & MoHE]. 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. Detailed analysis on services' availability and utilization throughout 2014 by category (i.e., general clinical services, trauma care, nutrition, child health, 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 are related to medicines affecting blood (72%), antidotes for poisoning (63%), antibiotics for multi-resistant bacteria (63%), dermatological preparation (60%), tetanus shots (58%), delivery related medicines (49%), and dialysis consumable (49%).

1. HeRAMS Highlights in 2014

HeRAMS Scope

- ◆ HeRAMS is implemented in the public health facilities of Ministry of Health [Hospitals and Health Centres] and Hospitals of Ministry of Higher Education in 14 governorates of Syria.
- ◆ Regular assessment of public health facilities have been continued during 2014, using standard HeRAMS tools for monitoring of the health facilities situation and systematic identification of needs and gaps.

Key Achievements

- ◆ **Expansion of HeRAMS** to cover MoHE hospitals; it was a turning point in 2014 that **100%** of public hospitals [MoH & MoHE] (113/113) and **92%** (1,618/1,750) of public health centres is reporting to HeRAMS (Health Resources and services Availability Mapping System) in the 14 Governorates of Syria.
- ◆ **Improved national HIS capacity**, through conducting several workshops for strengthening HeRAMS and other HIS components. **2,555 participants** in the workshops conducted at different levels (i.e., workshops at central, governorates and health districts' level). The workshops that could not be conducted at governorates' level (Rural Damascus, Quneitra and Dar'a) were conducted in Damascus for security reasons.
- ◆ With deployment of HeRAMS, **the national health information system was strengthen** for emergency response, which enabled monitoring of health situation, functionality status, level of damage, accessibility to health facilities, availability of services, resources, medicines and equipment; improved coordination, delivery of assistance, and informed-decision making; planning and mobilization of resources.
- ◆ **Systematic and unified channel** of needs identification, which enabled WHO to deliver targeted/ focused humanitarian assistance (e.g., preparing medicines' shipments for areas of needs).
- ◆ **Strengthened operational capacity** of HIS units in all governorates, through supplying of **ICTs** means for reporting staff, resulted in improved timeliness & completeness of reporting, quality of data, flow of information and dissemination.
- ◆ Improved **Monitoring & Evaluation system**; a standard format was developed and implemented to monitor and evaluate the HeRAMS progress in different governorates, and 16 site visits were conducted.

Challenges

- ◆ The main challenges encountered throughout HeRAMS data collection, were accessibility and security situation, in addition to the frequent power cuts and disconnect of the network coverage in many governorates. The high turn-over and shortages of health staff were also represented key challenges for sustainable and timely reporting of health data.

Mitigation measures

- ◆ Provision of ICT means for health districts and reporting facilities, especially in hard-to-reach and inaccessible areas, improved reporting and flow of information.
- ◆ Regular comprehensive training workshops and meetings helped to improve quality, timeliness and completeness of reporting, as well as raising the awareness of importance of reliable information for planning and evidence-based actions.

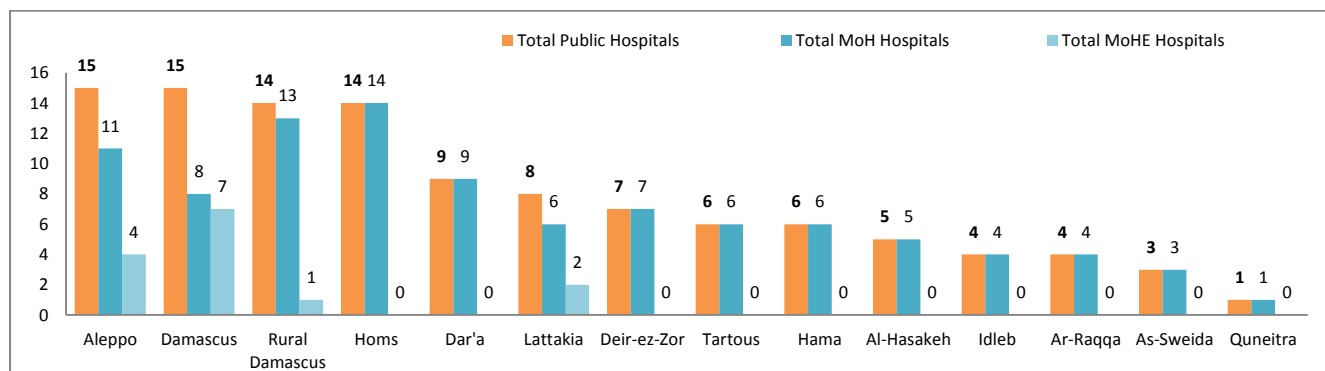
2. Completeness of Hospitals Reporting

By end of December 2014, all public hospitals in the 14 governorates of Syria continued reporting to the HeRAMS compared to 12 governorates in 2013; newly reporting governorates in 2014 are Ar-Raqqa and Deir-ez-Zor.

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

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, available resources & services, and available equipment and medicines by end of 2014.

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.

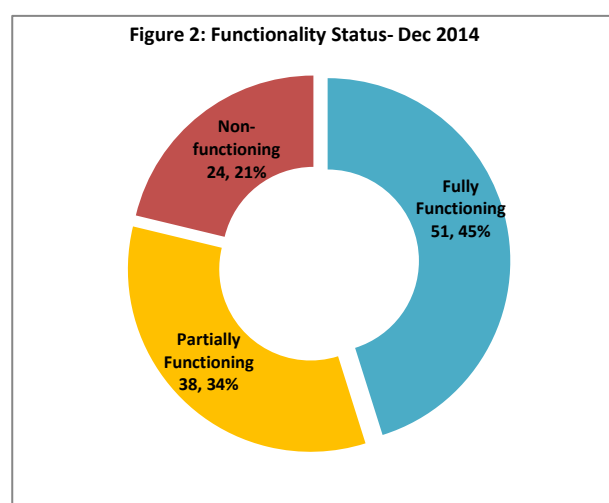
3. Functionality and accessibility of the Public Hospitals

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

3.1 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.

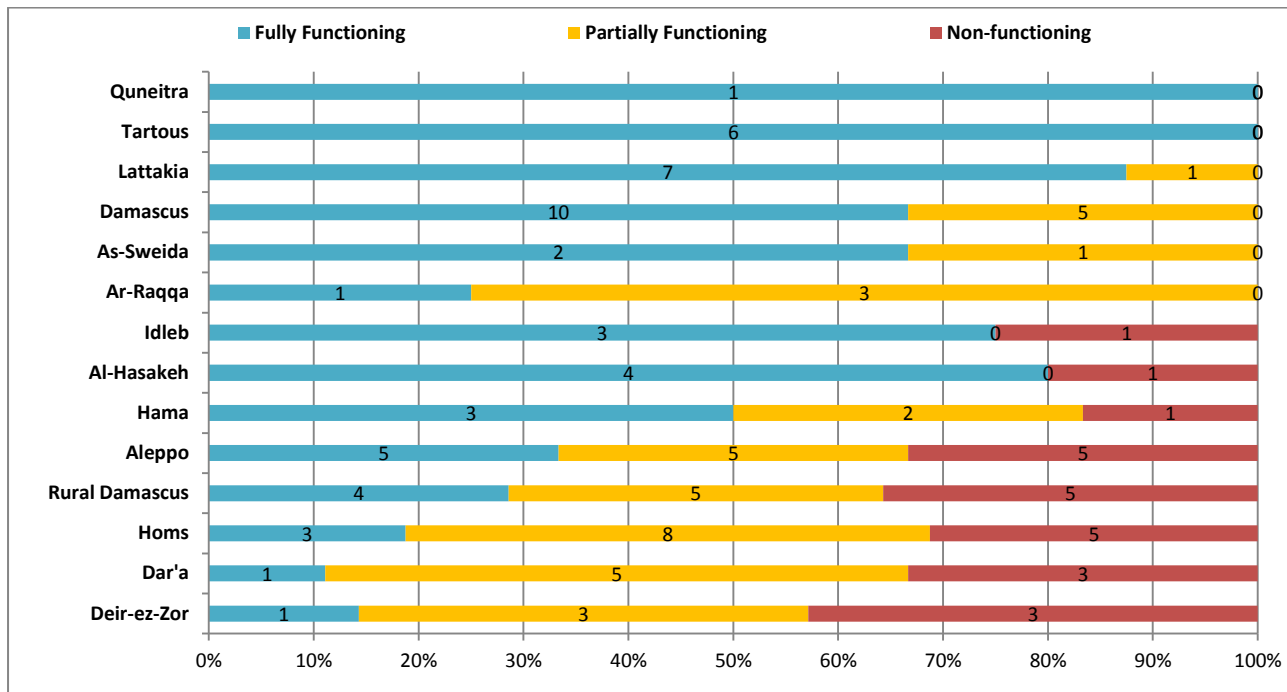


By end of December 2014, and out of the **113** assessed public hospitals [MoH & MoHE], 45% (51) were reported fully functioning, 34% (38) hospitals were reported partially functioning, while 21% (24) were reported non-functioning [Figure 2].

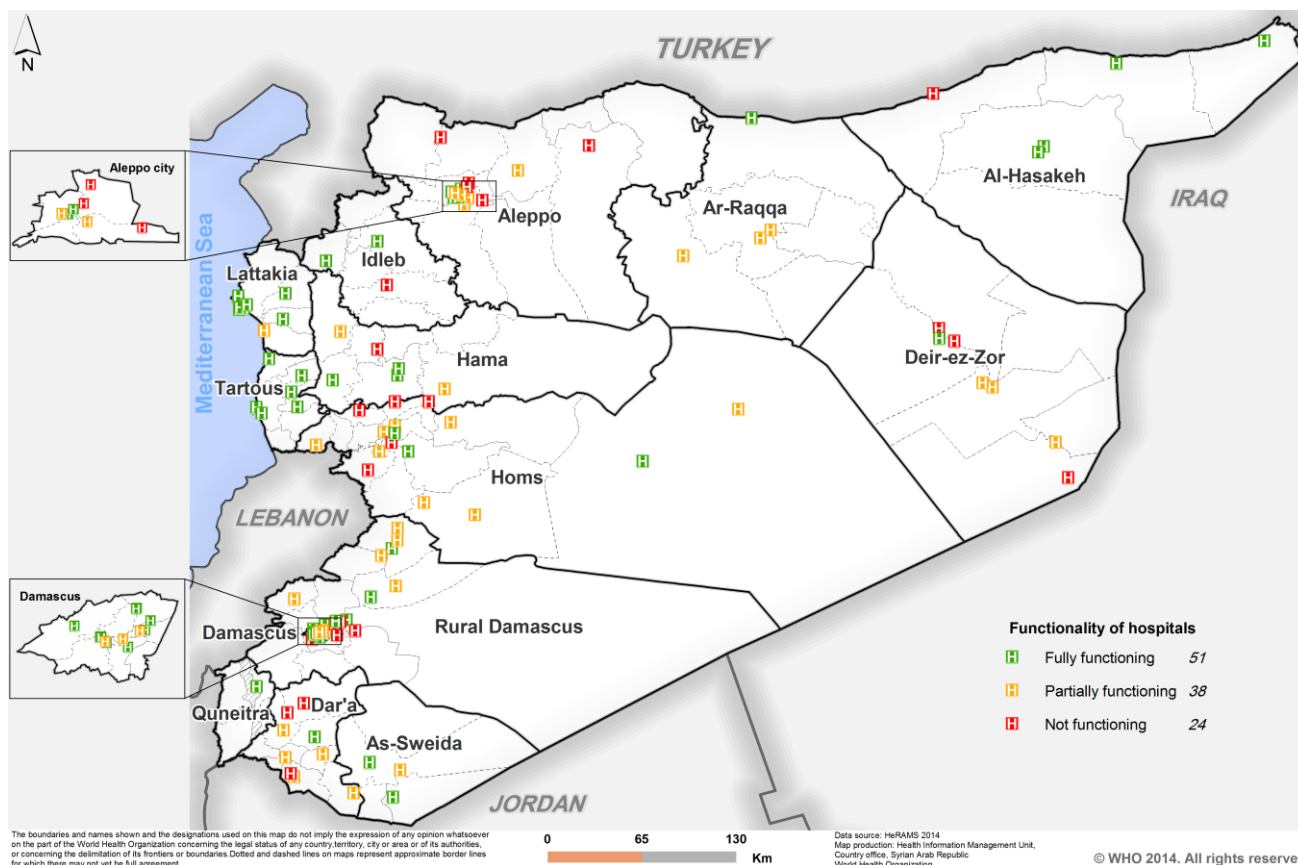
The hospitals reported partially functioning or non-functioning are in 12 out of a total 14 governorates (86% of governorates), compared to 10 governorates on the 1st Quarter 2014.

Detailed analysis on the functionality status of the MoH and MoHE hospitals at governorate level is presented in [Figure 3] and [Map 1].

Figure 3: Number and percentage of fully functioning, partially functioning, and non-functioning hospitals [MoH and MoHE] per governorate, Dec 2014

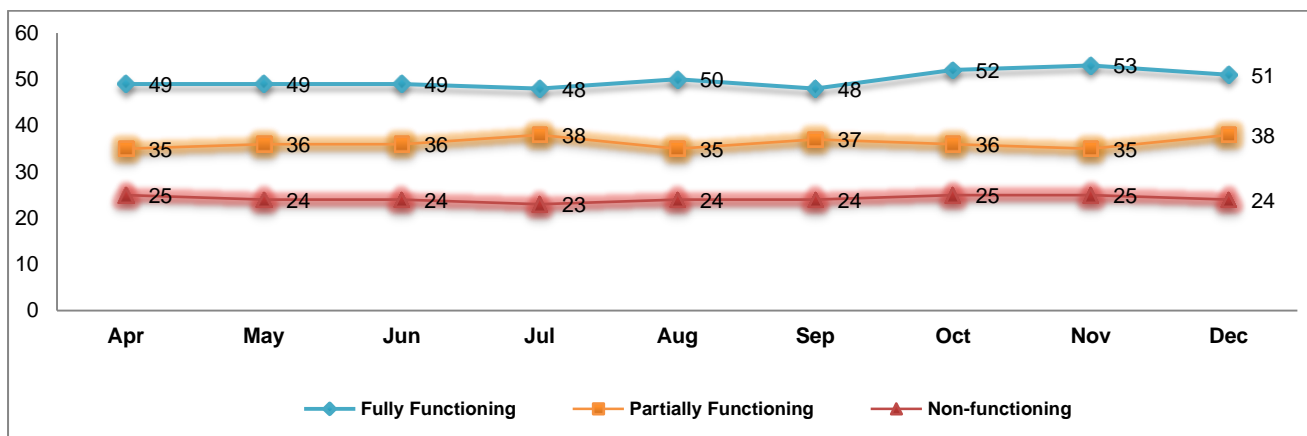


Map 1: Distribution and Functionality status of public Hospitals [MoH & MoHE], Dec 2014



Trend analysis on functionality status of the public hospitals [MoH & MoHE] from April to December 2014, is presented in Figure 4, considering the change of total assessed hospitals from (109 to 113) since October 2014, due to two newly established hospitals in Homs.

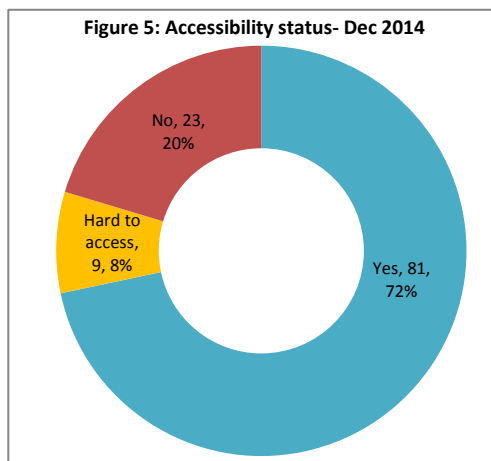
Figure 4: Trend analysis of functionality status of public hospitals, Apr to Dec 2014



3.2 Accessibility to public hospitals

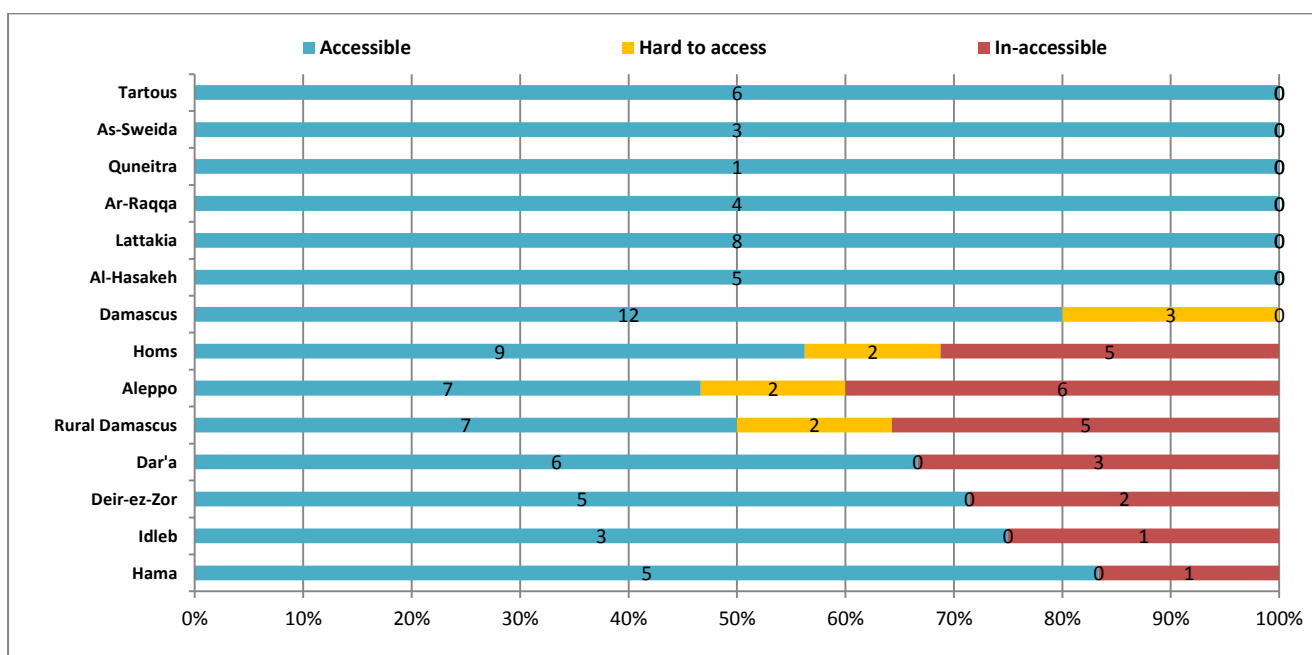
Accessibility to public hospitals is defined at three levels:

- ◆ **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).

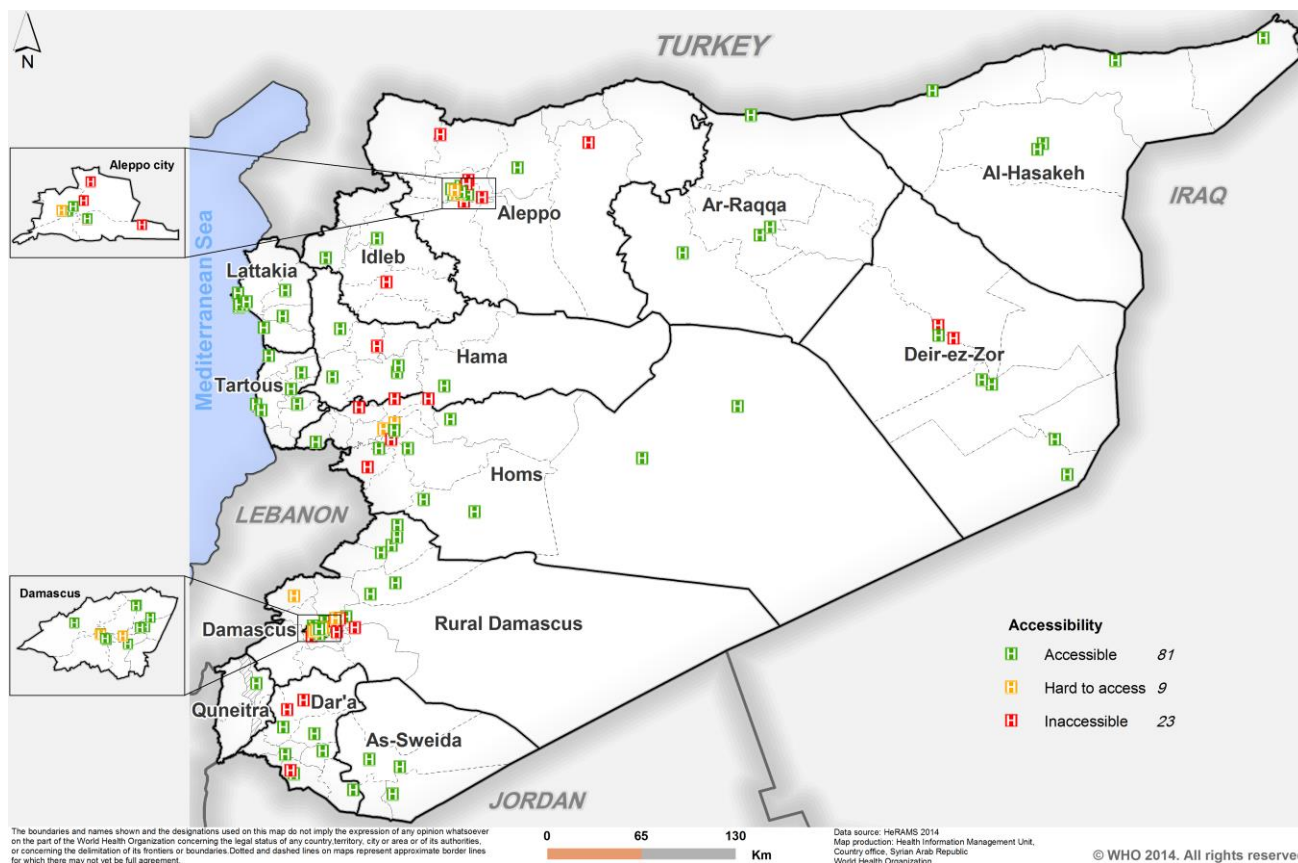


By end of December 2014, 72% (81) hospitals were reported accessible, 8% (9) hard-to-reach, and 20% (23) were inaccessible [Figure 5]. Detailed analysis at governorate level is provided in Figure 6. Distribution of public hospitals by accessibility status is shown in Map 2.

Figure 6: Accessibility status of the public hospitals [MoH & MoHE] per governorate, Dec 2014

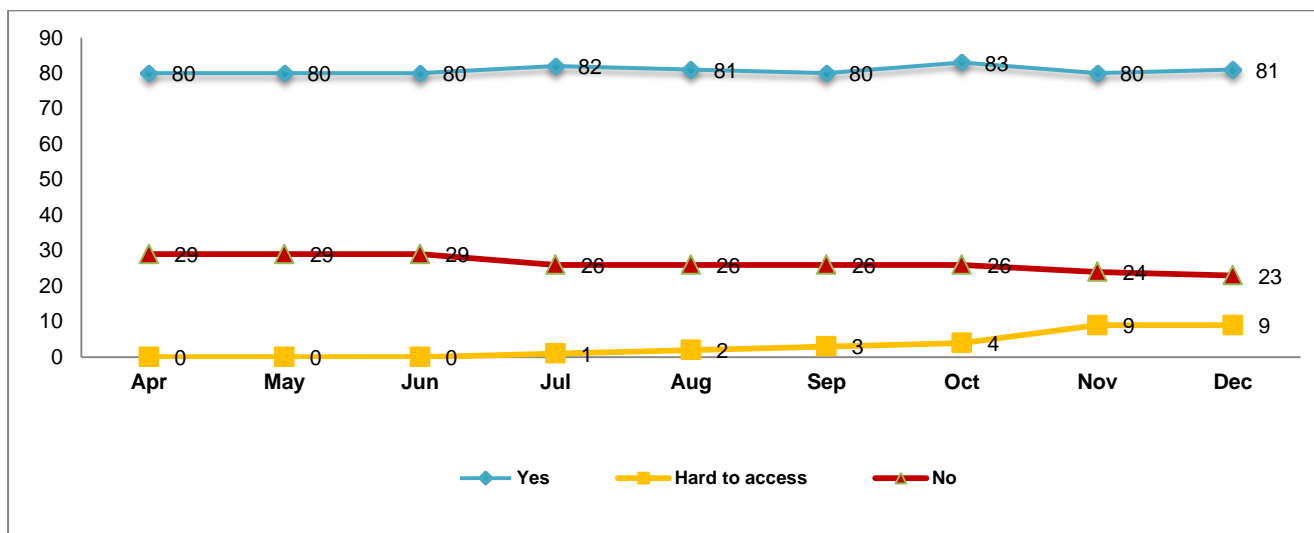


Map 2: Status of accessibility of the public hospitals [MoH & MoHE], Dec 2014



Trend analysis on accessibility to public hospitals [MoH & MoHE] from April to December 2014 is presented in Figure 7, considering the change of total assessed hospitals from (109 to 113) since October 2014.

Figure 7: Trend analysis on accessibility to public hospitals, Apr to Dec 2014



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.

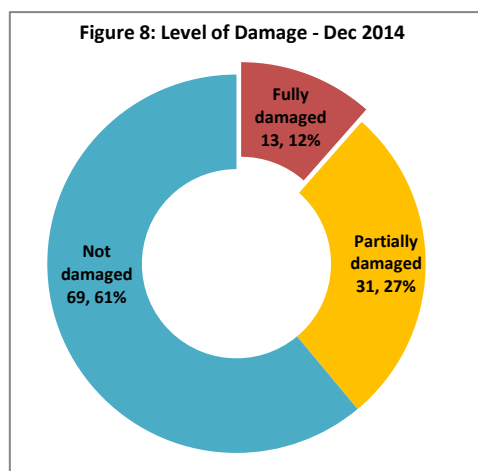
4.1 Level of Damage of the hospitals' buildings

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.

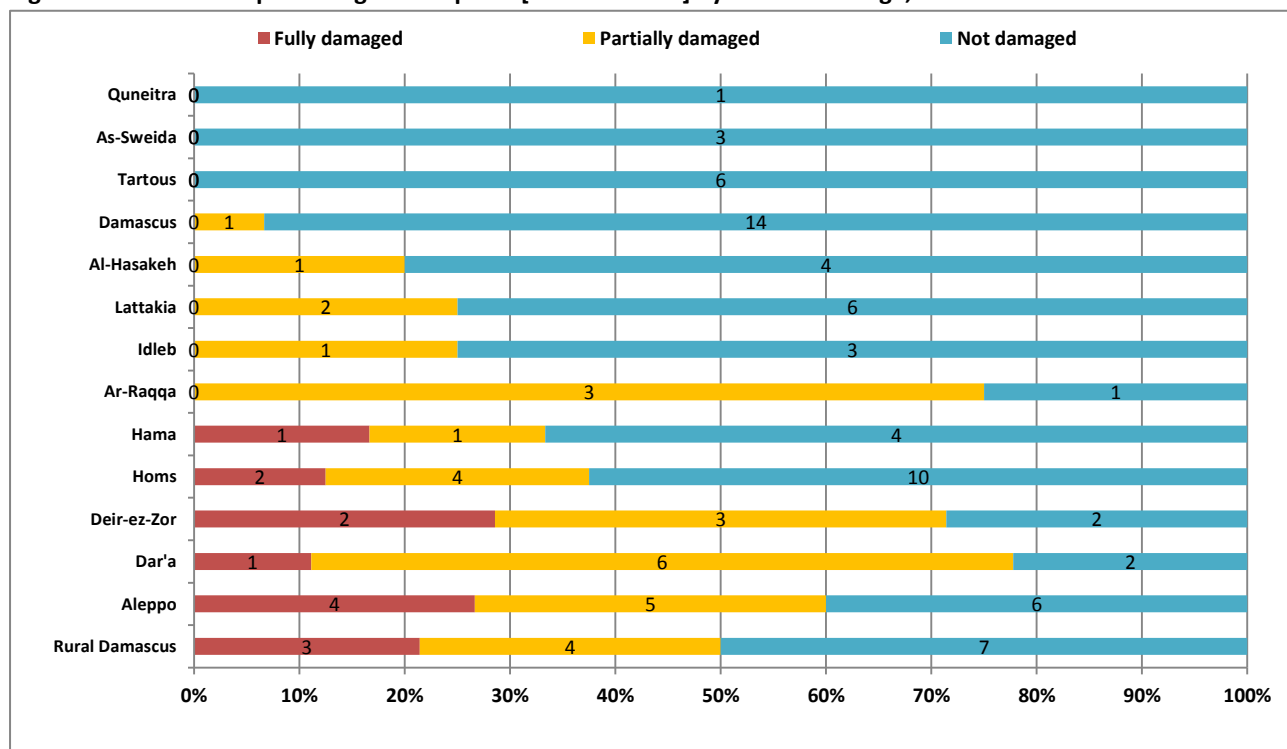
Analysis of the level of damage provides good indication on the potential costs for reconstruction.

By end of December 2014, 39% (44) hospitals were reported damaged [12% fully damaged and 27% partially damaged], while 61% (69) of public hospitals were reported intact [Figure 8].



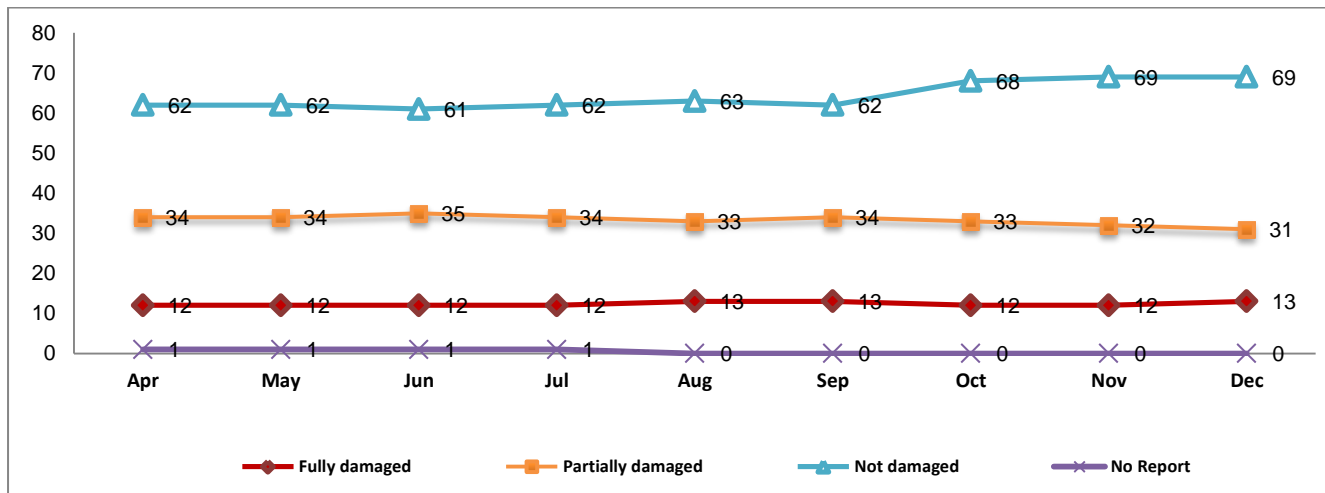
The hospitals reported damaged (fully or partially), are in 11 out of a total 14 governorates. Detailed analysis on the number and percent of damaged public hospitals [MoH and MoHE], at governorate level is presented in [Figure 9] and [Map 3].

Figure 9: Number and percentage of hospitals [MoH & MoHE] by level of damage, Dec 2014

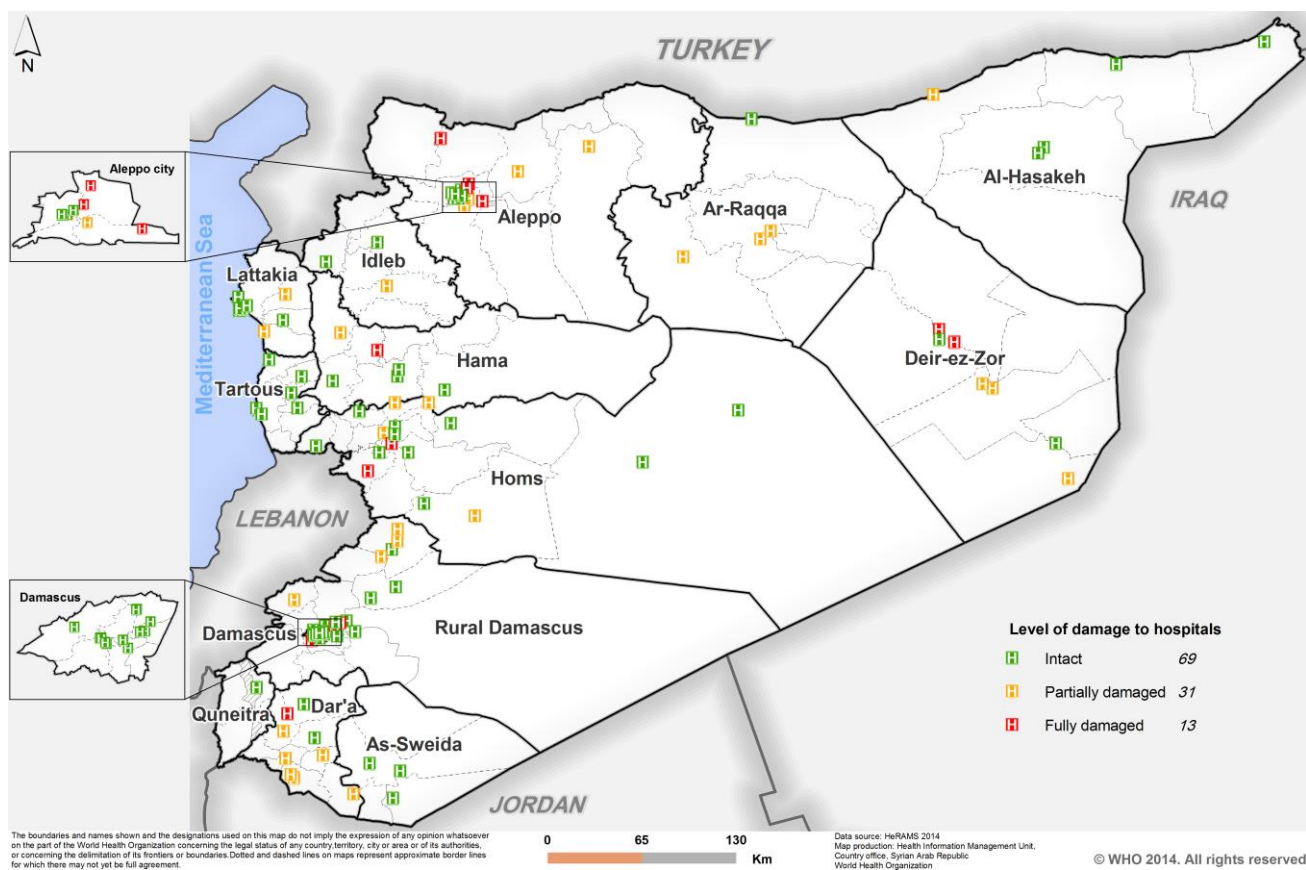


Trend analysis on condition of the public hospitals (level of damage of the building) from April to December 2014 is presented in Figure 10, considering the change of total assessed hospitals from (109 to 113) since October 2014.

Figure 10: Trend analysis of public hospitals' level of damage, Apr to Dec 2014



Map 3: Level of Damage of the Hospitals' buildings, by governorate [MoH & MoHE], Dec 2014



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	Darayya general hospital	Rural Damascus	Darayya	MoH
4	Zahi Azraq general hospital	Aleppo	The fourth	MoH
5	E'zaz national hospital	Aleppo	E'zaz	MoH
6	Ebn Khaldon hospital for mental health	Aleppo	The Third	MoH
7	Al-Kindi university hospital	Aleppo	The fourth	MoHE
8	Al-Qusayr general hospital	Homs	Al-Qusayr	MoH
9	National hospital	Homs	The Second	MoH
10	Maternity and Paediatric specialized hospital	Deir-ez-Zor	Deir-ez-Zor	MoH
11	Alfurat general hospital	Deir-ez-Zor	Deir-ez-Zor	MoH
12	Jassem general hospital	Dar'a	Jassem	MoH
13	Ra's Al-Ein National hospital	Al-Hasakeh	Ra's Al-Ein	MoH

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

#	Hospital name	Province	District	Type	Condition	New location
1	Zahi Azraq	Aleppo	The fourth	General	Fully damaged	Al-Razi Hospital in Aleppo city
2	Ebn Khaldon	Aleppo	The third	Specialized	Fully damaged	The administrative departments and outpatient clinics are operating in Al-Furqan area, while inpatient units are in the main location of the hospital in Dweireena area (recently rehabilitated partially [ongoing project])
3	Maternity and Paediatric	Deir-ez-Zor	Deir-ez-Zor	Specialized	Fully damaged	Al-Assad autonomous hospital (MoH)
4	Alfurat	Deir-ez-Zor	Deir-ez-Zor	Specialized	Fully damaged	Al-Assad autonomous hospital (MoH)

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	New location
1	Martyr Basil al-Assad in Deir Atia/Qalamoun Autonomous hospital	Rural Damascus	Al-Nabak	General	Partially damaged	Deir- Atia Health Centre
2	Qaara/ Qalamoun Autonomous hospital	Rural Damascus	Al-Nabak	General	Partially damaged	Qara health centre
3	Surgical Ophthalmology autonomous hospital	Aleppo	The third	Specialized	Partially damaged	Heart Institute – Aleppo
4	Children's hospital autonomous hospital	Aleppo	The third	Specialized	Partially damaged	Part of the hospital operating from Al-Razi hospital, while the other from the Obs. & Gyn. Hospital in Aleppo

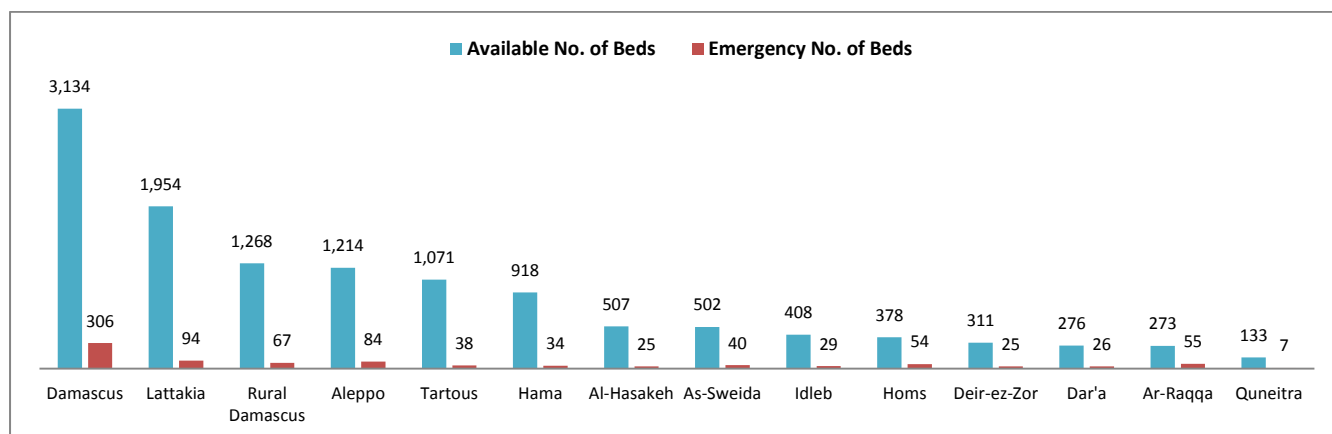
The information above could guide focused rehabilitation activities for hospitals' infrastructure, which could improve functionality status of hospitals to reach fully functional level, especially for partially functional hospitals that need small scale of rehabilitation.

4.2 Analysis of the inpatient capacity

The inpatient capacity was analyzed in terms of the total number of beds within the functional hospitals (89) and the proportion assigned as emergency beds¹.

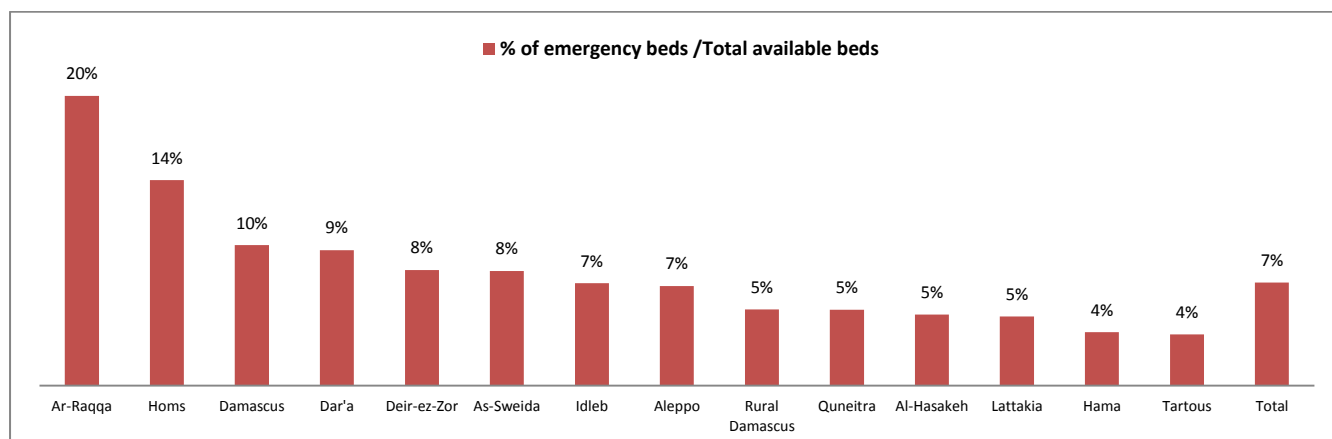
The number of beds assigned for emergency cases vs, total number of beds by governorate is illustrated below [Figure 11].

Figure 11: The number of emergency beds vs., total number of beds in functional hospitals [MoH & MoHE], per governorate, Dec 2014



The highest percent of emergency beds (out of total available beds) is reported in Ar-Raqqa, Homs, Damascus, Dar'a, Deir-ez-Zor, and As-Sweida governorate [Figure 12].

Figure 12: The percent of assigned emergency beds by total number of bed at functional hospitals, Dec 2014



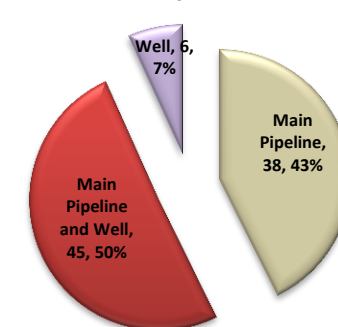
4.3 Water sources and functionality status

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 end of December 2014 and out of 89 functional public hospitals, 43% (38) are using main pipelines, 7% (6) are mainly using wells, while 50% (45) are using both (main pipeline and well) [Figure 13].

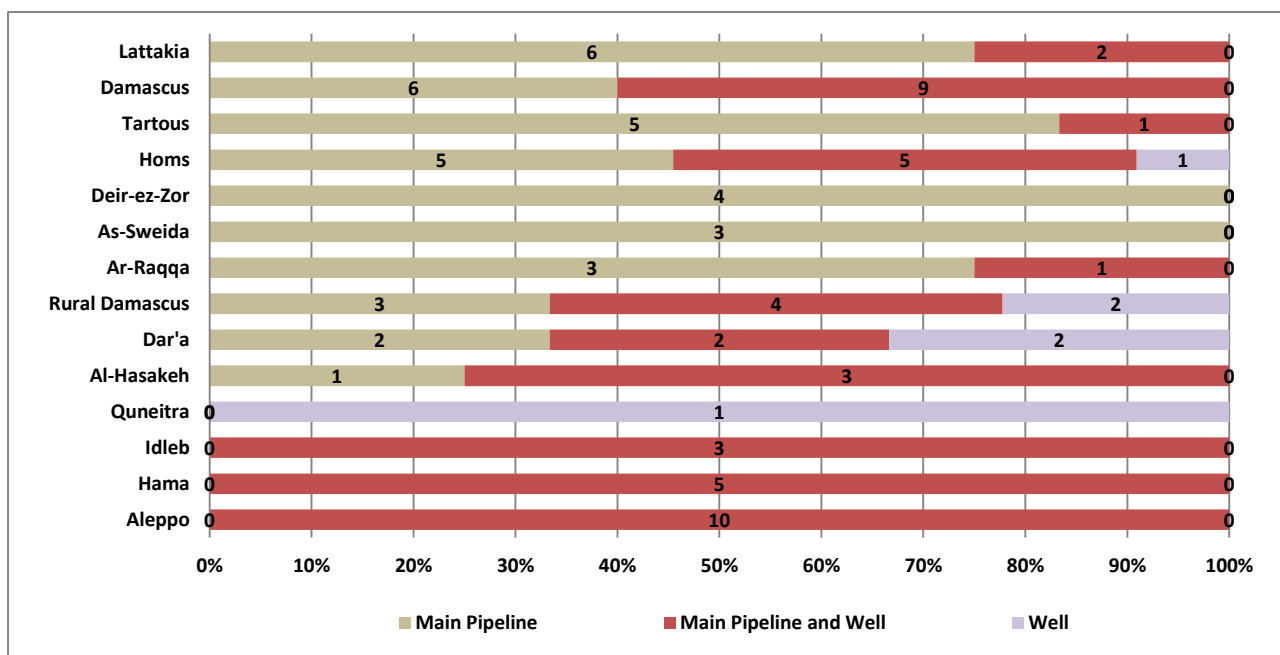
Detailed analysis on distribution of water sources at functional public hospitals is presented at governorate level on [Figure 14].

Figure 13: Main Sources of Water, Dec 2014



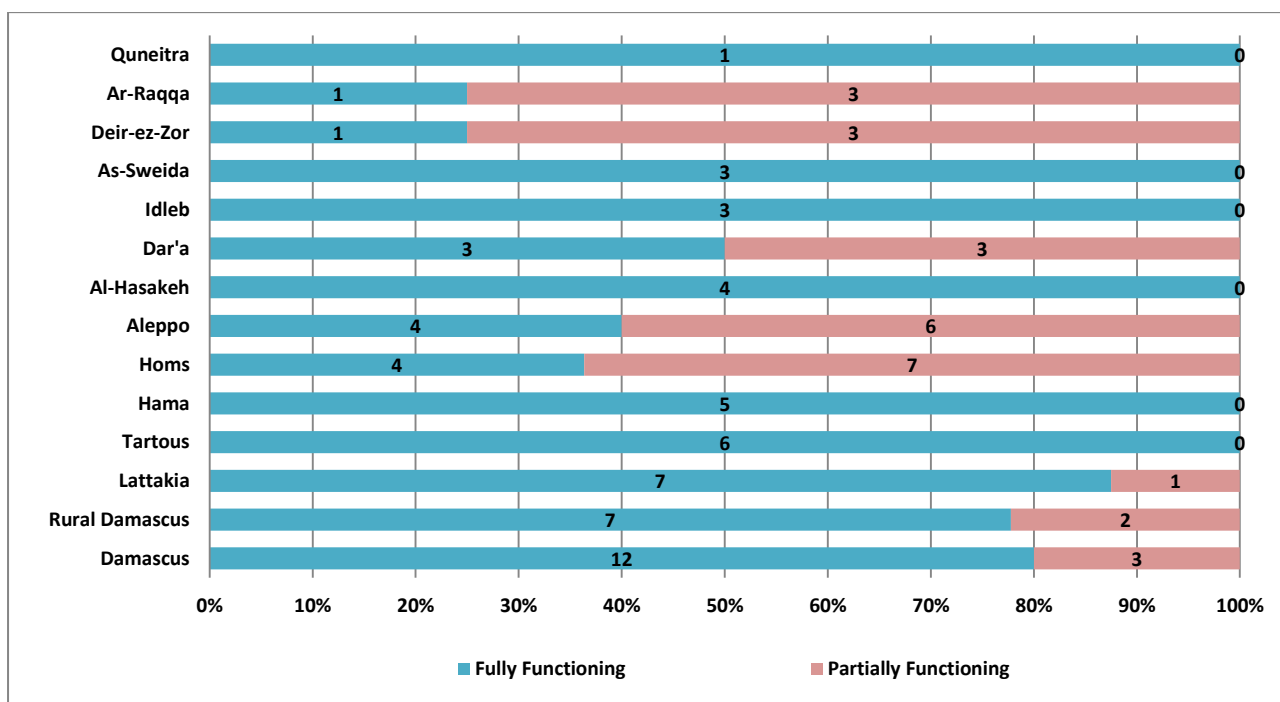
¹ The beds assigned for emergency is part of the total number of beds in the hospital

Figure 14: Distribution of water sources/ types at functional public hospitals, per governorate, Dec 2014



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, (89/113) per governorate.

Figure 15: Functionality status of the water sources at functional public hospitals, Dec 2014

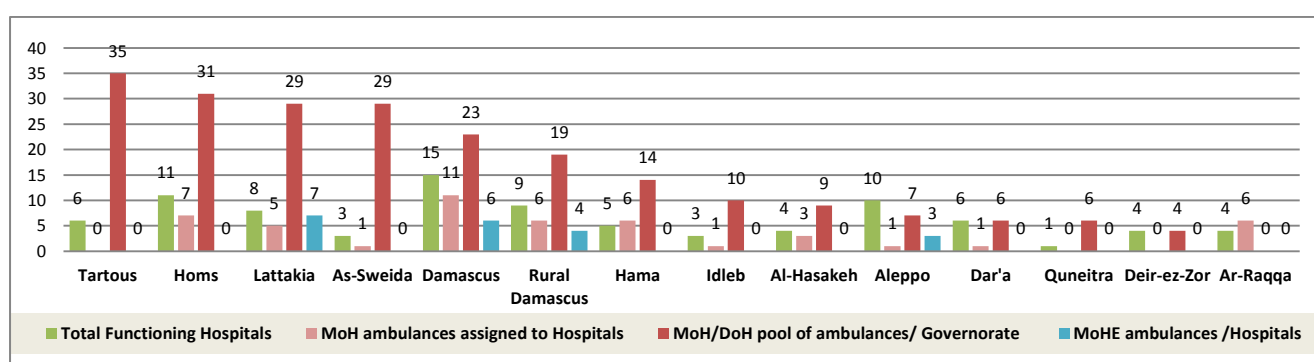


4.4 Availability of ambulances

Referral system in Syria was widely disrupted with the crisis in its fourth year. With regards to MoH referral system, each governorate has a pool of ambulances located in the DoH (Directorate of Health) and mobilized to hospitals as needed, in addition to the ambulances assigned / owned by the hospitals (in specific governorates), reported to HeRAMS. While the MoHE has a different scheme, with all ambulances assigned to the hospitals.

As part of the hospitals' infrastructure, availability of ambulances is assessed at a functional hospital level, in terms of total number of available (in-service) ambulances (directly assigned to the hospital [MoH or MoHE]) and the total number available in DoH pool (in MoH case), per governorate. The total estimated number of ambulances (in-service) related to MoH across the country is 270, of which 48 are assigned to MoH hospitals², and 222 are in the DoHs' pool³. The total reported number of MoHE ambulances is 20. It is worth of mentioning that an additional number of ambulances are out of service (either malfunctioning, burned, or hijacked). Data is summarized at a governorate level [Figure 16].

Figure 16: Number and distribution of ambulances per governorate, MoH & MoHE hospitals, Dec 2014

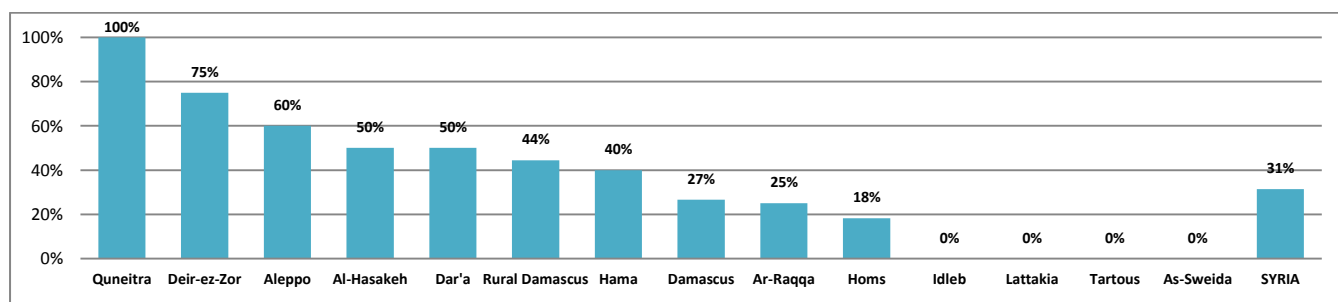


4.5 Availability of electricity generators

Electricity generators turned 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 17].

31% (28) of functional public hospitals across Syria are in need for electrical generators, mainly reported from 10 governorates: Quneitra, Deir-ez-Zor, Aleppo, Al-Hasakeh, Dar'a, Rural Damascus, Hama, Damascus, Ar-Raqqa, and Homs [Figure 17].

Figure 17: Percent of hospitals in need for generators out of total functional hospitals [MoH & MoHE], Dec 2014



It was observed that provision or maintenance of electricity generators could result in significant improvement of availability of services, and change of the status of some hospitals from partially to fully functional (e.g., Talkalakh hospital in Homs).

² Reported through HeRAMS

³ MoH records

5. Severity Ranking of Health Situation

The severity ranking exercise was conducted during preparation of HNO (Humanitarian Needs Overview) to identify needs and priority areas of concern for the health sector to support planning of the SRP (Strategic Response Plan) 2015.

The main objective of severity ranking of health situation is to highlight areas of priority/ concern, and support evidence-based planning, coordination of response, and focused geographical health care interventions (e.g., delivery of humanitarian assistance, service provision, capacity building, etc).

WHO and health sector partners conducted several meetings to review a standard template of severity ranking topics and scales provided by OCHA. Following those meetings, and based on available data, it was agreed to use two key indicators of HeRAMS for severity ranking; accessibility and functionality status of health facilities.

The following steps were conducted to analyze the severity ranking, at sub-district level:

1. Two key indicators of HeRAMS were considered: accessibility and functionality status of all health facilities (including public hospitals [MoH & MoHE] and health centres [MoH]).
2. The data of health facilities' accessibility and functionality status of the 4th Quarter 2014, were compiled, and weighing scale was assigned, as below:

Functionality Status	Mark	Accessibility	Mark
Fully functioning	0	Accessible	0
Partially functioning	3	Hard to access	3
Not functioning	6	Inaccessible	6

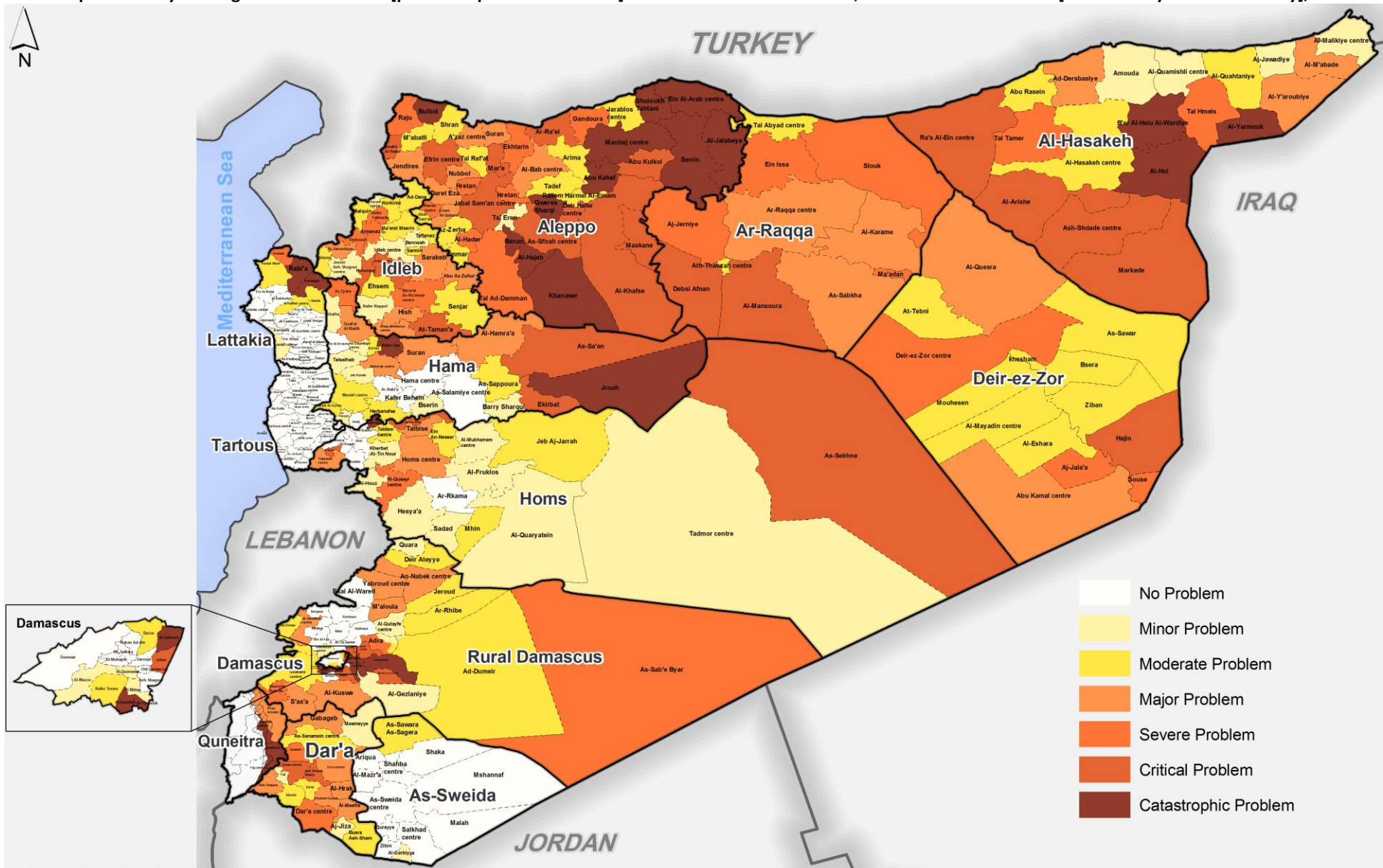
3. At a health facility level, scores of indicators were calculated, based on the above scale.
4. At a sub-district level, total scores were calculated and divided by number of health facilities in the sub-district.
5. Based on a scale of 0 to 6, situation of sub-districts was ranked, as follows

Catastrophic Problem	6
Critical Problem	5
Severe Problem	4
Major Problem	3
Moderate Problem	2
Minor Problem	1
No Problem	0

6. Severity ranking map has been produced for health facilities situation, at sub-district level [Map 4].

Following the same methodology, additional map has been produced specifically for severity ranking for public hospitals [MoH & MoHE] at health district level, which is more specific and focused for secondary & tertiary healthcare services [Map 5].

Map 4: Severity ranking of health facilities [public hospitals and centres] situation at sub-district level, based on two indicators [functionality and accessibility], Dec 2014



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

0 65 130 Km

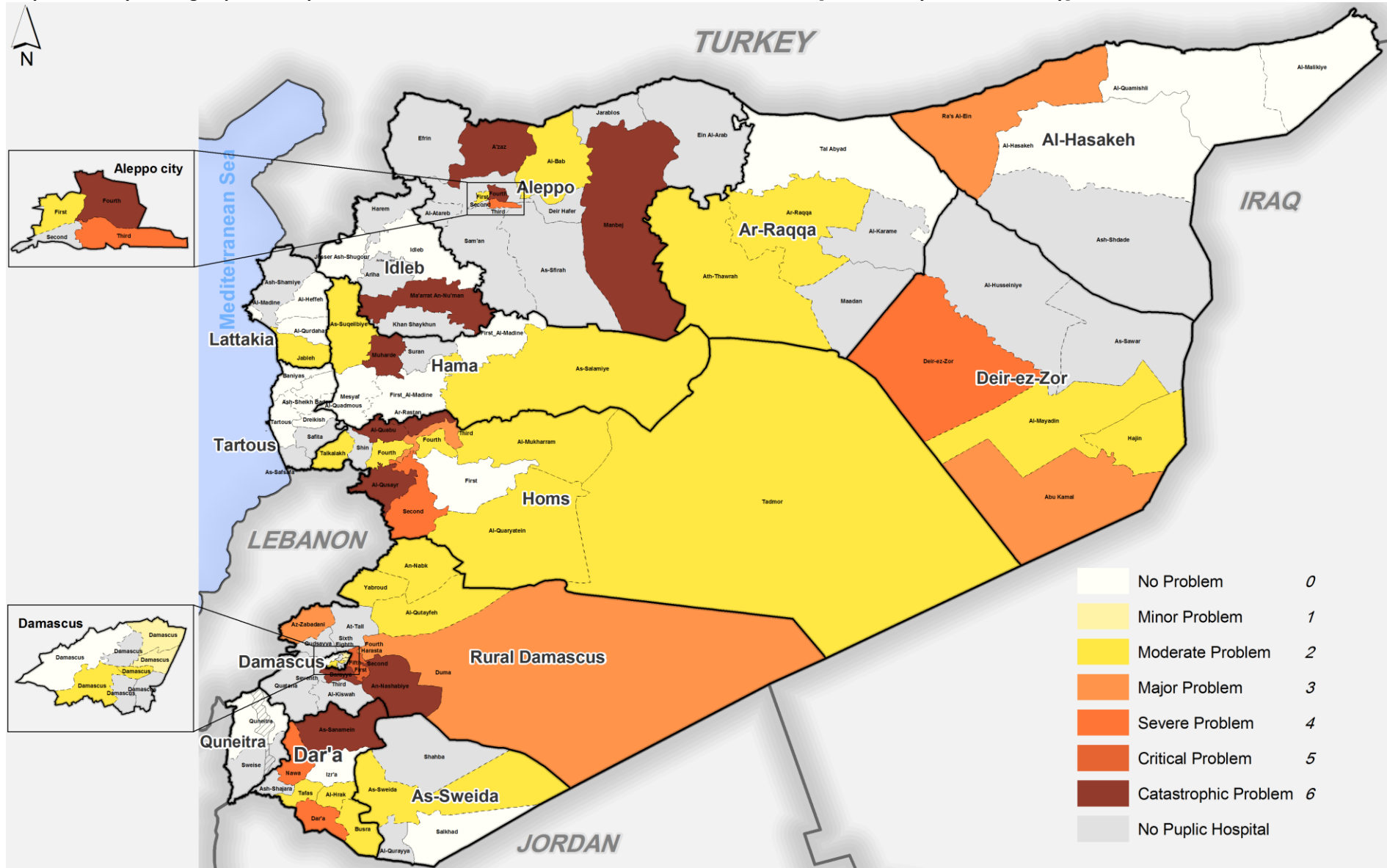
Data source: HeRAMS 2014
Map production: Health Information Management Unit,
Country office, Syrian Arab Republic
World Health Organization

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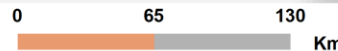
Based on severity ranking map of the 4th Quarter, the health situation has changed slightly in terms of functionality and accessibility to the public hospitals. For example, the status of Al-Bab sub-district is changed from severe to major problem, which is due to slight improvement of functionality and

accessibility of public hospitals, while the status of Ain Al-Arab area in Aleppo has worsened from major problem to catastrophic problem, following the severity ranking scale. Please refer to [Map 5] in comparison to severity ranking map presented in the 3rd Quarter HeRAMS hospitals report⁴.

Map 5: Severity ranking of public hospitals situation at health district level, based on two indicators [functionality and accessibility], Dec 2014



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.



Data source: HeRAMS 2014
Map production: Health Information Management Unit,
Country office, Syrian Arab Republic
World Health Organization

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⁴ Report available at: <http://www.emro.who.int/syr/herams/herams.html>

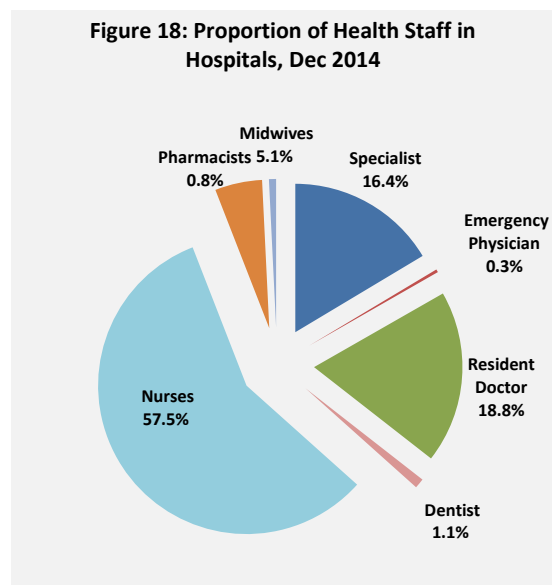
6. Availability of Health Human Resources

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

- ◆ **Analysis of proportions** of medical-related staff (doctors, nurses, midwives, and pharmacists)
- ◆ **Analysis of proportions** of available health human resources; MoH vs., MoHE hospitals
- ◆ **Analysis** of available human resources by **gender**, per governorate
- ◆ **Trend analysis** of distribution of **medical doctors** (Specialists, Emergency Physicians, Resident doctors, and Dentists), per governorate

Analysis of proportions of medical-related staff (doctors, nurses, midwives, and pharmacists):

The **proportion** between different categories of health staff, among the total functional (fully and partially) MoH and MoHE hospitals (89/113), by end of the 4th Quarter 2014, is as follows: the emergency physicians remain the lowest proportion of health staff (0.3%), followed by pharmacists (0.8%), dentists (1%), Midwives (5%), specialists (16%), resident doctors (19%), and nurses (58%); [Figure 18].



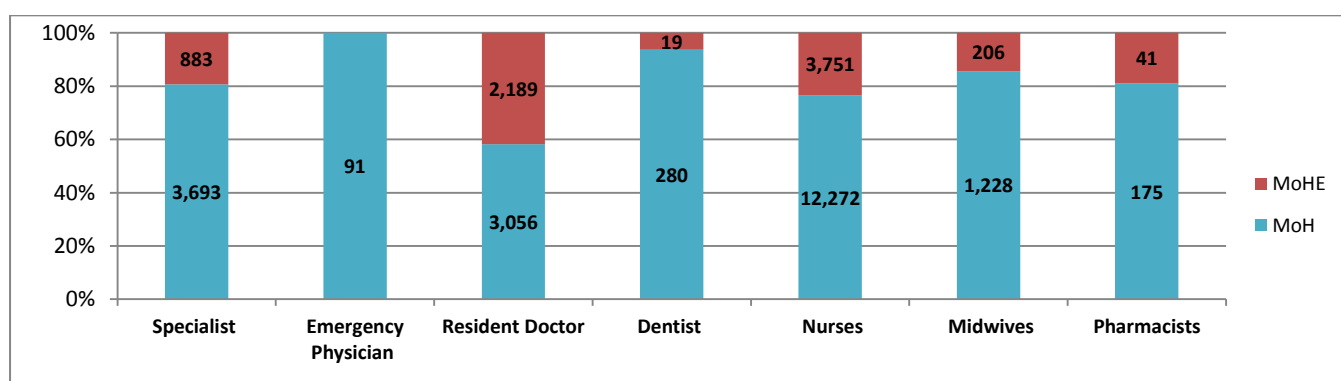
Analysis of proportions of available health human resources; MoH vs., MoHE hospitals:

Analysis of **proportions of medical doctors** [specialists, Emergency doctors, resident doctors, dentists] working at MoHE hospitals versus MoH hospitals has shown that **30%** (3,091) of medical doctors (specialists and resident doctors) work in MoHE, while **70%** (7,120) are in MoH hospitals (percentage is calculated out of total medical doctors in MoH & MoHE).

Details on proportions and numbers of key staff work in MoH vs., MoHE hospitals are presented in [Figure 19]. Out of a total **4,576** Specialists work in public hospitals, **19%** (**883**) are in MoHE hospitals*, out of a total **5,245** resident doctors **42%** (**2,189**) are in MoHE hospitals, and out of a total 17,457 nurses & midwives, **23%** (**3,957**) are in MoHE hospitals.

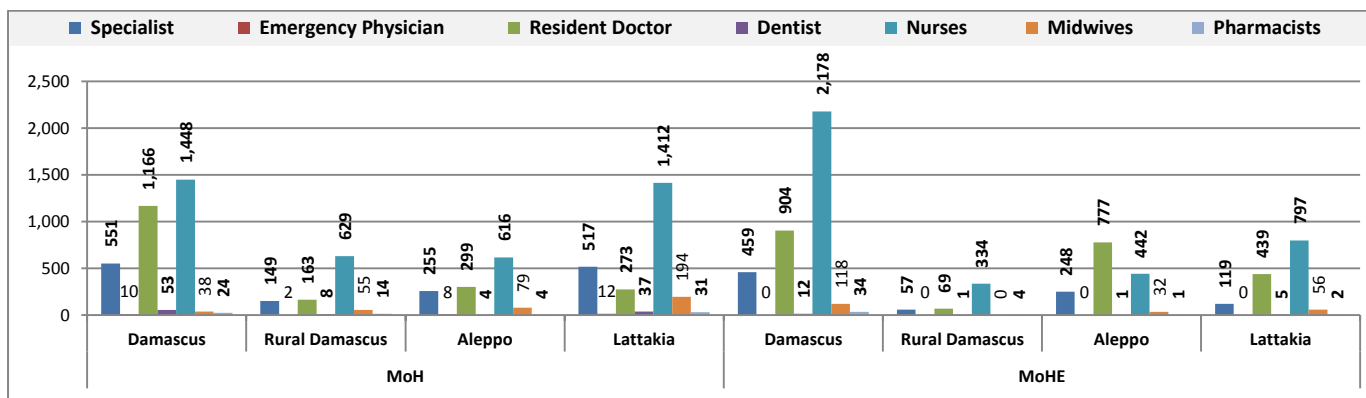
***Off note:** the total reported number of specialists in MoHE hospitals is increased (883), compared to the 3rd Quarter 2014 (813 Specialists), due to inauguration of new departments in Tishreen university hospital in Lattakia (October 2014), in addition to inclusion of two university hospitals (Dermatology and Venereology hospital and Maxillofacial Surgery hospital) in HeRAMS reporting (since October 2014).

Figure 19: Proportions and numbers of key staff work in MoH vs., MoHE hospitals, Dec 2014



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 20].

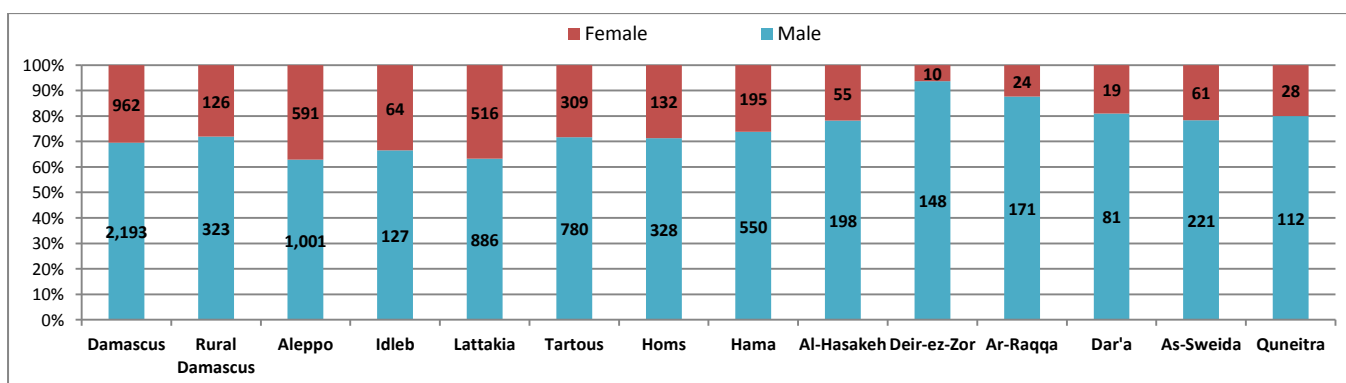
Figure 20: Comparison of the medical staff of MoH vs., MoHE hospitals, Dec 2014



Analysis of available human resources by gender, per governorate:

By analyzing the proportion of male to female doctors (a total of: Specialists, Emergency Physicians, Resident Doctors, Dentists), lowest proportions are seen in Deir-ez-Zor and Ar-Raqqa governorates, [Figure 21].

Figure 21: Proportion of Doctors (a total of Specialists, Emergency Physicians, Resident Doctors, Dentists), by gender, per governorate, [MoH & MoHE], Dec 2014

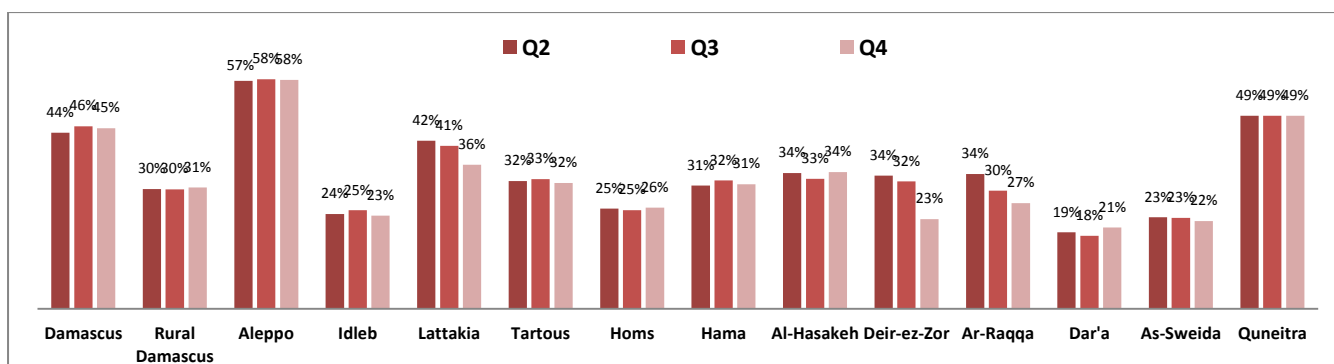


Trend analysis of distribution of medical doctors (Specialists, Emergency Physicians, Resident doctors, Dentists), per governorate [2nd to 4th Quarter 2014]

Shortage and misdistribution of health staff across governorates, is one of the main concerns of the health system in Syria during the crisis.

The trend analysis of the percent of medical doctors (total number of Specialists, Emergency Physicians, Resident doctors and Dentists) out of the total health staff (medical doctors, nurses, and midwives), from 2nd to 4th Quarter, has shown variation of medical staff distribution per governorate [Figure 22].

Figure 22: Percent and Distribution of medical doctors (Specialists, Emergency Physicians, and Resident doctors), 2nd Quarter to 4th Quarter 2014, per governorate, [MoH & MoHE]

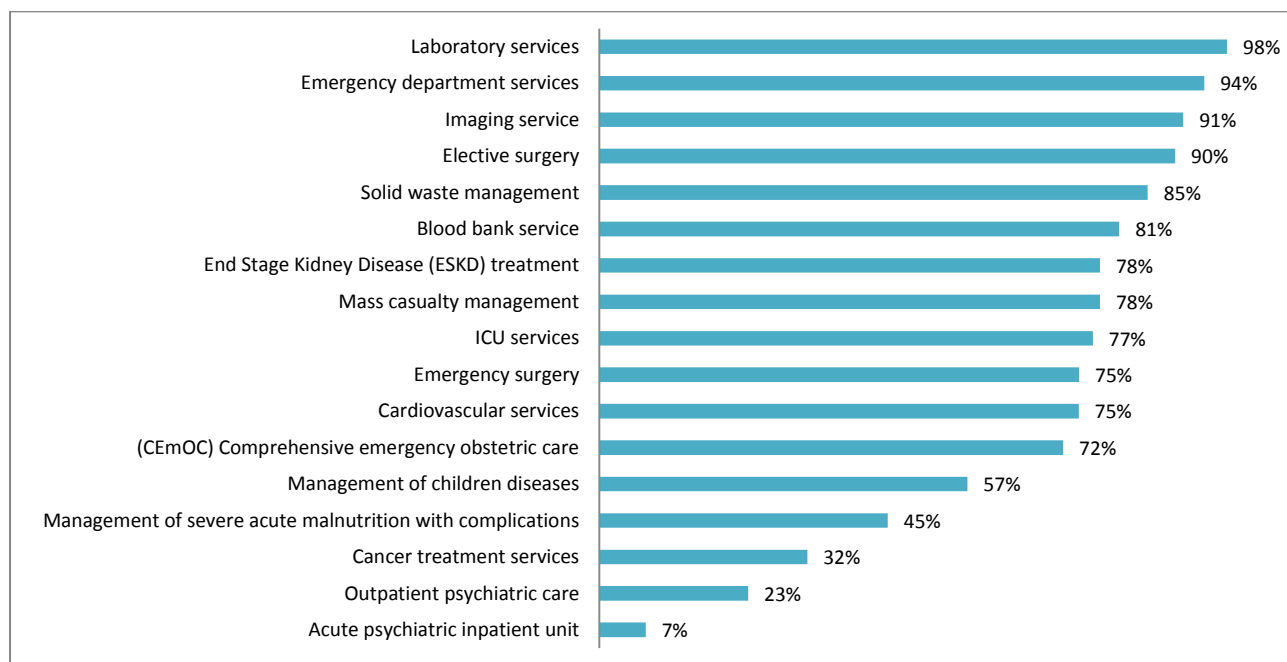


7. Availability and Utilization of the Health Services

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]: (89/113). 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 23].

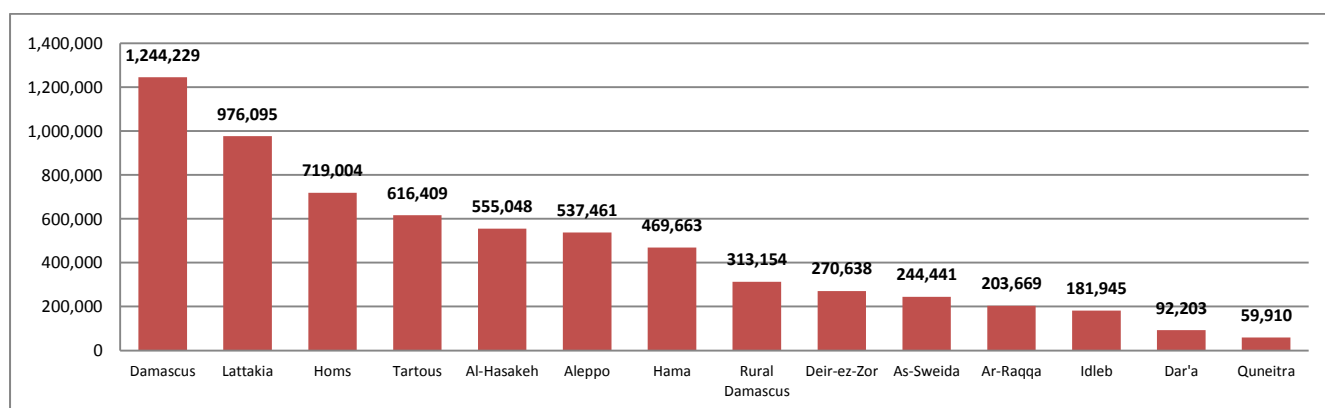
Figure 23: Availability of Health Services in the functional Public Hospitals [MoH & MoHE], Dec 2014



**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 by all functional public hospitals throughout 2014. The estimated serviced people for 2014 is a total of outpatient consultations and emergency cases reported by functional hospitals [MoH and MoHE], during January to December 2014.

Figure 24: Estimated workload of functional public hospitals (outpatient consultations and emergency cases), during 2014

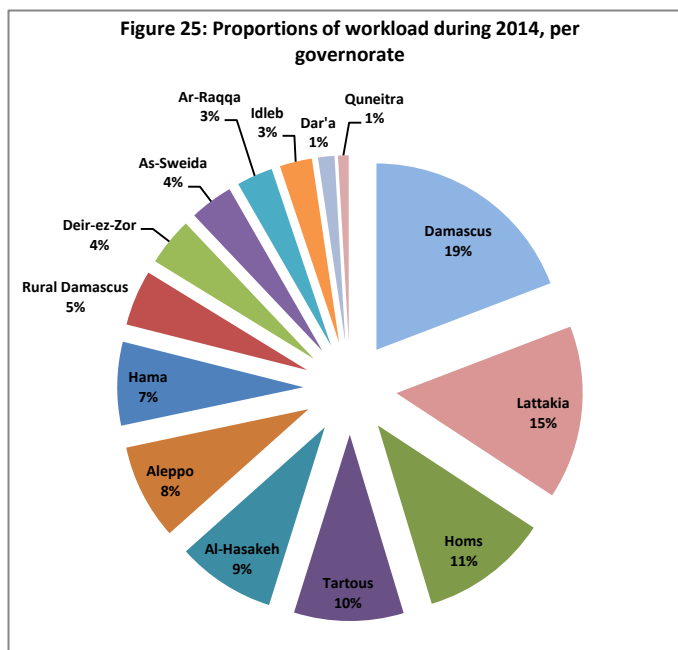


***of note:** the MoHE hospitals' workload data of January to March 2014 was projected based on April to December 2014, because the MoHE hospitals have joined HeRAMS on April 2014 (12 out of 14 hospitals), while the remaining two hospitals joined the project on October 2014).

The proportion of workload of functional hospitals per governorate is provided on Figure 25.

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

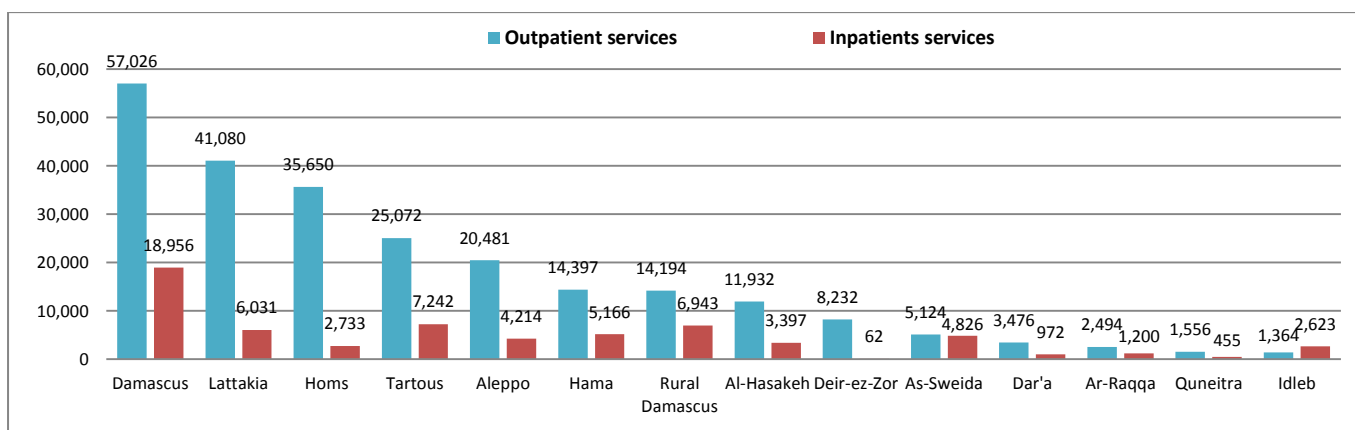


7.1 General Clinical services

i. Outpatient and inpatient:

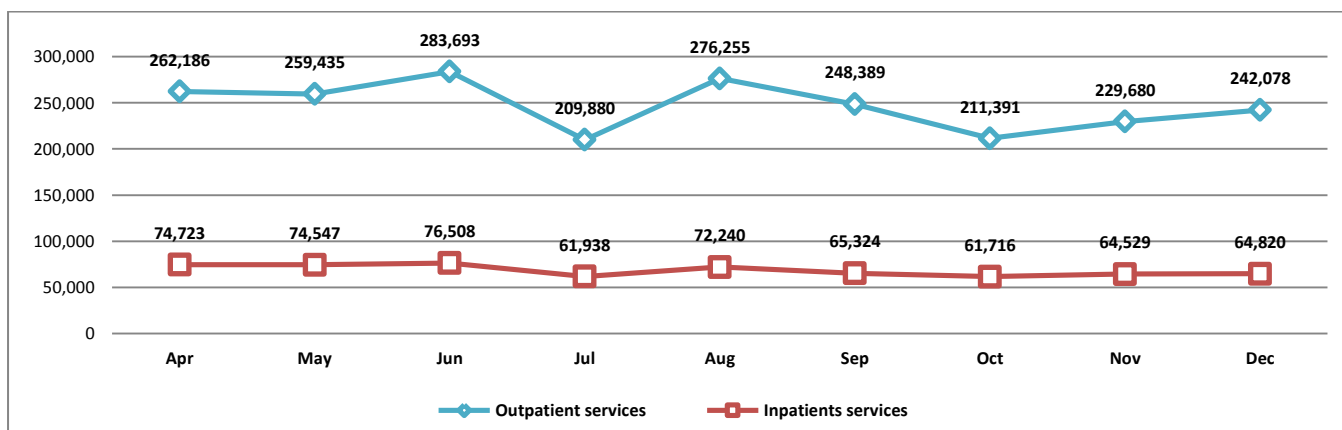
The number of outpatients to inpatients was assessed at a hospital level, and total numbers were summarized and analyzed at governorate level [Figure 26].

Figure 26: The number of Outpatient and Inpatient in public hospitals [MoH & MoHE], Dec 2014



Trend analysis of total reported numbers of Outpatient and Inpatient from functional public hospitals [MoH & MoHE], from April to December 2014, is presented in [Figure 27].

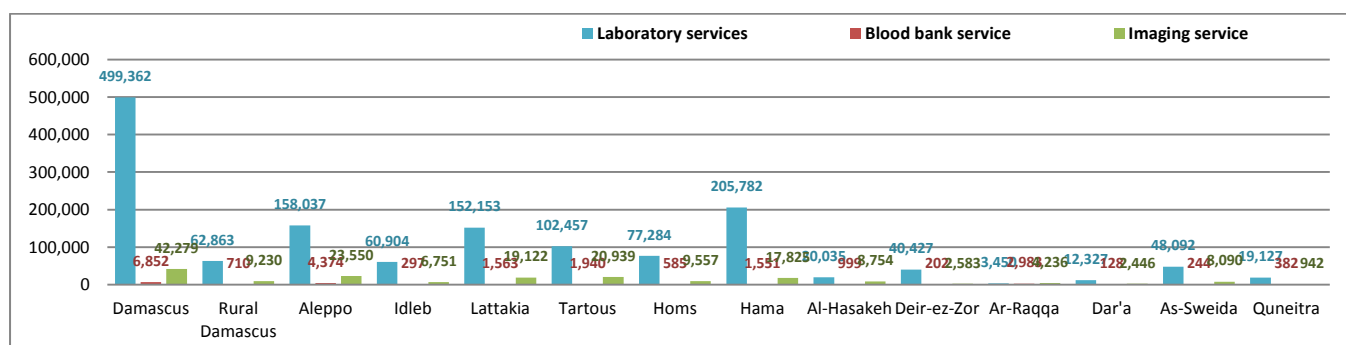
Figure 27: Trend analysis of Outpatient and Inpatient in public hospitals [MoH & MoHE], Apr to Dec 2014



ii. Laboratories, blood bank, and imaging services

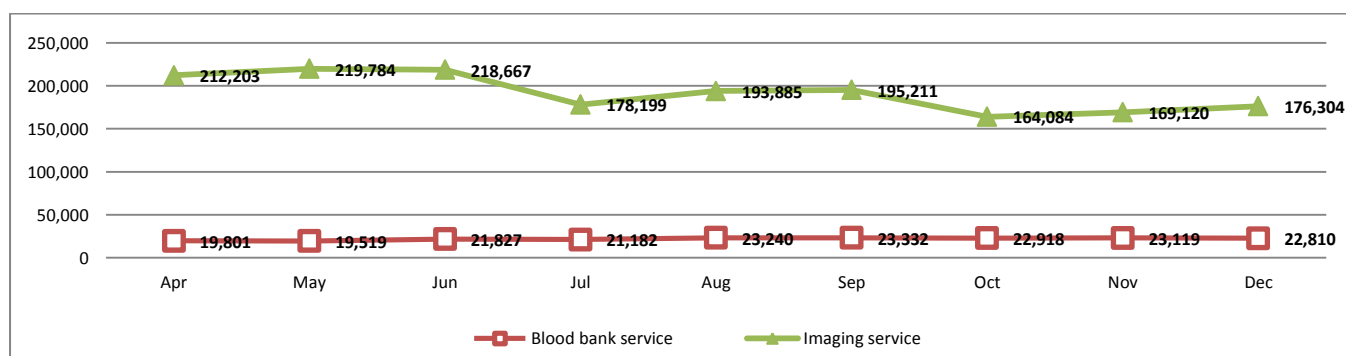
The number of patients received services in hospitals' laboratories, blood bank, and imaging departments was assessed at a hospital level, and the total number of cases summarized and analyzed at governorate level [Figure 28].

Figure 28: The number of patients received services in laboratories, blood bank, and imaging services, in public hospitals [MoH & MoHE], Dec 2014



Trend analysis of number of patients received services in hospitals' blood banks and imaging departments, from April to December 2014, is presented in [Figure 29].

Figure 29: Trend analysis of number of patients received services in blood banks and imaging services, in public hospitals [MoH & MoHE], Apr to Dec 2014



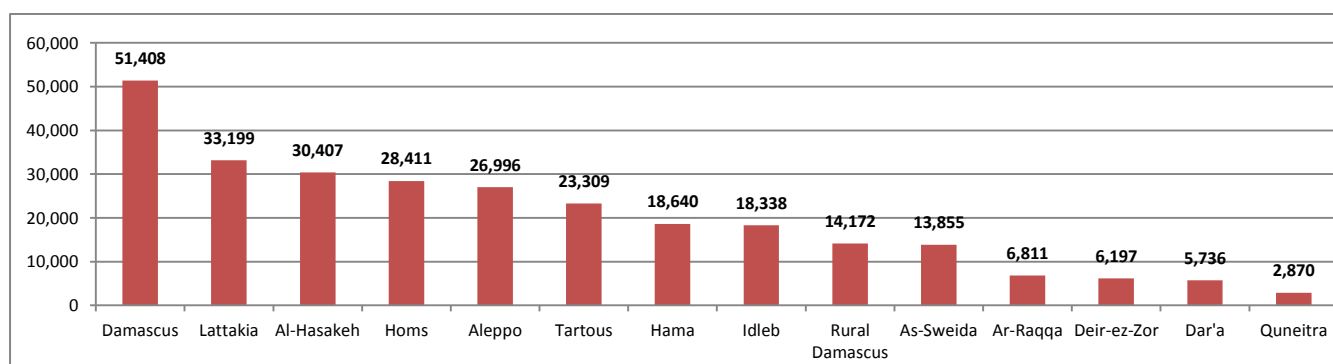
7.2 Surgical and Trauma care

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 casualties, and surgeries (elective and emergency).

iii. Emergency cases reported in emergency departments

Figure 30 presents the total number of cases in emergency departments, reported during December 2014 from functional public hospitals at governorate level.

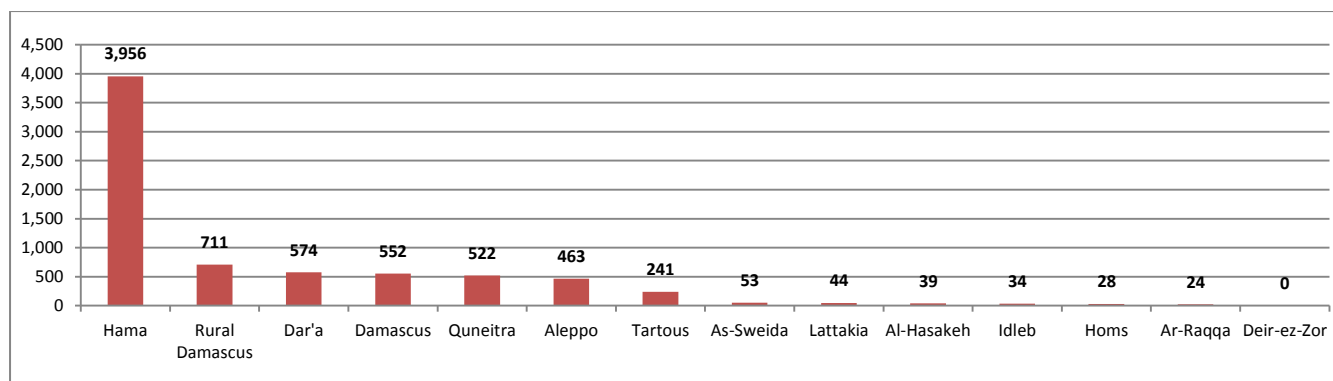
Figure 30: The number of reported cases in emergency department, in public hospitals [MoH & MoHE], Dec 2014



iv. Mass casualties

Figure 31 presents the total number of mass causality cases, reported during December 2014 from functional public hospitals at governorate level.

Figure 31: The number of reported cases of mass casualties, in public hospitals [MoH & MoHE], Dec 2014



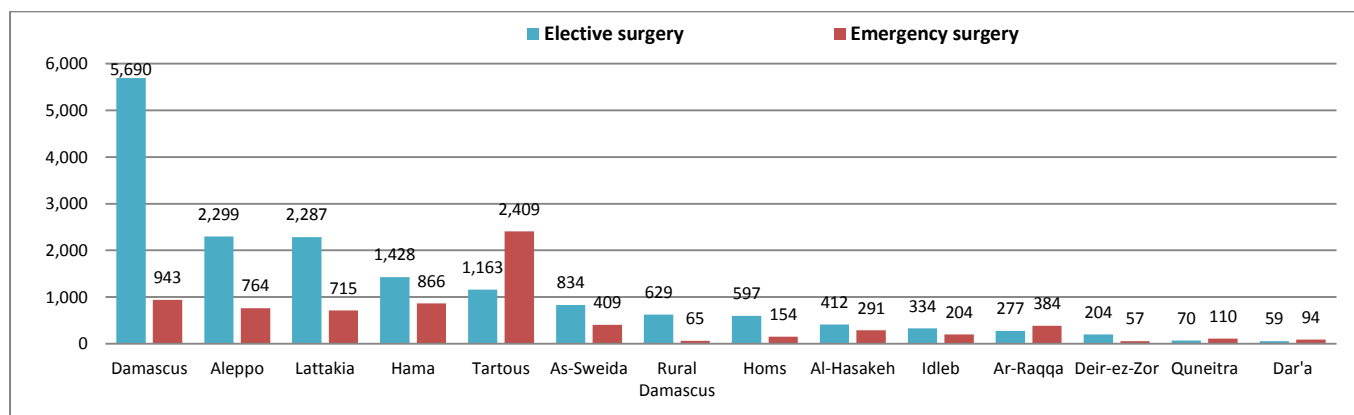
v. Emergency and Elective surgeries:

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 32].

During December 2014, the highest workload of elective surgeries is reported from Damascus MoH Hospital (Al-Mojtahid: 993 surgeries), while the highest workload of emergency surgeries is reported from Al-Bassel hospital in Tartous (2,100 surgeries), followed by Ar-Razi MoH hospital in Aleppo (458 surgeries), then Al-Mouwasat MoHE hospital (452 surgeries).

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

Figure 32: The number of emergency surgeries vs., elective surgeries in public hospitals [MoH & MoHE], Dec 2014



By analyzing the percent of total emergency surgeries to elective surgeries during December 2014, the highest percent of reported emergency surgeries across different governorates is reported in Tartous, Dar'a, Quneitra, Ar-Raqqa, Al-Hasakeh, Idleb, Hama, and As-Sweida governorates.

Across all reported functional public hospitals, 31% of surgeries are emergency, while 69% are elective [Figure 33].

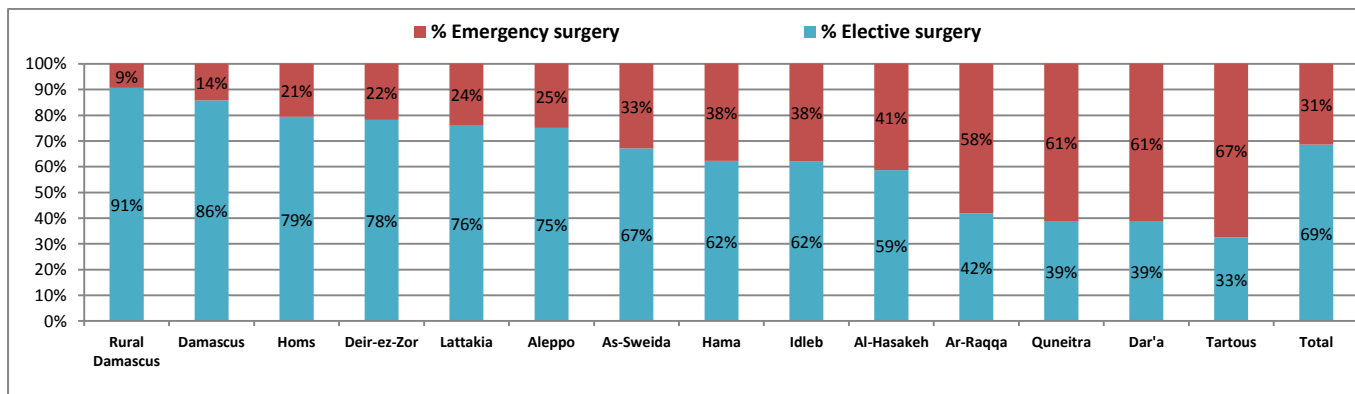
In **Tartous**, the highest figures are reported from Al-Basil surgical hospital, which is the biggest hospital in Tartous, located in the south eastern part of the governorate and adjacent to Hama and Homs. The location of this hospital is also very close to the highway, and majority of the road incidents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

In **Idleb, Ar-Raqqa, 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.

In **Al-Hasakeh**, the national hospital and Al-Malkiah hospital perform most of the emergency surgeries, considering that people in those areas prefer to do the elective surgeries in the private hospitals (e.g., in Al-Malkiah area there are four private hospitals).

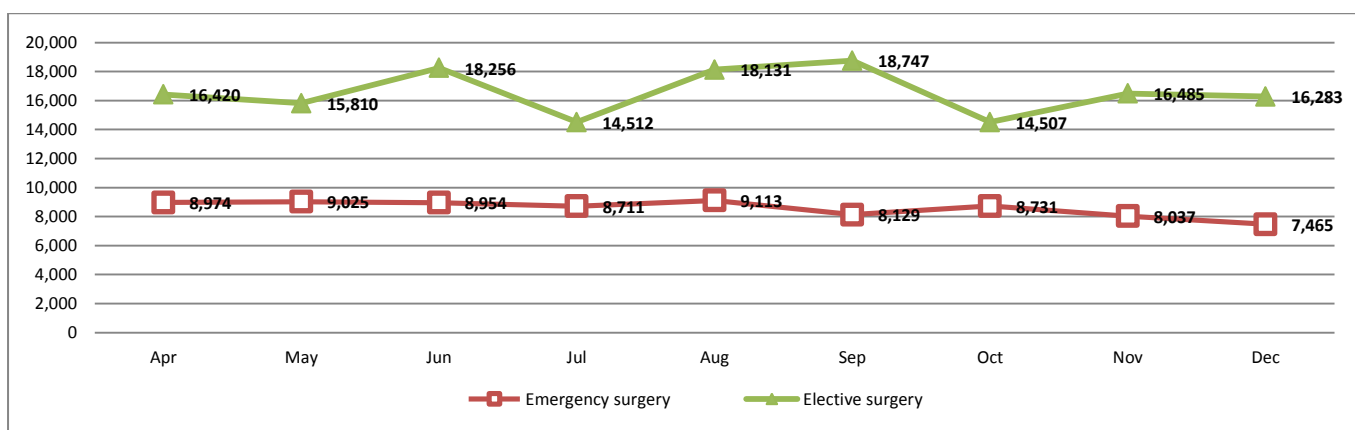
In **As-Sweida** and **Hama**, the number of emergency surgeries is relatively high because of emergency cases received from surrounding in-secure areas.

Figure 33: Percentage of total emergency surgeries to elective surgeries in public hospitals [MoH & MoHE] per governorate, Dec 2014



Trend analysis of total number of elective and emergency surgeries reported in functional public hospitals [MoH & MoHE], from April to December 2014 is presented in Figure 34.

Figure 34: Trend analysis of number of patients received services in blood banks and imaging services, in public hospitals [MoH & MoHE], Apr to Dec 2014



7.3 Maternal health services

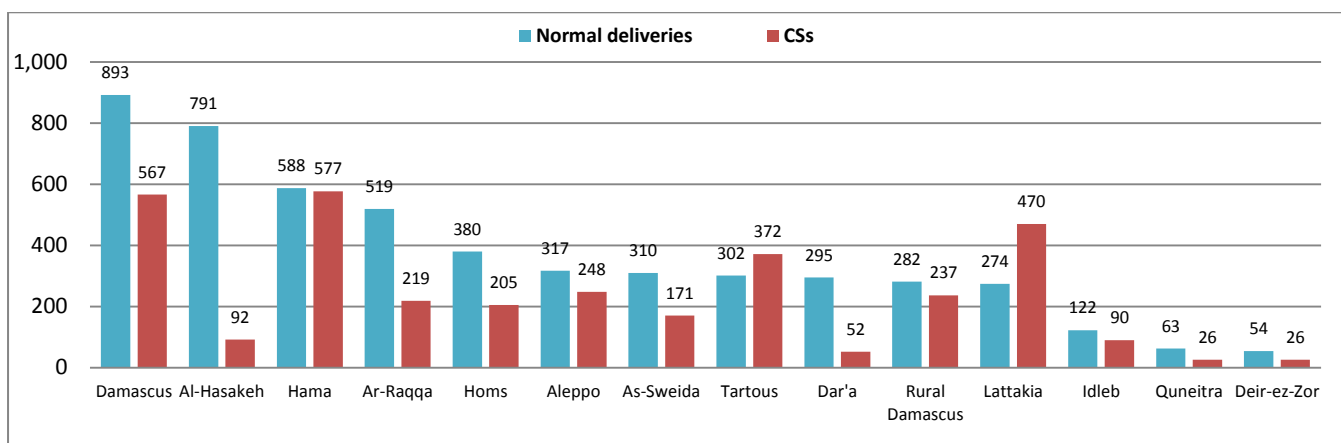
Analysis of availability and utilization of maternal health services was conducted considering three scopes:

- Utilization of service (caesarean sections (CS) vs., normal deliveries); December 2014 summary figures by governorate
- Percentage of CSs to normal deliveries, of December 2014
- Trend analysis of the monthly normal deliveries vs., caesarean sections, April to December 2014

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

The numbers of caesarean sections performed at public hospitals (in December 2014) versus the normal deliveries have been analyzed at governorates' level [Figure 35]. The highest numbers are reported from Damascus hospitals [Al-Zahrawi MoH Hospital & Obs. and Gyn. MoHE Hospital].

Figure 35: The No. of normal deliveries and caesarean sections (CSs) performed at public hospitals [MoH & MoHE], Dec 2014



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 36], 12 governorates are above the threshold.

The highest reported figures of caesarian sections are in Tartous and Lattakia 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

Similar reasons for high CSs are in Hama governorate, in addition to security constraints in certain areas.

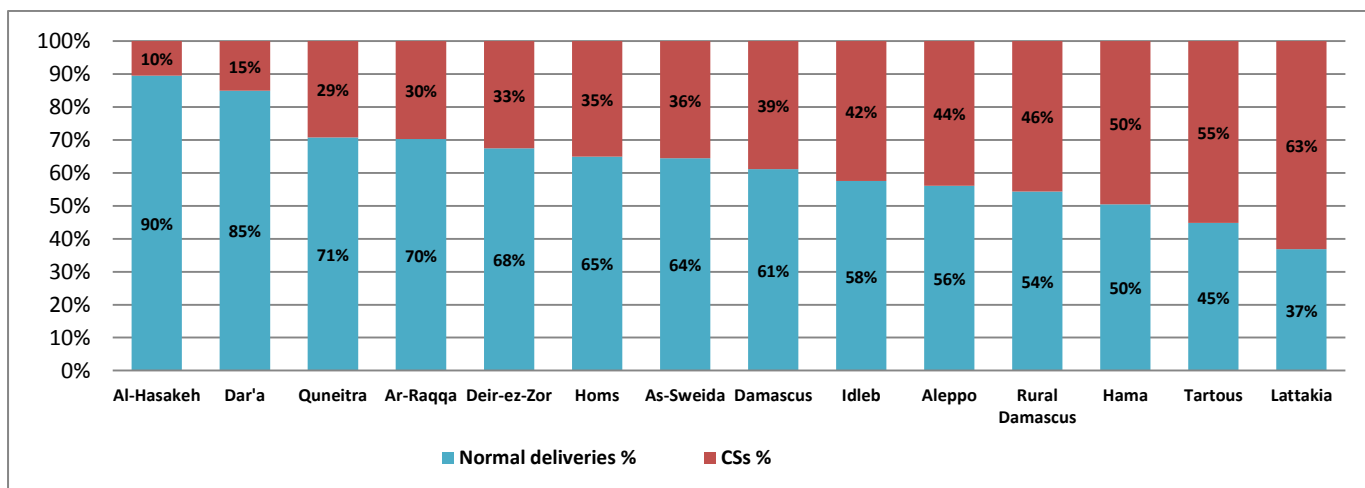
In Aleppo and Rural Damascus the high numbers of CSs are due to the fact that majority of the pregnant women prefer to do caesarean sections, because of the security situation and hassles they could go through if they opted for normal delivery.

In **Aleppo**, the high figures of CSs were reported from Al-Bab hospital of MoH (91) in northern areas in Aleppo governorate, Maternity hospital of MoH (65) in Aleppo city, and Obstetrics and Gynecology hospital of MoHE (92).

In **Rural Damascus**, the high figures of CSs were reported from Al-Qutayfeh hospital MoH (106), Al-Qalamun hospital MoH (102), and Al-Bassel-Yabroud hospital MoH (29).

Across all reported functional hospitals, 39% of deliveries are CSs while 61% are normal deliveries. Details on percent of CSs to normal deliveries per governorate in December 2014, is provided in [Figure 36].

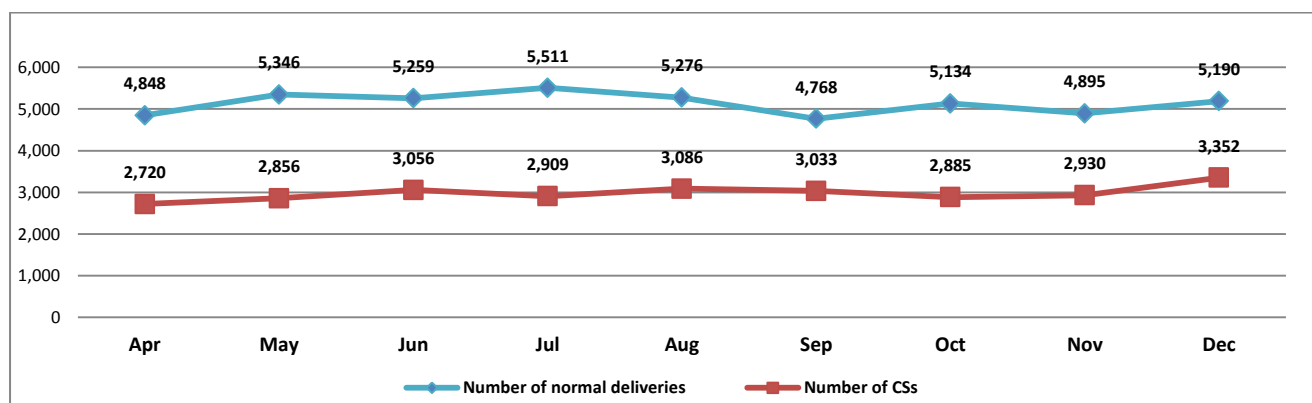
Figure 36: percentage of caesarean sections to normal deliveries, all public hospitals [MoH & MoHE], Dec 2014



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 Apr to Dec 2014, is shown in Figure 37.

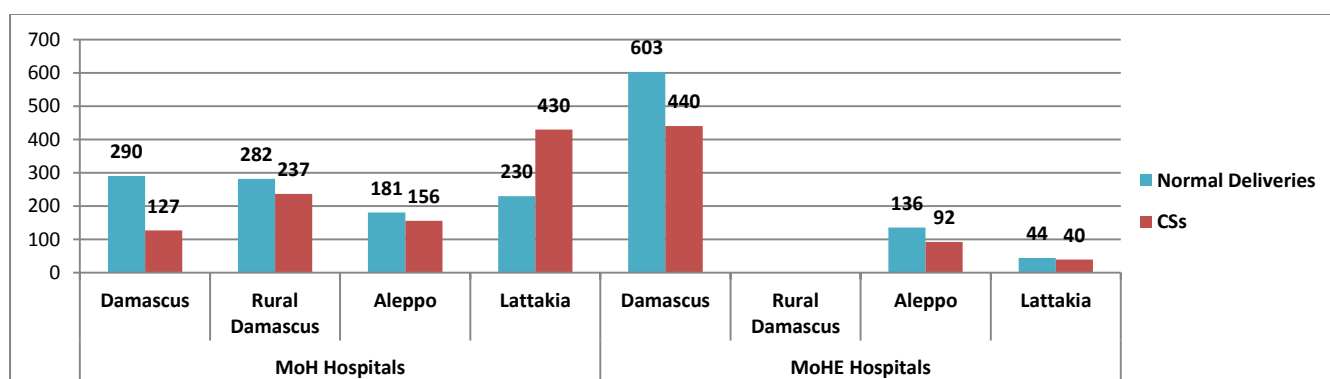
Figure 37: Trend analysis of the monthly numbers of normal deliveries vs., caesarean sections, public hospitals [MoH & MoHE], Dec 2014



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 38].

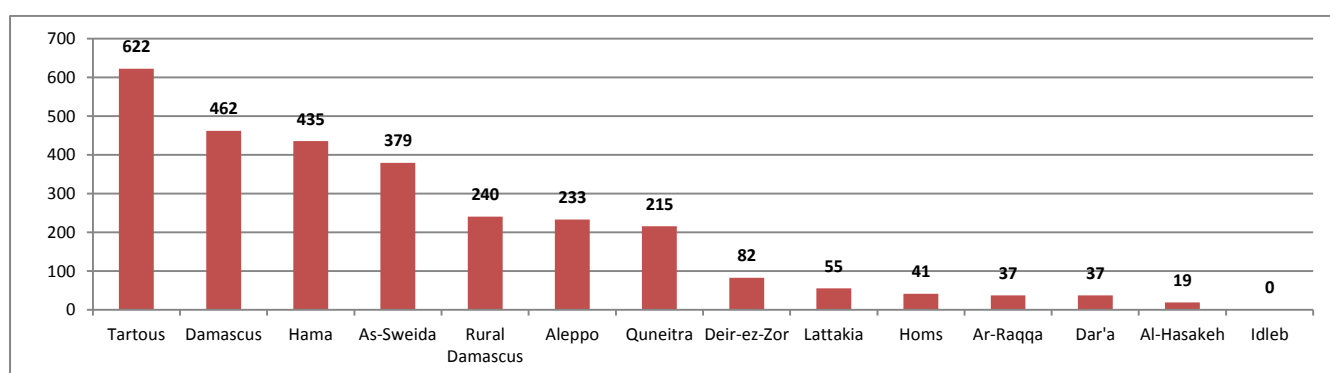
Figure 38: Comparison of MoH & MoHE hospitals workload of normal deliveries vs., CSs, Dec 2014



7.4 Child Health

Management of severe children diseases (such as acute respiratory diseases, Meningitis, blood diseases cancer, etc.) are assessed at hospitals level. Figure 39 shows the distribution of total reported cases of children with severe diseases by governorate.

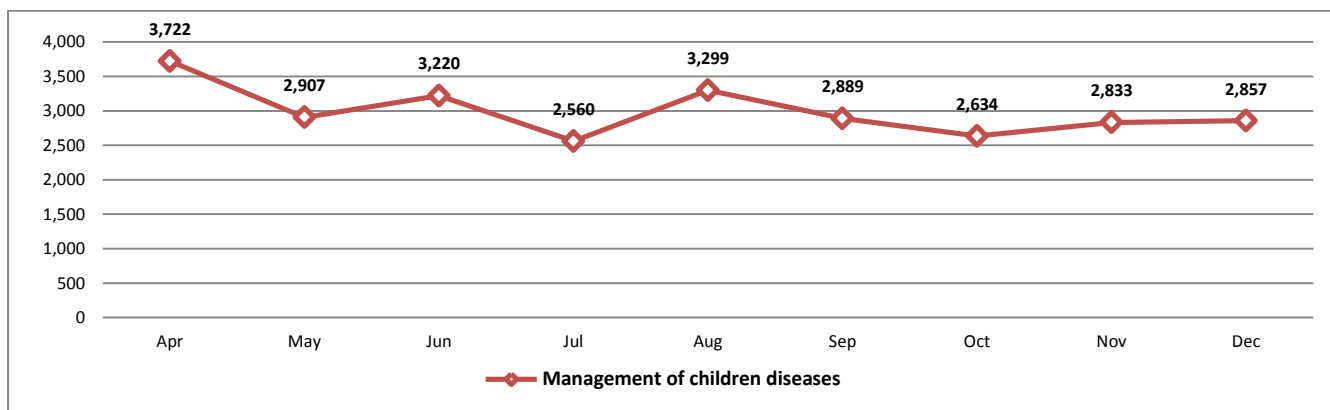
Figure 39: Number of children with severe diseases in public hospitals [MoH & MoHE], Dec 2014



The high reported figures in Tartous and Damascus are due to the high numbers of IDPs, and also availability of MoHE referral hospitals for children in Damascus and Hama.

Trend analysis of reported cases of severe children diseases from April to December 2014, is presented in [Figure 40] below.

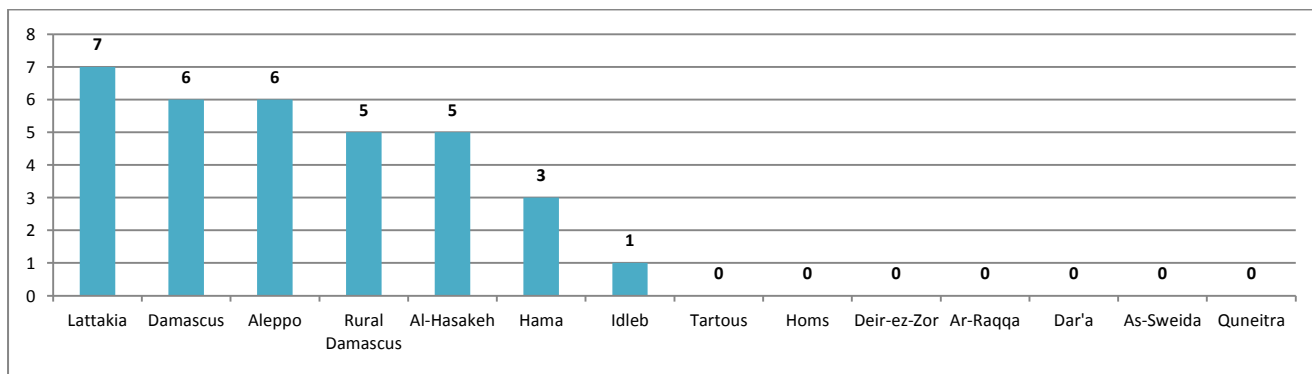
Figure 40: Trend analysis of reported cases of severe children diseases in public hospitals [MoH & MoHE], Apr to Dec 2014



7.5 Nutrition

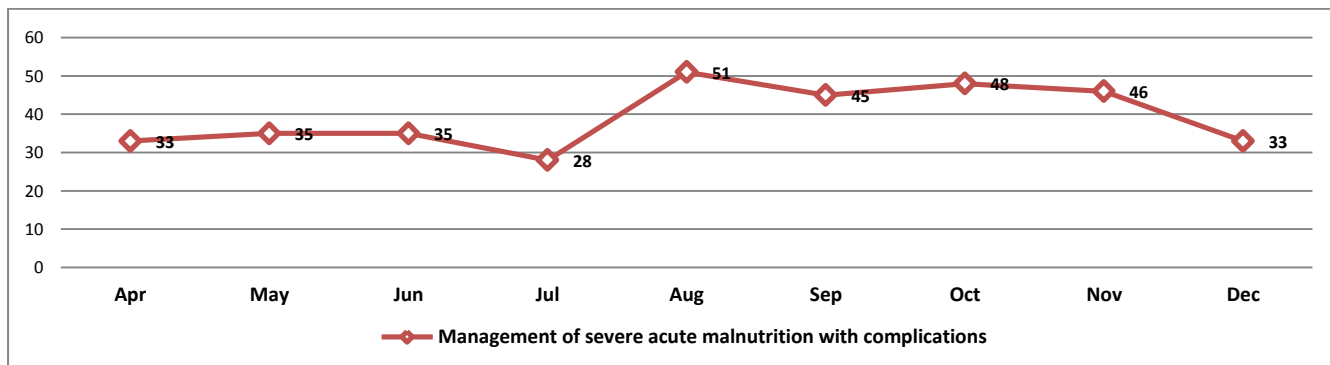
Monitoring of cases of severe acute malnutrition with complications is systematically conducted at public hospitals level; Figure 41 demonstrates the number of cases reported in December 2014, at governorate level.

Figure 41: The number of children with severe acute malnutrition with complications in public hospitals [MoH & MoHE], Dec 2014



Trend analysis of reported cases of severe acute malnutrition from April to December 2014, is presented in [Figure 42] below.

Figure 42: Trend analysis of number of children with severe acute malnutrition with complications in public hospitals [MoH & MoHE], Apr to Dec 2014



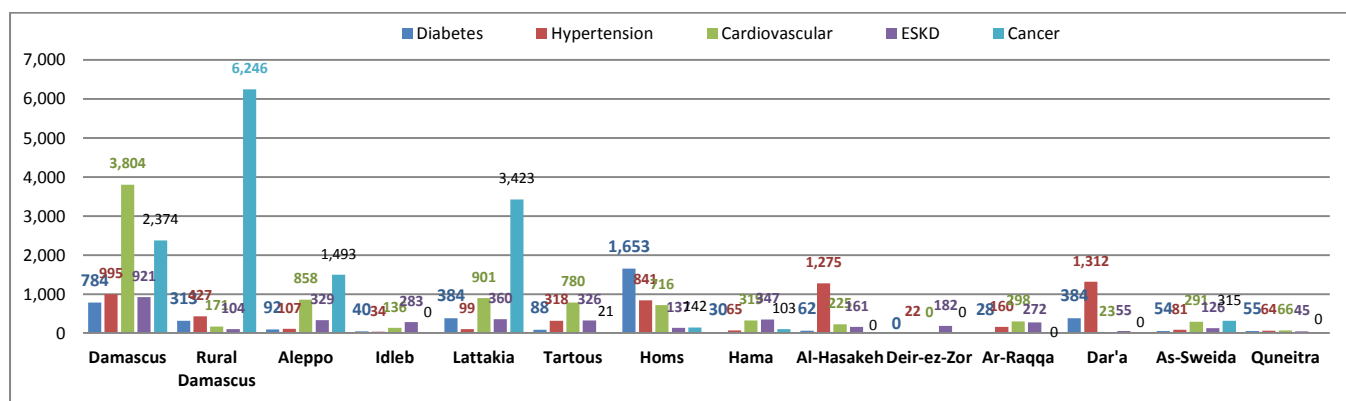
7.6 NCDs (non-communicable diseases)

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, and Lattakia 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, Lattakia, Aleppo, Tartous, Homs, Hama, Ar-Raqqa and As-Sweida [Figure 43].

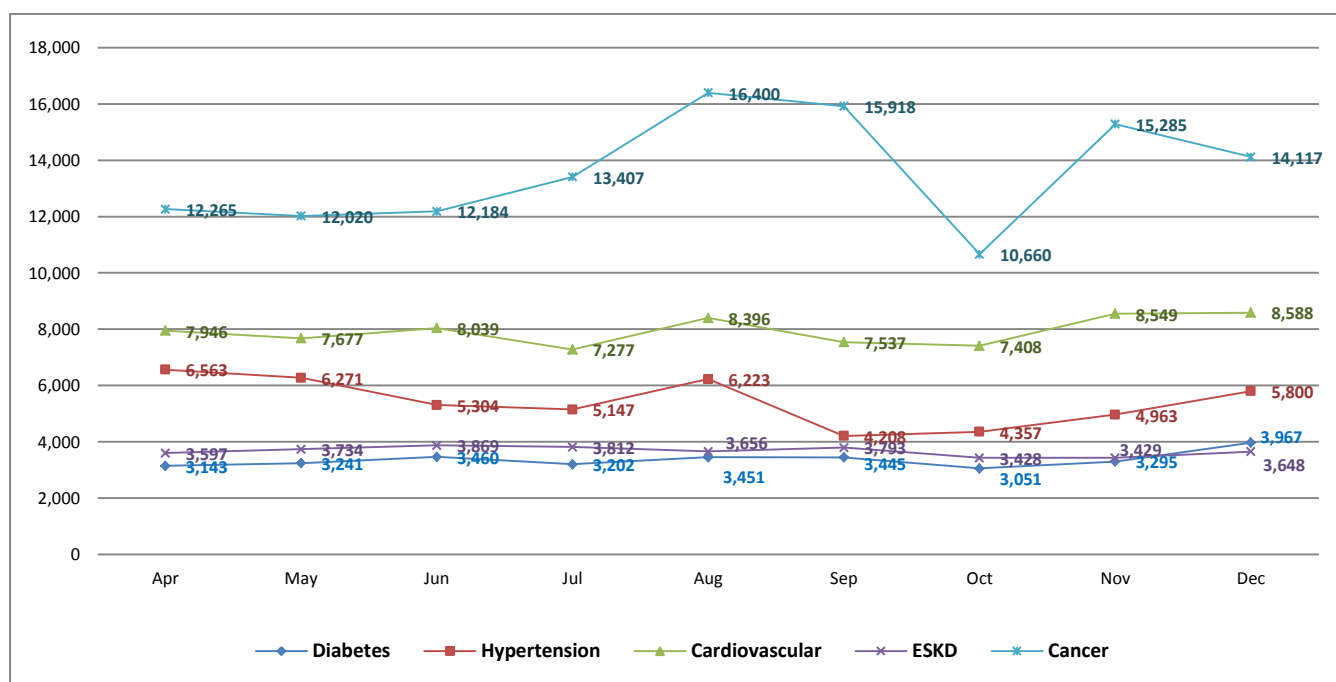
Figure 43: The number of NCDs' consultations in public hospitals [MoH & MoHE], Dec 2014



*ESKD: End Stage Kidney Disease

The monthly trend of reported NCDs' consultations at functional public hospitals is shown in [Figure 44].

Figure 44: Trend analysis of total monthly number of NCDs' consultations reported in public hospitals [MoH & MoHE], Apr to Dec 2014

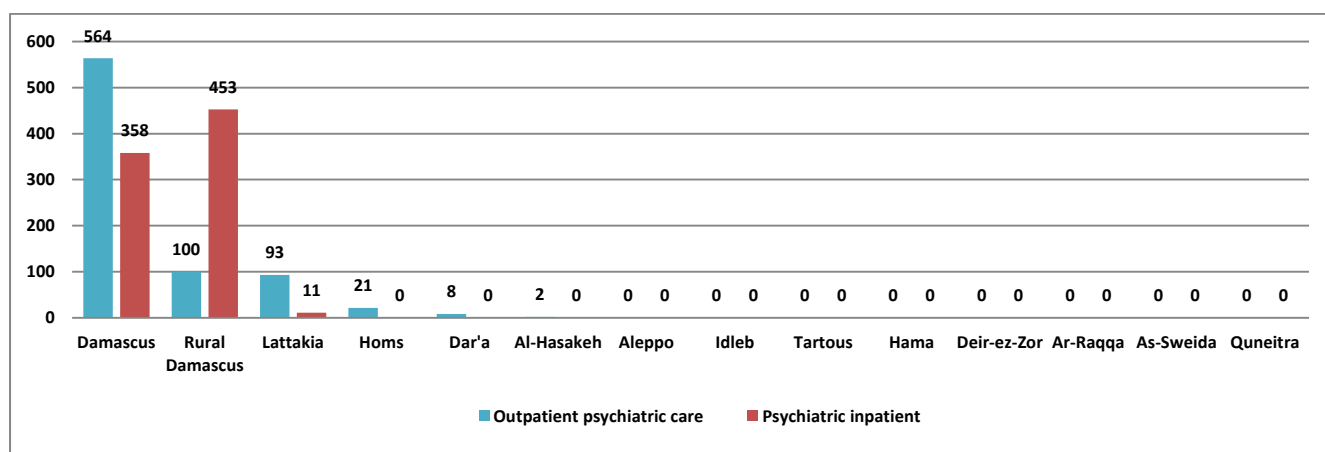


The high number of cancer's consultations in August, September, and November 2014 are reported mainly from Al-Bairouni MoHE hospital in Rural Damascus, and it is due to availability of cancer's medicines during that period.

7.7 Mental Health

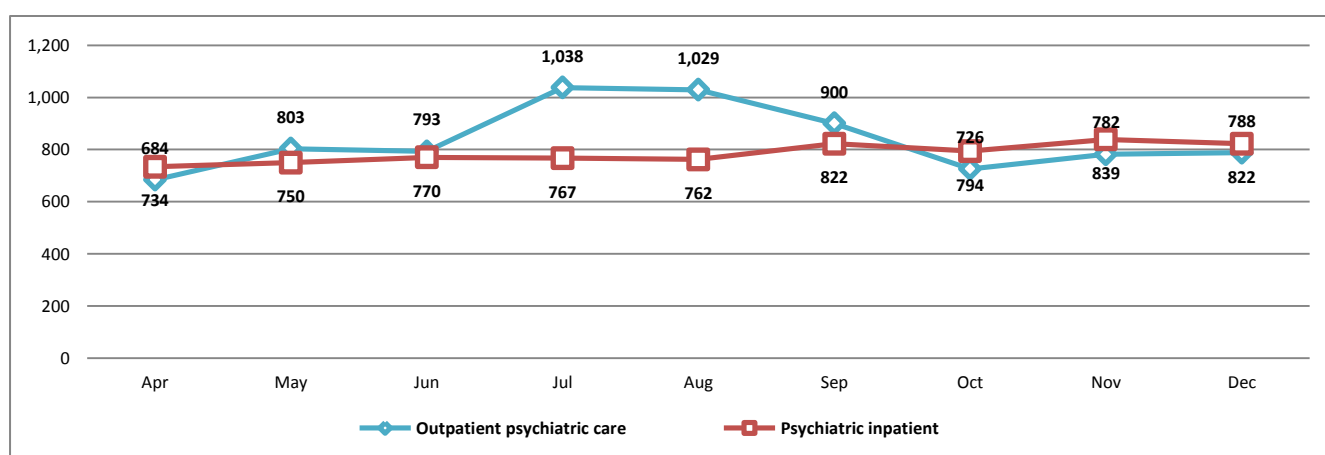
Availability and utilization of Mental Health services were assessed through HeRAMS by checking the outpatient and inpatient services at hospitals level and the number of patients. Summary of the total reported consultations (outpatient) and inpatients at public hospitals, at governorate level is shown in [Figure 45]. The reported figures of outpatient in Damascus, is from Ibn-Roshod, followed by Al-Mouwasat MoHE hospital, National hospital in Lattakia, and Al-Mojtahid (Damascus MoH Hospital), while the inpatient figures are reported from Ebn Sina Psychiatric hospital, Ibn Roshod, Al-Mouwasat MoHE hospital and National hospital in Lattakia.

Figure 45: The number of outpatient psychiatric cases vs., the number of inpatients in public hospitals [MoH & MoHE], Dec 2014



Trend analysis of monthly reported number of outpatient psychiatric cases vs., the number of inpatients in public hospitals [MoH & MoHE] is shown in [Figure 46] below.

Figure 46: Trend analysis of number of outpatient psychiatric cases vs., the number of inpatients in public hospitals [MoH & MoHE], Apr to Dec 2014



8. 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 checklist⁵.

In its fourth 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] (89/113), 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 47] and [Figure 48].

Figure 47: Percentage of functional essential equipment/ total available equipment in functional Public Hospitals [MoH & MoHE], Dec 2014

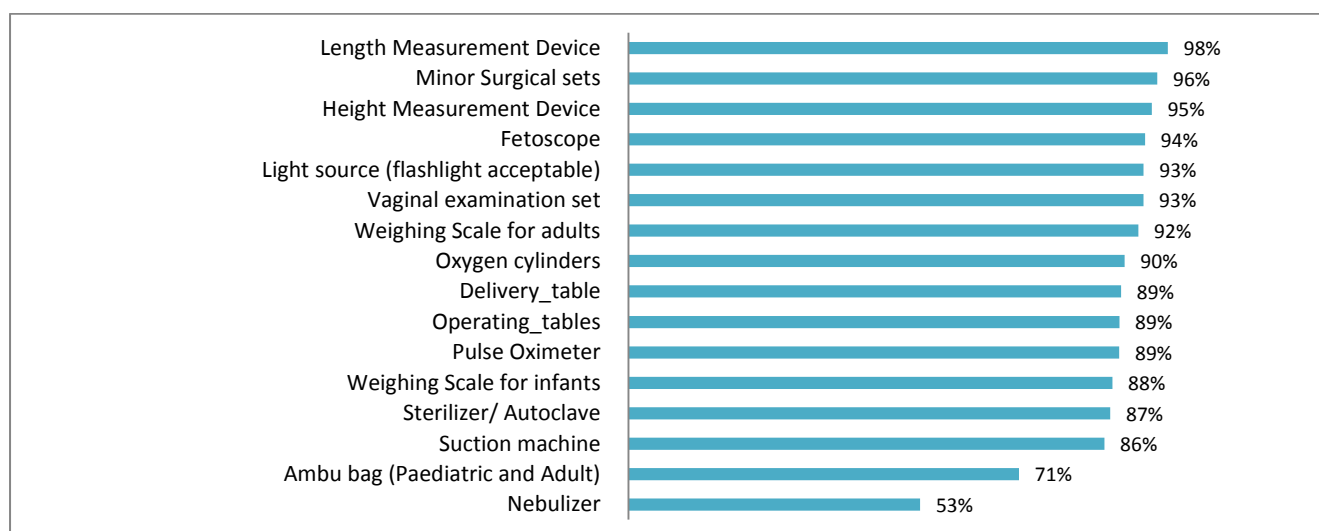
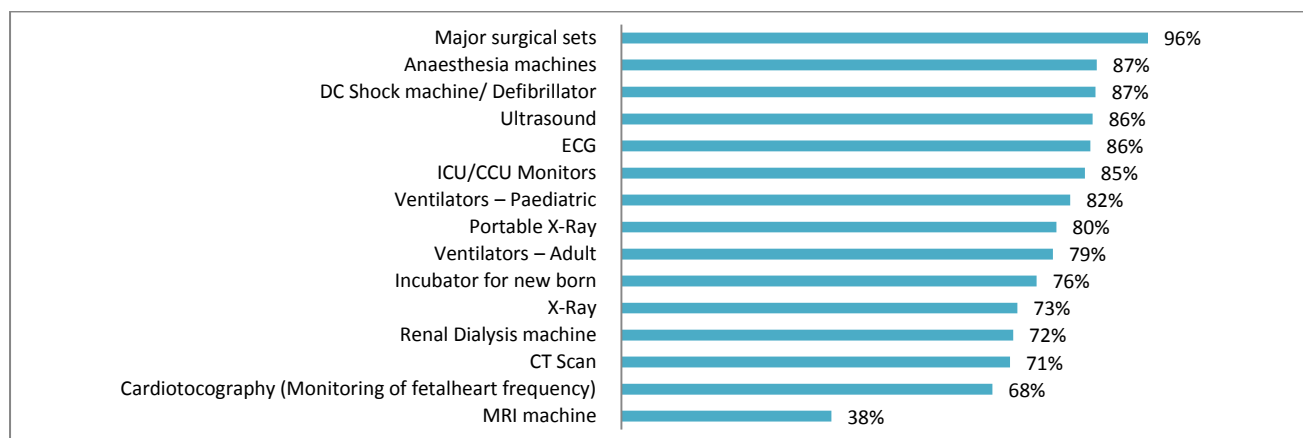


Figure 48: Percentage of functional specialized equipment/ total available equipment in the functional Public Hospitals [MoH & MoHE], Dec 2014



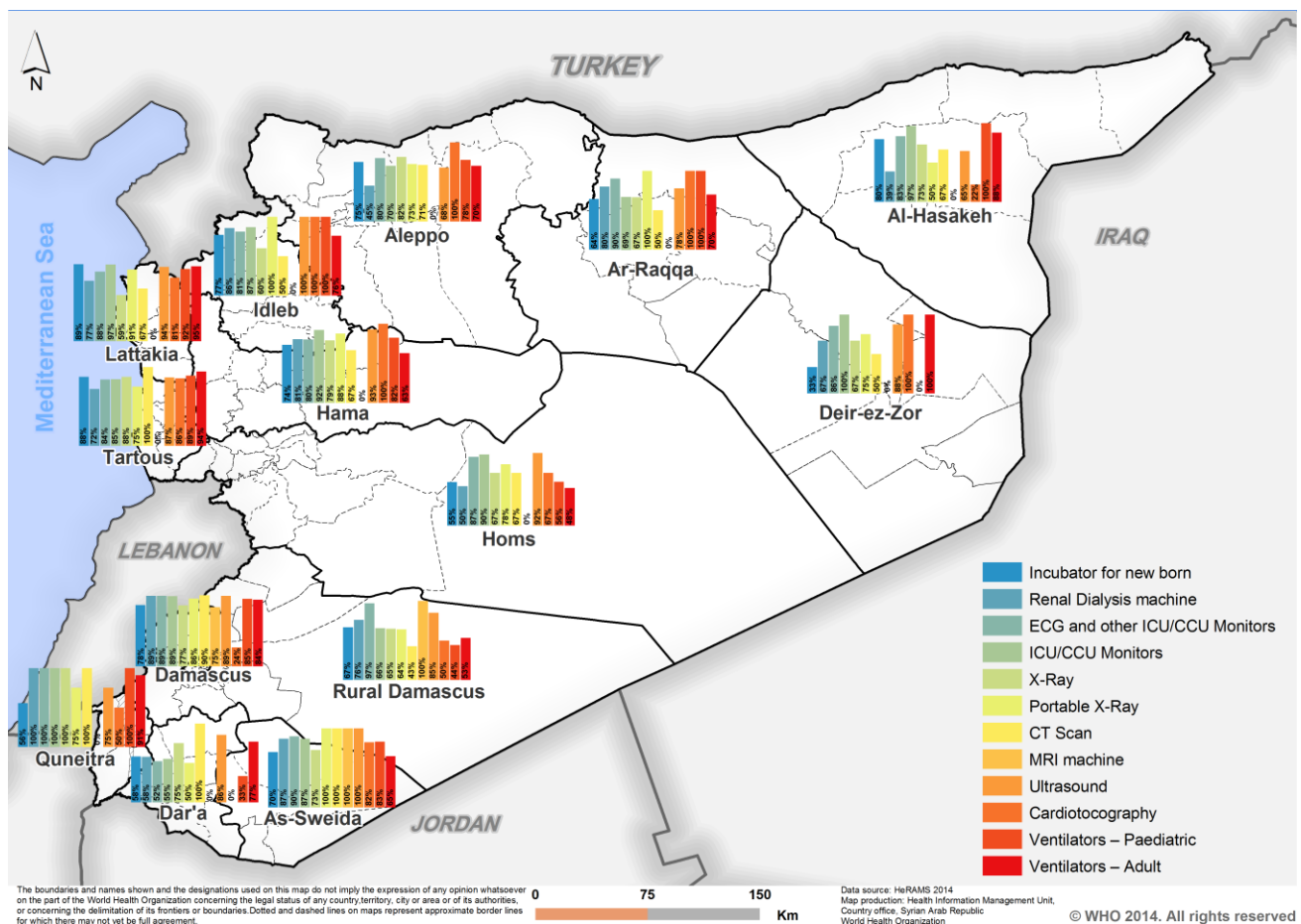
⁵ A more detailed list of essential equipment is available upon request.

Analysis of availability of specialized equipment [Figure 48] has highlighted many gaps and urgent needs for equipment and machines at different governorates; such as:

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

The availability of functional specialized equipment at hospitals is visualized on the map below [Map 6], summarized at governorate level.

Map 6: Percent of functional specialized equipment/ total available equipment in functional public hospitals [MoH & MoHE], Dec 2014

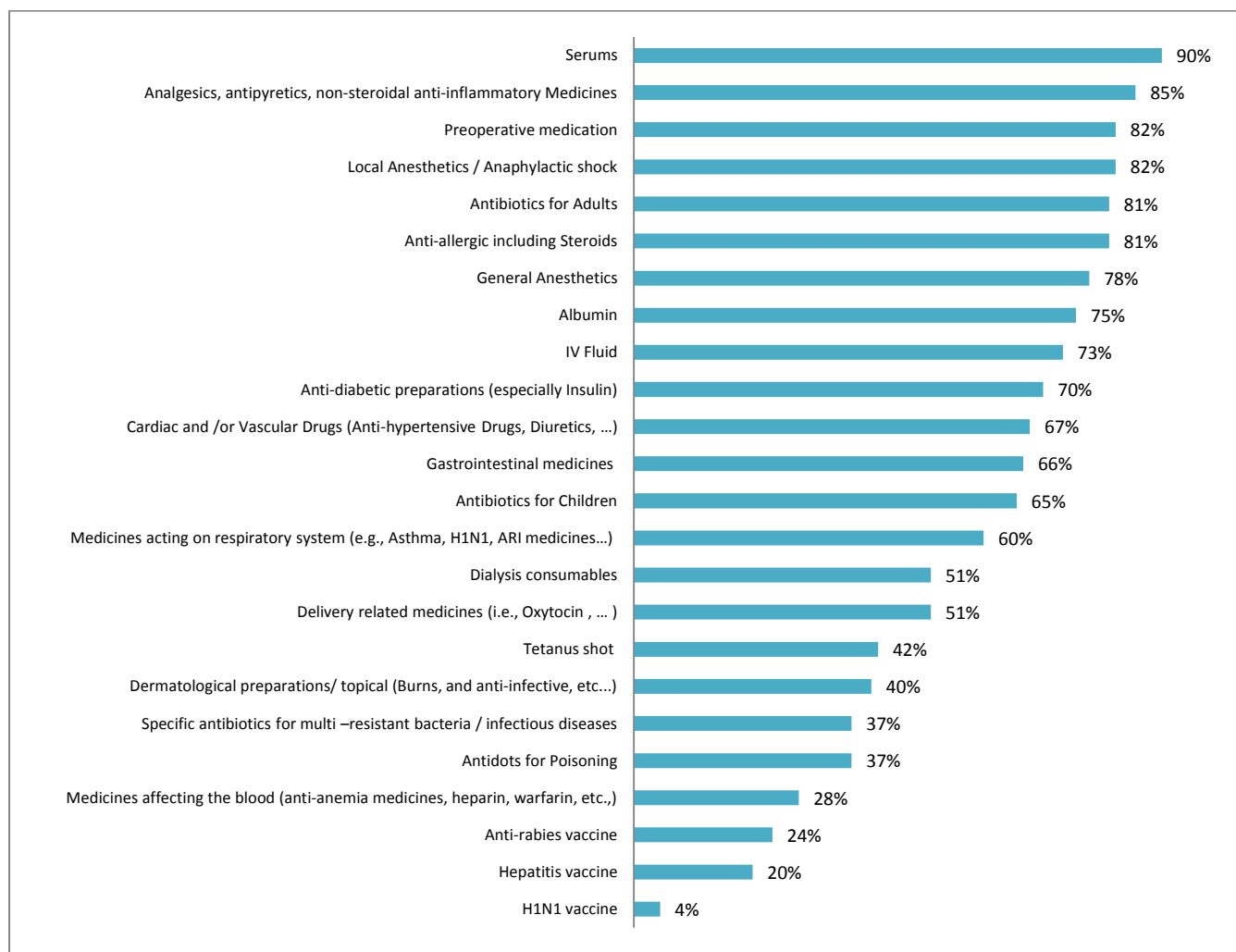


9. Availability of Medicines & Medical supplies

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 49].

The key identified gaps are related to medicines affecting blood (72%), antidotes for poisoning (63%), antibiotics for multi-resistant bacteria (63%), dermatological preparation (60%), tetanus shot (58%), delivery related medicines (49%), and dialysis consumable (49%).

Figure 49: Availability of Medicines and medical supplies for one month in the functional Public Hospitals [MoH & MoHE], Dec 2014

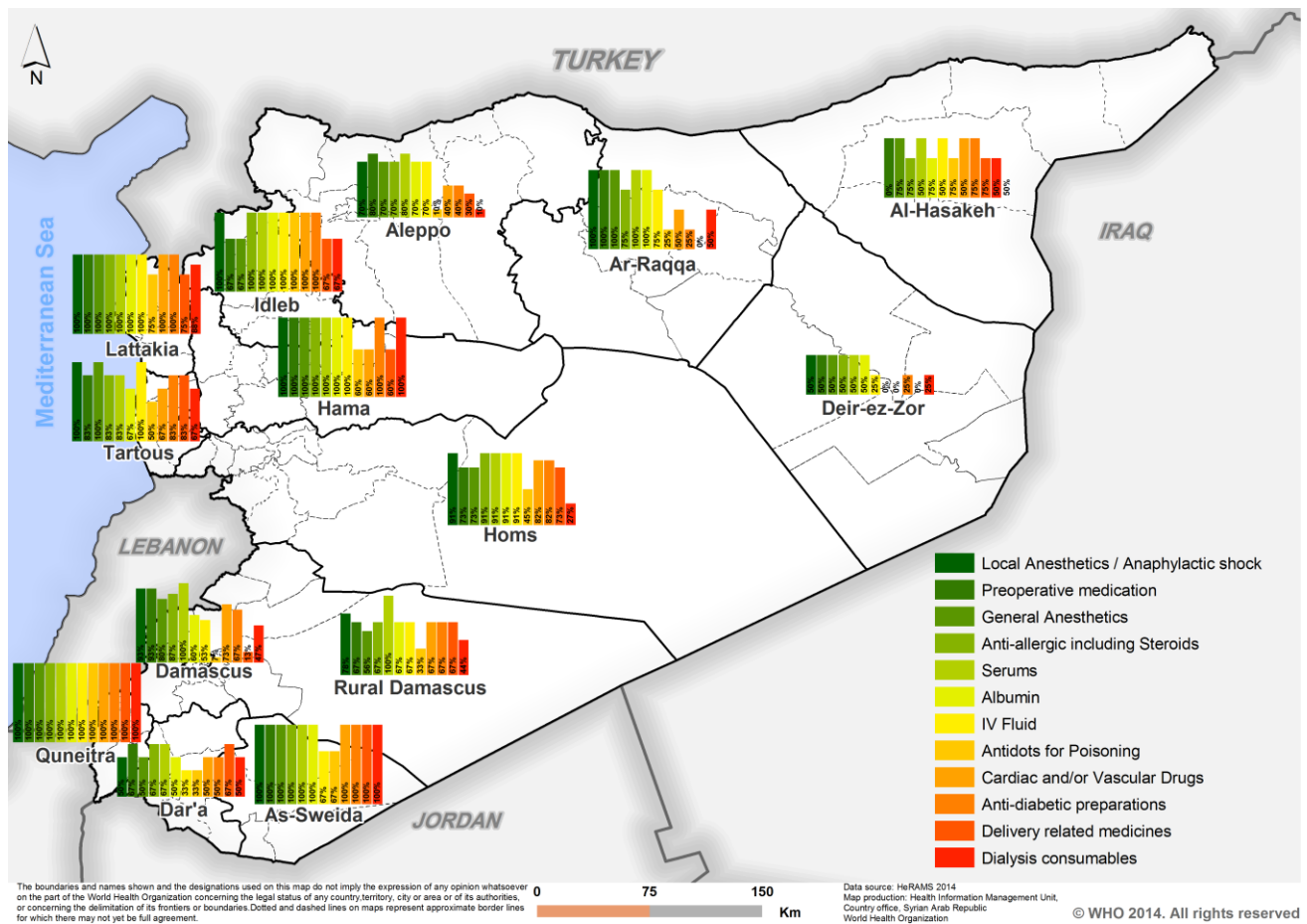


The establishment of the national Essential Medicine List jointly between MoH and WHO during 2013, and the revision of this list during 2014 have positively impacted the provision of medicines inside public hospitals. Based on the priority medicines list agreed by MoH and WHO, WHO has managed to address the gaps of medicines identified at all levels of care. One example is the increased availability of serums and IV fluids on the hospitals level after WHO continuous efforts to provide this item on a larger scale during last year.

Percent of available medicines in functional public hospitals, by governorates, are visualized in Map 7.

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

Map 7: Percentage of available medicines in functional Public Hospitals [MoH & MoHE], Dec 2014



10. Conclusions and Recommendations

- ◆ Rehabilitation of the damaged hospitals' infrastructure, especially in Rural Damascus, Aleppo, Deir-ez-Zor, Homs, Dar'a, Hama, and Ar-Raqqa governorates, in order to improve functionality of hospitals and availability of essential health services at secondary care level [*Infrastructure patterns, page 12*].
- ◆ Provision or maintenance of electricity generators for hospitals in need (identified in the HeRAMS database) could result in significant improvement of availability of services, where it was observed in cases where generators were provided/fixed, some hospitals became fully functional (e.g., Talkalakh hospital in Homs) [*Infrastructure patterns, page 17*].
- ◆ Establishing a mechanism for mapping the pool of ambulances located in the DoH (other than the hospitals assigned ambulances) on regular basis, and harmonizing the data with HeRAMS database reporting on hospital ambulances, by that, identifying the limitations of the referral system in the public health sector [*availability of ambulances, page 17*].
- ◆ Developing a specific study for distribution of health human resources, using HeRAMS baseline data, could guide enhanced utilization of available health staff, and accordingly scale up functionality of hospitals. The study would identify priority training areas required for health workers to improve the quality of provided services [*Human resources, page 22*].
- ◆ Conducting further assessments for overburdened public hospitals to measure their readiness to provide quality and additional services, considering the increased number of people displaced from insecure areas (i.e., Rural Damascus, Idleb, Aleppo, etc.) to the relatively safe areas (i.e., Damascus, As-Sweida, Lattakia and Tartous). The highest workload was observed in Damascus and Lattakia [*Availability and utilization of services, page 23*].
- ◆ Establishing a mechanism for validation and triangulation of cases reported by HeRAMS with cases collected from the established nutrition stabilization centres across Syria [*Nutrition, page 30*].
- ◆ Developing a specific study to identify the causes of the high percentage of caesarian sections (exceeding the global norm of CS to normal deliveries) observed in 12 of the 14 governorates and exploring necessary mitigation measures [*Maternal health services, page 28*].
- ◆ Increasing provision of NCD medicines (especially for cancer treatment), as it was observed that cancer consultations are the highest among other NCDs [*NCDs, page 31*].
- ◆ Integrating psychiatric inpatient services in public hospitals through establishment of psychiatric units that could improve the availability of inpatient psychiatric services in the public hospitals [*currently 7% across the country, page 23*]. WHO has established a joint collaboration to support MoH, MoHE and NGOs with the rehabilitation/ establishment of psychiatric units at public hospitals.
- ◆ Increasing provision of specialized medical equipment and machines, in addition to spare parts (in certain cases) will improve readiness of hospitals' secondary and tertiary levels of care, and accordingly fill-in the highlighted gaps and urgent needs reported at different governorates [*availability of medical equipment, page 33*].
- ◆ Expanding HeRAMS to include private hospitals and NGOs supported hospitals, especially those operating in areas where there are non-functional public hospitals, portraying the health situation and actual caseload in public, private and NGO health services across the country.
- ◆ Identifying source of referral of trauma cases to burdened facilities in order to improve access to trauma care in the under-served areas, reducing travel time to the health service required and mitigating complicated trauma injuries that could turn into long-term disabilities [*surgical and trauma care, page 25*].

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