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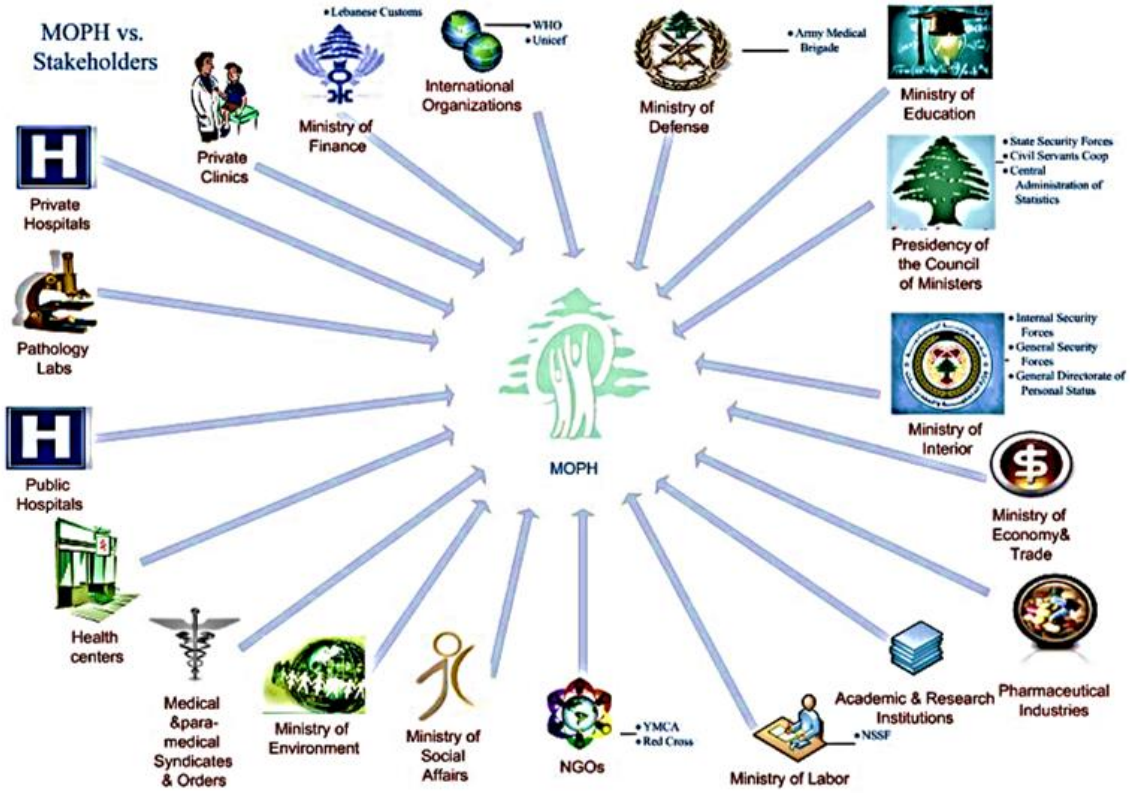
1. Governance

A. Pillars and subpillars

Pillar 1.1 Leadership and collaborative governance

The Ministry exercises its stewardship function through proposing, drafting, designing and enforcing the health-related laws in the country. The Ministry also leads through the licensing of health care facilities while ensuring accountability through administrative monitoring and control mechanisms and using contractual agreement frameworks with health care providers as an effective tool to steer the health system. It also involves stakeholders through establishing national committees for policymaking, setting norms and monitoring implementation. In this regard, a consensual leadership and strategic intelligence approach is being used by the Ministry by promoting its technical capacity and ensuring clear communication with the stakeholders, and their involvement in decision-making. In recent years, the Ministry institutionalized its collaborative governance profile through involving major health stakeholders in a networking structure (figure 8), which upgraded the role of the Ministry on the governance ladder (Van Lerberghe, Mechbal, & Kronfol, 2018).

Figure 8 Stakeholders collaborating with the Ministry of Public Health Source: Harb & Abou Mrad, 2009



The literature highlights the importance of leadership style for effective collaborative governance. Commitment to viewing networks as mutual aid partnerships with society is an important feature, for example, in Ministry collaborations with NGOs and other civil society organizations, as seen in the mental health and primary health care network. These mutal aid partnerships are important also in the involvement of the Syndicate of Private Hospitals, professional associations in the pharmaceutical sector, and of professional orders in many technical committees such as the committee for drug licensing. The

Ministry has been keen to give a prominent role to non-Ministry experts in the various commissions and networks, demonstrating its ability to govern within rules, while being creative. In addition, the Ministry showed its acceptance of a role for individuals who do not have a government portfolio. In this, the Ministry was careful to take a transparent approach, with the necessary patience to build consensus, especially in negotiating regulations and in balancing public and private interests, for the Ministry to step in firmly in its role as sector steward. It is in this role also that the Ministry had to promote the inseparability of performance and accountability, specifically when negotiating primary health care network contracts and performance contracting with hospitals. Nevertheless, even though the Ministry has shown an improvement in its technical authority, its regulatory and coordination capacity, and its institutional arrangements, it is well noted that its ability to fulfil essential public health functions requires further strengthening. Moreover, there remains a perception that, whatever the Ministry's efforts, external political pressure at the non-executive level does influence some of its decisions (VAN LERBERGHE and others, 2018). Additionally, the collaborative governance approach that the Ministry undertook to supervise the sector is easily influenced by any political and economic instability, and by the competing interests and power relations. This hinders the Ministry's ability to regulate the quality of the health care practice and to shift its technology- and curative-oriented nature to a more preventive one.

Pillar 1.2 Transparency and accountability

In order to promote transparency and accountability at the Government level, the law on the right of access to information was released in 19 January 2017. At the Ministry, efforts to enhance transparency and accountability started long before 2017. The Ministry website and its other social media platforms disseminate the latest advancements in the health care sector, and many other documents and information on its initiatives, publications, services, health care facility locations and health indicators. Citizens can also track their transactions, apply for some services through the website and access the list of licensed facilities and registered pharmaceutical products at the Ministry. Moreover, in 2013 the Ministry launched a mobile application which has similar features as its website for the public's use.

The Ministry also promoted its accountability to the public by issuing a grievance and complaints mechanism in 2014 which collected the public's complaints and opinions through various channels and later documented and responded to them. In fact, the Ministry's primary health care department excelled in implementing and developing its grievance redress system and was able to streamline its grievance redress mechanisms in collaborations with the primary health care centres (MoPH, 2022a).

Another example on transparency is the Good Governance for Medicines Programme, which WHO established in 2004 and the Ministry joined in September 2007. Lebanon was among 15 countries who joined voluntarily at that time. This programme aimed to implement transparent administrative procedures in the public pharmaceutical sector, in addition to raising the awareness of stakeholders on the importance of good governance and its positive repercussions on the health sector. As a first step, the Ministry conducted a transparency self-assessment study of its regulatory role in the pharmaceutical sector in Lebanon, and the recommendations were developed and implemented over a period of ten years. Accordingly, the WHO published the achievements of Lebanon in this programme as an example of a success story in the year 2010 (Baghdadi-Sabeti & Serhan, 2010).

Among the most important achievements of this programme, was that all the technical and administrative procedures for the pharmaceutical sector within the Ministry were documented and published on the Ministry website. Documents published on the website include drug registration procedures and the required documents, the by-laws of the drug technical committee responsible for registration, its agenda and decisions, licensing requirement for pharmaceutical facilities, and a manual of drug pricing procedures in Lebanon.

In addition, the Ministry has updated the guidelines related to the good manufacturing of pharmaceuticals (GMP) in Lebanon. Accordingly, the pharmaceutical factories are inspected periodically and upon request of the GMP certificate. The Ministry issued many decrees to organize clinical research involving human subjects in the year 2014 and established a committee to give authorization to the institutional review boards/committees (IRBs) for ethical approvals of clinical trials to ensure they follow international regulations. Also, a detailed code of ethics for pharmaceuticals marketing was established in 2016.

Nevertheless, at the Ministry administration level, and as in other ministries, accountability mechanisms have been hindered by political interference and confessionalism. The undisputable authority and high discretionary power given to the Minister of Health after the Taif agreement, represents a major impediment for accountability.

Pillar 1.3 Regulation

In its regulatory function, the Ministry grants licences of practice to health professionals, provides functioning permits to health institutions and regulates the medical products market, including drugs, food supplements and medical devices.

Subpillar 1.3.1 Health professions

Regulation of the supply of human resources could target the admission of entrants to universities and technical schools through different mechanisms such as numerus clausus. However, restrictive measures of this kind could hardly be implemented in Lebanon, as that would be considered an unacceptable interference with personal freedom of career choice, and because an important number of Lebanese health professionals are yearly graduating from foreign universities, and thus are beyond national control mechanisms (El-Jardali, Fadlallah, & Matar, 2017).

In the absence of an upstream control, downstream measures such as licensing requirements and the colloquium exam have minimal effect on the supply volume of concerned professionals. For health professionals to practise in Lebanon, they should be Lebanese citizens and get a licence from the Ministry of Public Health. They also need to be registered at their relevant professional orders.

Since the Ministry was not able to reduce oversupply, it focused on addressing shortages, and specifically that of nurses. This included financing university education programmes, organizing trainings, establishing and supporting the Order of Nurses and improving their financial and work conditions, all of which had a significant impact on promoting the nursing profession (Asmar & Yeretzian, 2019a).

Nearly all health professions became organized into orders whose main role is to protect the rights of the professionals, ensure their legitimate moral and material interests, enhance their professional level and to coordinate with relevant government institutions such as the Ministry. The regulatory role of professional orders is granted by their respective laws and embedded in disciplinary councils with important prerogatives (Asmar & Yeretzian, 2019b).

In November 2011, the law on mandatory continuing education to pharmacists (law 190) was enforced by the parliament. This law requires all pharmacists registered with the Order of Pharmacists to fulfil 15 credits per year. Courses and trainings are organized by the Order of Pharmacists and delivered to pharmacists for free (Sacre, Tawil, Hallit, Sili, & Salameh, 2019). In 2019, the parliament issued the law of compulsory continuing education for nurses, which is based on a minimum number of units to be completed within three years and implemented by the Order of Nurses.

In addition, new laws were issued in 2019 to cover regulating the chiropractic, psychomotor therapy, orthodontics, psychology and optics professions.

So far, licensing for medical professions is granted for life. In fast-changing sector, it is important to consider relicensing for professions that require continuous development or at least enforce continuing education activities.

Subpillar 1.3.2 Health institutions

The Ministry grants licences to all health-related institutions including hospitals, pharmaceutical factories, pharmacies, drug warehouses, dental laboratories, clinical laboratories, radiography centres, physiotherapy centres, nurseries and dispensaries. Except for nurseries, licensing for health institutions is granted for an unlimited period, and no relicensing requirements are in place. In addition, no licence is required for a primary health care centre, which can function with a dispensary licence after meeting very basic requirements (Asmar & Yeretzian, 2019a). This necessitates a strategic revision of institutions' licensing and relicensing requirements. In this regard, a consensus document on hospital relicensing and upgrading requirements was agreed upon between the Ministry, WHO and the Syndicate of Hospitals more than a decade ago but lacked the needed political support to become a law.

For local drug manufacturing, after getting a licence, the Ministry enforces the compliance with the GMP. In addition, pharmacies and drug warehouses undergo Ministry inspection on a regular basis. (Walid Ammar, 2015)

Subpillar 1.3.3 Medical products

The Ministry strictly regulates the pharmaceutical market and prohibits the selling of any unregistered pharmaceutical product. Food supplements are also subject to registration with high safety requirements, and they have to be clearly labelled as food supplements before being eligible for marketing. Additionally, along with the Ministry of Agriculture, the Ministry of Public Health monitors the registration and retail of veterinary pharmaceuticals (Walid Ammar, 2015).

The pharmaceutical industry in Lebanon is worth $1.2 billion and represents 3 per cent of the country's gross domestic product (GDP) in 2018 (MoPH, 2018b). A law was issued allowing pharmacists to substitute prescribed drugs with less expensive generics, provided both the physician and the patient approve. The unified prescription form was conceived as an implementation tool while facilitating at the same time drugs traceability. It needs to be digitalized to serve the traceability function. The unified prescription form may also serve as a monitoring tool for the Ministry to monitor physicians' prescribing patterns as well as pharmacists' adherence to the law. It would also help the National Social Security Fund (NSSF) to directly pay the pharmacists instead of reimbursing the adherent (MoPH, 2018a, 2018b).

The main concern of the Ministry was to enhance physicians' and patients' confidence in generic drugs to increase their market share. Therefore, in 2012 the Ministry started an ambitious project with the French medicine agency, L'Agence Nationale de Sécurité du Médicament et des Produits de Santé (ANSM), to revisit the registration requirements of generic drugs, and established subcommittees of experts who specialized in the different modules of the registration files to assist the technical committee in scrutinizing the applications for drug registration.

The Ministry published procedural guidance for all pharmaceutical services, including pharmacy inspection, narcotics and import and export. For further transparency, the national database of the drugs marketed in Lebanon, along with their authorized prices, is available on the Ministry website, and updated regularly (MoPH, 2022a). The Ministry, in collaboration with WHO, developed an electronic pricing tool for all

registered medications and their prices with standard operating procedures as part of the national e-health programme. Pharmaceutical registrations and pharmaceutical-like products are enforced by the technical committee in charge of registering drugs (MoPH, 2022a). Another committee is responsible for the registration of food supplements. Both committees are established by laws.

A pharmaceuticals traceability system was piloted in 2018, based on standard barcodes, serving mainly the purpose of protecting the supply chain integrity and consequently patient safety (Abou Mrad, 2020; MoPH, 2017). The system forces pharmaceutical companies to abide by the 2D matrix barcode on the medicine's outer pack, which would allow streamlining and standardizing the identification and tracking of drugs across the supply chain (MoPH, 2022a). A guidance document for the implementation of the 2D barcode on pharmaceuticals was released in 2020, which assigned the responsibilities and tasks of all involved parties including manufacturers, importers, distributors and wholesalers. All imported or locally manufactured drugs were set to have a 2D barcode on their secondary packaging based on the GS1 standards. The barcode was then transferred to the MediTrack database, which is a platform used to collect and track the drugs' national barcodes (MoPH, 2020b). Awaiting political commitment and more collaboration from the orders of physicians and pharmacists, the traceability system will be expanded to assess prescription patterns and monitor physicians' and pharmacists' adherence to good professional and ethical practices.

In 2013, the Ministry released the first good storage and distribution practices and good cold chain management practices guidelines as well as their related self-assessment sheets, according to the guidelines and instructions of WHO standards mandating all warehouses to implement and adhere to its requirements (Karam, 2020).

The Ministry decided to integrate strategies for drug safety monitoring, which included establishing the national pharmacovigilance system to detect, assess, understand and prevent adverse drug effects. It developed the pharmacovigilance system in collaboration with Lebanese University and with the support of WHO (Karam, 2020; MoPH, 2018b; WHO, MoPH, & University, 2019).

Within the scope of the adverse events following immunization surveillance related to the available COVID-19 vaccines in Lebanon, a monthly report is prepared by the team as a means of communicating the results of the data received to the pharmacovigilance programme since the deployment of COVID-19 vaccines in Lebanon. The surveillance aims to establish a rigorous safety profile regarding the COVID-19 vaccines administered in Lebanon (MoPH, 2021).

As for medical devices, decree no. 455/1 was released in 2013 which set a number of conditions for importing any medical devices and equipment into the country and clarified the responsibilities of the importers and the process of registration, inspection, clearance and surveillance of these devices. Also, a unified national coding system was issued for all implantable medical devices which were also registered on the national list of implantable medical devices. The Ministry established a database of imported medical devices, and set a traceability system for implantables (MoPH, 2013).

While the regulation of drug pricing and cost containment of pharmaceutical products were priorities in previous health strategies through repeatedly revising the pricing structure, the main issue remained the overconsumption of branded pharmaceuticals resulting from excessive prescriptions and self-treatment, and doctors' resistance to prescribing generic drugs. This was partly attributed to marketing practices of the pharmaceuticals (Walid Ammar, 2015). In an attempt to deal with this issue, the Ministry developed, in agreement with all concerned stakeholders, the code of ethics for drugs promotion with enforcement mechanisms relying mainly on the Order of Physicians and the Order of Pharmacists, with Ministry intervention for decisions of last resort (MoPH, 2016b). Unfortunately, compliance remains unsatisfactory and both Orders are not fulfilling their monitoring and disciplinary roles.

The authorization of on an independent Lebanese Drug Administration (LDA) would improve the development and implementation of regulatory policies at least by freeing them from political influence and daily interferences. This law is intended to activate the Drug Quality Laboratory, which has been historically part of the central public health lab, and currently only requires the formation of an implementation plan.

Box 10. Lebanese Drug Administration

The LDA was established by a law that issued in January 2022.

The scope of work of the LDA is related to the organization and management of the drugs and medical supplies sector, where it will ensure the quality, efficacy and safety of the materials used in the manufacture of such products, as well as dietary supplements, the associated natural formulations and vaccines, through the application of targeted control systems based on scientific bases and acknowledged standards. The LDA will have three main functions: organizational functions, executive functions and monitoring duties.

The LDA will be responsible for the following main functions: registration, importation and exportation; setting standards for locally manufactured products and regulating clinical trials; updating essential drug lists; updating over-the-counter lists; setting substitution lists; implementing the code of ethics for drug promotion; implementing GMPs; good storage and distribution practices, good laboratory practices, good clinical practices and the pharmacovigilance tracking system; developing a health technology assessment plan; developing plans for patient support programmes; setting strategies for drug disposal mechanisms; and setting detailed plans for crisis management.

The agency will be managed by two bodies:

- A board of directors (composed of seven members) holding the decisive authority of the agency.
- The chief executive officer of the agency holding the executive authority.

The implementing decrees for LDA need to be developed by the Ministry of Public Health (which is the supervisory authority) and submitted to the Council of Ministers for adoption.

Subpillar 1.3.4 Health services

Regulating hospital services to improve their quality and contain costs has always been a major challenge considering the power of the private sector and limited capacity of the Ministry. In order to assess utilization patterns and understand the price structure of the bills for laboratory examinations, imaging and operating room costs, the Ministry took a crucial step in setting up a performance contracting team in 2009, divided into three committees working respectively on utilization review, admission criteria and performance indicators (MoPH, 2009a, 2009b, 2009c). Through this exercise, Ministry staff gained a level of knowledge and skills that positively impacted their negotiation power with the hospitals. Computerization of pre-admission authorizations, and the discharge data in the electronic billing system, were instrumental in understanding costs and billing practices, and helped the Ministry in negotiating prices. It also radically simplified the authorization process for the patients, with a gain in time, money and comfort, while eliminating the previous common practice of double billing and curtailing gross overbilling.

Mindful of the private sector's ability to seek solutions to maximize profit, and out of concern that its cost containment policies might jeopardize the quality of health care, the Ministry decided to upgrade and tighten its accreditation standards. This has put an end to the indiscriminate acceptance of hospitals as suppliers and was a key step in linking purchasing to performance. The Ministry now possessed the skills,

tools and teams to link tariffs for purchasing care to accreditation results and the confidence to negotiate this in a transparent way (Awar & Vanlerberghe, 2021).

In the 2010s, Ministry teams started analysing discharges and outcomes and generated pertinent information for more effective regulation. Since then, tariffs for contracting hospital services have relied on a validated mix of criteria (Walid Ammar and others, 2013): accreditation score, patient satisfaction survey results, a case mix index, intensive care unit admissions, ratio of surgical to medical admissions and a deduction rate. This practice resulted in increased health care effectiveness, by increasing the case mix index of hospitals contracted by the Ministry. This increase was mainly attributed to decreased unnecessary hospitalizations and was accompanied by improved medical discharge coding practices (Khalife, Ammar, Emmelin, El-Jardali, & Ekman, 2020).

In the meantime, however, perverse incentives persisted. Even hospitals providing poor or dangerous care could submit bills. Overinvestment in sophisticated equipment and high-tech permitted hospitals to capture higher tariffs. Pricing negotiations were based on the reality of costs, but rewarded quality and good performance.

Alongside the stepwise process of performance contracting, the institutionalization of accreditation and its transformation into an outcome-oriented process proved to be a major step in improving the relationship between the Ministry and private hospitals (Awar & Vanlerberghe, 2021).

Despite the tremendous efforts deployed to institutionalize good governance and improve the relationship between the Ministry and private hospitals, the system remains fragile, with threats to its sustainability for two interrelated reasons. First, this endeavour has been mostly relying on a small team of dedicated civil servants, well trained to provide highly professional work, and committed to the culture of openness and learning. Second, the political support for this process has been weak and episodic, depending on political convenience.

Moreover, the protection of impartial qualified staff from political retaliations, has always been a major concern, to ensure the sustainability of the system. These worries were recently substantiated by recent staff transfers and other intimidation measures on the basis of political favouritism.

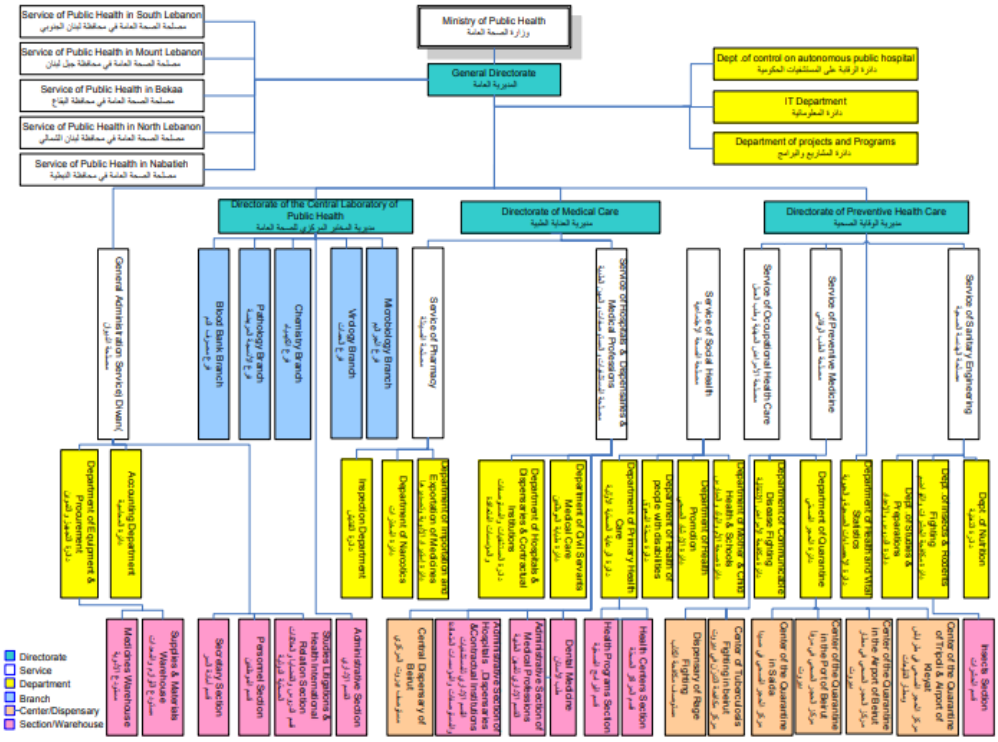
Nonetheless, despite concerns about sustainability, the newly introduced performance contracting agreement with the public and private hospitals proved to be a successful initiative that should be sustained and scaled up to better steer the sector towards efficiency, elimination of fraud and catering to patient satisfaction (Walid Ammar, 2015).

Pillar 1.4 The Ministry of Public Health

Subpillar 1.4.1 Organizational structure and human resources

The current Ministry organizational structure is outdated as it was developed in 1961 (figure 9), and the employment requirements and qualifications to work in the Ministry were established in 1964 (Walid Ammar, 2015).A novel organizational structure was developed and revised several times in the late 1990s through a collaboration between the Ministry and the Office of the Minister of State for Administrative Reform. However, the proposed structures never reached conclusion, as legislation is needed which requires a political will and concord among political factions (Walid Ammar, 2015; Harb & Abou Mrad, 2009).

Figure 9.Current Ministry of Public Health organizational structure



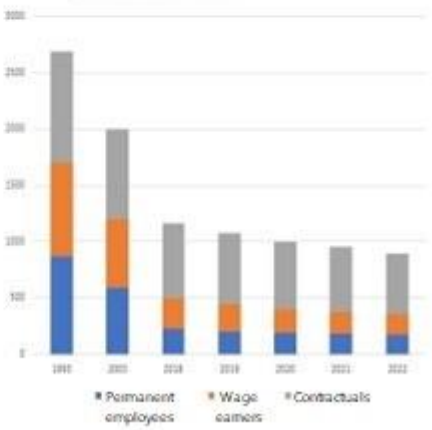
Despite the wide variety of expertise of Ministry personnel, and a surplus in unskilled staff, there is a clear shortage in qualified staff and vacancies in critical administrative and technical positions. The recent crisis with huge national currency devaluation has tremendously impacted the retention rates of Ministry staff. Added to that is a poor working environment, including a lack of information and communications technology (ICT) and other office equipment which affect Ministry performance and compromise service to the public. Additionally, tasks are not always clearly communicated with staff since clear standard operating procedures and terms of reference are often not available or are outdated. Ministry staff are often demotivated by the lack of financial appreciation, limited remuneration and feelings of insecurity since there are no transparent criteria for performance evaluations or promotions (Walid Ammar, 2009, 2015).

Although any development of the organizational structure at the level of directorates or sections needs the issuance of a law, the establishment of a department or lower structures can be done by a decree. This fact led to the creation of new departments at the Ministry to hold it over until the overall organizational structure issue is resolved. These included such important departments as primary health care, information technology, surveillance unit and health technology assessment. However, these departments remained poorly or not staffed at all as a decree was issued in 1996 in which the Government banned employment in the public sector except with prior approval by the Cabinet. This decree also caused a severe shortage in personnel from 2,683 in 1993 to as low as 969 in 2018.

The increasing workload necessitated contracting with temporary personnel, which gave different ministers justification for getting the approval of the Council of Ministers to contract new staff. Unfortunately, this was done mainly to serve political interests, sometimes disregarding qualifications. Reallocation of staff to departments for political favour without consideration for their qualifications and the departments' needs remain a major factor affecting the performance of the public administration of the Ministry.

Table 1. Distribution of staff (regular, contractual, wage earner) since the 1990s

	1993	2003	2018	2019	2020	2021	2022
permanent employees	868	581	222	201	189	182	178
Wage Earners	834	606	269	238	212	184	178
Contractuals	983	795	677	639	587	585	558
Total	2685	1992	1168	1078	988	953	895



Source: Ministry of Public Health, 2022b

Subpillar 1.4.2 Decentralized units of the Ministry

The Ministry is currently represented in each governorate by a regional health division reporting to both the director general of the Ministry and the governor, except for Beirut which has its own health department reporting directly and solely to the governor. At the district level, each of the public health departments in the Ministry is led by a district physician. Being part of the organizational structure of the Ministry, these devolved units lack autonomy and have weak communication with each other and with the central office (Walid Ammar, 2015).

Since 2014, the Ministry has adopted the district health information system software (DHIS2) for surveillance reporting and sharing between districts and mohafaza and central units. In spite of its importance, this ICT decentralized system has been neglected due to many factors mostly related to lack of staff, office space and equipment at the regional and district level (Harb & Abou Mrad, 2009).

However, decentralization is a sector-wide decision. Should the Government embark on decentralization as a national policy, strengthening health departments at the governorate and district level, building their capacity and giving them more authority will become crucial.

Subpillar 1.4.3 Public hospitals

In 1978, a decree was released establishing one autonomous public institution that would manage the governmental hospitals across districts. This governance structure had many shortcomings and was not enforced. It was replaced in 1996 with a different decree which gave each governmental hospital an autonomous administrative and financial identity through establishing a board of directors. The board, having an independent budget, is allowed to contract with the Ministry, public funds and private insurance funds to generate income. For that, it must compete with the private sector to attract clientele. Therefore, financing of the public institutions that used to come as allocations from the governmental budget became linked to hospital productivity. As for the Ministry, it practises, together with the Ministry of Finance, administrative and financial guardianship upon these public institutions. The role of the Ministry would be

mainly to coordinate the work between these hospitals while monitoring the quality and cost of services provided (Lebanese Parliament, 1996).

The purpose of allowing this autonomy was to link revenues to productivity and decision-making power to accountability. Although some public hospitals were capable of providing competitive quality services, most of them were not up to the expectations for many reasons (Asmar & Yeretzian, 2019a, 2019b). These hospitals did not receive sufficient funds as working capital at the launching phase and afterwards did not get their fair share of contractual financial ceilings vis-à-vis the confessional power protecting private hospitals.

Moreover, in addition to financial constraints, the main reason for the inefficiency of public hospitals remains political. The president and members of the board of directors are appointed by the Council of Ministers on the basis of power sharing among confessional and political factions, which in turn legitimizes political interference in the hospital's daily operation.

Pillar 1.5 Normative Functions

Subpillar 1.5.1 Accreditation

The accreditation programme for hospitals in Lebanon that was launched by the Ministry in 2002 is based on international best practices and is currently the main tool to ensure safety and improve the quality of hospital services. It is a requirement for private hospitals to contract with public payers. This initiative adopted a stepwise approach considering that the private sector was largely driven by supply and lacked the motivation to dedicate the needed resources to meet the accreditation standards (Walid Ammar, 2009; MoPH, 2007).

Prior to accreditation, the 1983 legislation set an alpha-star classification system for private hospitals based mainly on physical infrastructure and equipment and which did not label any of the hospitals as failed. The tariffs of health care services were allocated by the Ministry based on the hospital classification, which strongly incentivized hospitals to invest in technologically advanced equipment, disregarding human resources competencies and paying little attention to safety and quality of care (MoPH, 2007). The Ministry sought assistance from international experts and gradually upgraded requirements to ensure a smooth transition from an organizational model based on safety and basic quality standards to more and more managerial and clinically accountable, and output-oriented model. The Ministry promoted dialogue between stakeholders and enhanced the hospitals' understanding of the importance of accreditation and their cooperation away from any politicized agendas. It also provided technical support to public hospitals, through the provision of trainings and workshops (Walid Ammar, 2009).

The system was later upgraded from a non-governmental auditing entities to a pool of national auditors trained on the national standards and procedures. The audit and an internal self-evaluation hospital report are assessed by an independent expert committee set upon recommendation of Haute Autorité de santé (HAS) France and then endorsed by the National Accreditation Committee. A culture of quality improvement is currently well established in the hospital sector but still requires enhancement (Walid Ammar, 2009). Today, the accreditation award has become a prerequisite for hospitals contracting not just with public funds but also with private insurance schemes.

Accreditation of hospitals was also followed by accrediting primary health care centres. The primary health care accreditation started in 2008 in collaboration with Accreditation Canada. A national expert committee was formed to contextualize the standards of quality and customize the accreditation process to the Lebanese health care context (MoPH, 2019b). The first pilot survey was done in 2011 and the Ministry was continually scaling up the number of accredited primary health care centres (MoPH, 2019b).

Box 11. Accreditation of hospitals: A merit system serving efficiency, not only quality

Since May 2000, the quality of hospital care in Lebanon has been witnessing a paradigm shift, from a traditional emphasis on physical structure and equipment, to a broader multidimensional approach that stresses the importance of managerial processes and clinical outcomes.

The impetus for change came from the Ministry, which has developed an external evaluation system for hospitals with the declared aim of promoting continuous quality improvement. This was possible through a new shade of interpretation of an existing law, without the need for new legislation.

The Ministry sought international expertise to overcome allegations of partiality, and the accreditation was intentionally presented as an activity independent of the Government and other stakeholders to foster elements of probity and transparency.

Accreditation standards were developed following a consensus-building process and issued by decrees. Hospitals were audited against these standards in a professional, educational, non-threatening manner, respecting confidentiality. They were not without initial resistance from hospitals. Results of the first auditing survey revealed a shocking failure by a majority of hospitals in complying with basic standards, only to recover through a high success rate in the follow-up audit, showing a better use of resources and a higher degree of commitment to the programme. This allowed for standards upgrading and another round of auditing. The stepwise approach adopted by the Ministry ensured a smooth and gradual involvement of the hospitals and led to the creation of a cultural shift towards quality practices, although contracting with Ministry also was an important incentive for compliance. The undeclared aim of the Ministry was in fact to strengthen its regulation capabilities and to attain better value for money in terms of hospital care financing. The selection of hospitals to be contracted could then be made on objective quality criteria, freeing the system from any kind of favouritism or discrimination, especially confessional and political ones.

The primary care standards for Lebanon are organized around building an effective primary care clinic, maintaining safe care, having the right people work together to deliver health care, maintaining an accessible and efficient health information system, monitoring quality and achieving positive outcomes (MoPH, 2019b).

Nonetheless, accreditation standards are still lacking for ambulatory health care facilities such as clinics, radiology centres and medical labs. This illustrates the important role of the Ministry authority in imposing norms, with its financing function. Non-contracted institutions, including those providing ambulatory care, remain off the radar of the health authority.

Subpillar 1.5.2 Code of ethics

Ethical drug promotion allows health care professionals to access scientific evidence on new updates and drugs, and patients to access needed medications and the related information. It ensures the reasonable and proper prescription of drugs and secures the independence of health care workers when exercising medical judgment. For this reason, a code of ethics that governs the marketing of pharmaceutical products has been established, laying the foundation for appropriate behaviour when promoting and marketing medicinal products addressing both the pharmaceutical industry and health care professionals (MoPH, 2016b).

The Ministry undertook the initiative to set a code of ethics in collaboration with relevant stakeholders, including the Pharmaceutical Importers and Wholesalers Association, Pharma Group, the Syndicate of Pharmaceutical Industries, the Order of Physicians, the Order of Dentists, the Order of Pharmacists, the Syndicate of Private Hospitals and all entities involved in marketing and promoting medicinal products. It aimed to set regulatory frameworks that safeguard implementation of legal, ethical and scientific principles

in the drug market, in addition to promoting the rational use of drugs to avert practices that oppose ethics by acting as a reliable reference to marketing practices, while taking into consideration the Lebanese cultural context (MoPH, 2016b).

The code was released under patronage of the Prime Minister on 31 May 2016. It is divided into three main components: marketing and oromotion practices, implementation procedures and the pledge and signature. Promotion, which is normally used for business objectives, should also focus on the patient's interest as direct-to-consumer advertisement is banned by law. The code states that promotional items having modest or symbolic value can be handed to physicians such that they are helpful to the professional's practice, and will add greater value for patient care, but any direct or indirect cash payments aiming to elevate the utilization of medicinal products are viewed as a bribe and a violation of the code of ethics. Congresses and symposia should aim to deliver scientific and educational benefits to health care workers without mentioning brand names or marketing a specific medicinal product, and concerned professional orders should be notified about the events' programmes, the names of participating physicians and/or pharmacists and the activities organized by the sponsors. The code also states that scientific research must not be utilized to advertise for any medicine, and grants and donations which are only given to institutions, cannot be used to increase the obtainment of the pharmaceuticals of donor companies. In addition, only patient associations registered as non-profit are allowed to receive support from the pharmaceutical industry and the support should be transparently publicized and documented portraying the nature and purpose. Proper training for medical representatives is a requirement, and finally, the information disclosure requires medical representatives to deliver complete and transparent information on the contra-indications and side effects of medications and prohibits pharmacists practising in hospitals and in community pharmacies to reveal any information on doctors' prescribing patterns (MoPH, 2016b).

Implementation comprises two main activities: monitoring and review procedures and deterring violations. With the establishment of an expert supervision committee composed of the Order of Physicians in Beirut & North, the Order of Dentists and the Order of Pharmacists, the committee fulfils a number of duties including revising documents associated with congresses and sponsored by companies, reviewing the complaints on violations of the code, following up on the implementation and coordinating with the Ministry pharmacy inspection department. As for the review procedures and deterring violations, it encompasses three levels. the first addresses complaints sent to the violating party with 20 days for the latter to respond; if the response is not satisfactory after filing a written complaint, the second level is considered. At the second level, the committee files a written complaint to the responsible sectors including the review board, which should respond in 40 days. If this response is not satisfactory, the third level is reached, where the committee presents the recommendation to the Ministry to take appropriate action (MoPH, 2016b).

Finally, the pledge and signature includes the voluntary submission of all relevant entities to the code and to all its clauses by practising transparency, discipline and self-control through its application (MoPH, 2016b).

The process of elaboration of the code of ethics and its content demonstrate the ability of the Ministry to use its convening power, negotiation skills and credibility to mediate between different stakeholders, including professional orders, private for-profit companies, and civil society organizations, to reach a consensus on a code of ethics that embeds enforcement mechanisms, serving the public interests. It also highlights the important role that different Ministry partners should play in governance, particularly professional orders that are mandated to play such a role.

Subpillar 1.5.3 Blood safety

The Ministry, in cooperation with the French Blood Agency (EFS), implemented a project to improve blood transfusion management in November 2011 (MoPH, 2015b). This initiave on blood safety aimed to reorganize blood transfusion services on all Lebanese territories to ensure self-sufficiency and safety of citizens. It includes regulating donation and blood transfusion to conform to international standards, based on the homogeneity of professional practices and the adoption by all concerned parties of the national guide for good practices.

In order to standardize blood transfusion services in Lebanon, the Ministry also adopted the unified form for blood donors, and the criteria for selecting persons qualified to donate at the national level, which were put at the disposal of professionals in the health sector.

The Ministry is also currently preparing a national blood transfusion control system, which ensures monitoring, evaluation and prevention of side effects on recipients and donors of blood products. From the same safety perspective, the Minister of Health issued a decision adding new tests to detect viruses and enhancing the conditions for blood products.

Needless to say, the Ministry should be equipped to sustain this project and ensure the adherence of all concerned parties to the adopted national strategy for blood safety.

B. Impact of crisis on governance aspects

The country is currently going through a severe governance crisis. In the health sector, the regulatory capacity of the Ministry is very limited, worsened by a progressive shrinking of the human resources at central and peripheral levels, and a high turnover of senior management.

In spite of the pharmaceutical sector being a $1.2 billion industry per year, and aside from the above-mentioned gains in addition to the automation of the logistics system at the central drug warehouse and the updating of the list of essential and chronic medicines, local pharmaceutical production is almost non-existent. This factor made the sector vulnerable to the imposed foreign currency restrictions in 2020 and the lifting of governmental subsidies on drugs and medical supplies in the same year, which in turn caused the severe shortages in pharmaceutical products. These restrictions and shortages highlight the critical need to strengthen the Ministry regulatory capacities and rationalize its support of pharmaceuticals, to enhance local manufacturing and to safeguard funding for chronic disease medications.

Additionally, the recent financial crisis is threatening the continuity of the accreditation programme. However, hospitals aiming to attract clientele from abroad in order to generate desperately needed hard currency, could hardly achieve this without investing in quality health care.

2. Financial protection and universal health coverage

A. Pillars and subpillars

Pillar 2.1 Health financing fragmentation versus diversity

Subpillar 2.1.1 Financing agencies

Lebanon has a pluralistic health care system in terms of mixed sources of funding and insurance schemes, and a combination of private, for-profit companies, non-profit organizations and public providers.

Around half of the population is officially enrolled in a public fund and/or a private insurance fund. There exist six different publicly managed, employment-based, compulsory insurance funds, the largest of which is the National Social Security Fund (NSSF) covering formal private sector employees and their dependents, in addition to contracted employees and wage earners in the public sector, physicians, private school teachers, taxi drivers, university students and town mayors, representing 29 per cent of the population.

The Civil Servants' Cooperative covers civil servants (active and retired) and their dependents, amounting to 2 per cent of the population. Four schemes cover members of military and security forces and their dependents, including the Army Medical Brigade, Internal Security Forces, General Security Forces and State Security Forces, representing a total of 8 per cent of the population. Moreover, there are statutory mutual funds arrangements for parliament employees, judges and university professors in addition to a diversity of mutual funds licensed by the Ministry of Agriculture. Private health insurance based on risk-adjusted premiums and mutual funds covers 12 per cent of the population (Walid Ammar, 2009). According to the law, foreign workers should be enrolled by their employer in a private insurance scheme.

The Ministry is considered the insurer of last resort, providing financial coverage for health care for the remaining half of the Lebanese population who are not enrolled in any insurance scheme. Thus, theoretically, all the Lebanese population is covered for health care by one public fund or the other (Ammar, 2009). Non-Lebanese residents are allowed to access primary health care services for nominal fees, but they have variable and mostly insufficient coverage for secondary and tertiary care.

Universal health coverage implies increasing the proportion of population covered with needed basic, good quality health services while preventing people from experiencing financial hardship due to health spending (Walid Ammar, 2014).

While NSSF enrollees are mainly young working individuals, the retired and unemployed, who are at a greater need for health care coverage and for more critical health care interventions, are left to be covered by the Ministry. Additionally, the wide eligibility window of the Ministry enrollees and the growing number of covered services, have led to increased utilization of hospital services and further exacerbated supply-induced demand, consequently resulting in a large Ministry hospital care expenditure. Moreover, spending on curative care represents more than 65 per cent of the Ministry budget, including the cost of expensive drugs and reimbursements to private and public hospitals; and only 5 per cent of the beneficiaries utilize 87 per cent of the Ministry budget (W. Ammar & Awar, 2012).

Lately, the population of Lebanon increased by 30 per cent due to the influx of registered (close to one million) and unregistered (around 500,000) Syrian refugees. This is in addition to around half a million Palestinian refugees for whom the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) is the main agency responsible for health coverage and provision of health care needs. Similarly, the United Nations High Commissioner for Refugees (UNHCR) caters for the needs of Syrian refugees. Furthermore, in the context of the Syrian crisis, bilateral donors, such as the European Union, are directly supporting national and international NGOs to fill the gaps in financing for health services provision for refugees. As such, Syrian refugees access primary health care through NGOs and health centres supported by the Ministry and UNHCR. In addition, UNHCR contracts with public and private hospitals to provide selected secondary care services for registered Syrian refugees, covering 75 per cent of the fees (Asmar & Yeretzian, 2019a).

Table 2. Financing agents, sources of funds and coverage in Lebanon 2017

Fund	Financing sources	Entitlement	Outpatient service coverage	Inpatient service coverage
Ministry of Health scheme	General government revenues	Nationals with no formal coverage	Service given at minimal charge at primary health care centres Dispenses expensive drugs for catastrophic illnesses for free Provides vaccines and essential drugs to registered primary health care centres No coverage for doctors' consultations or medications sold at pharmacies or other outpatient diagnostic services	85%
Military funds	General government revenues	Uniformed employees and their dependents	75–100%	100%
Civil Servants' Cooperative (CSC or MFE)	Employee contribution – 3% and government subsidy	Permanent government employees and their dependents	50–75%	75–100% with a cap
National Social Security Fund	Employee salary deduction – 3% Employer – 8% Government subsidy – 25% of total spending	Contractual government employees and private sector employees and their dependents University students Taxi drivers Mayors	80%	90–100%
Customs	General government revenues	Customs employees and their dependents	75–100%	100%
Other public mutual funds	Employee and employer contribution and government	Employees of the parliament Judges and judges' assistants	Varies between funds but generally mix between NSSF and MFE	Mix between NSSF and MFE

	subsidy	Lebanese University professors		

Source: MoPH, 2017d

Subpillar 2.1.2 Governance fragmentation of health financing

Under current coverage arrangements, several ministries are involved in financing health care, which constitutes a governance fragmentation layer added to the multiplicity of financing intermediaries. They include the Ministry of Labour for the NSSF, the Ministry of National Defence for the army fund, the Ministry of Interior and Municipality for the other military schemes, the Ministry of Economy and Trade for the private insurance funds and the Ministry of Agriculture for mutuality funds.

In addition, refugees are covered by international humanities agencies (Walid Ammar, 2009; Asmar & Yeretzian, 2019a).

Subpillar 2.1.3 The National Social Security Fund voluntary scheme and financial sustainability

An NSSF voluntary scheme for sickness and maternity was created in 2002 (decree no. 7352). To be eligible for this scheme, an individual had to either be a previous NSSF beneficiary, an employer or an employee who was not benefiting from the mandatory scheme, a liberal professional or a freelancer. The voluntary scheme encompassed the beneficiaries and entitled family members. The voluntary scheme exacerbated the NSSF budget deficit due to the self-selected beneficiaries' low contributions in comparison to their demands and needs, and it caused more delays in hospital reimbursements (Walid Ammar, 2009).

Until recently, once employees lost their job or retired, they received their end-of-service compensation and lost their NSSF medical coverage, and so did their dependents (Walid Ammar, 2009). In 2020, the NSSF worked on passing a law that enables employees to choose between end-of-service indemnities or a pension, while keeping their medical coverage after retirement.

Moreover, a law was issued on 30 December 2020 that protects the NSSF money deposits in Lebanese banks, including Lebanese Central Bank, from being deducted, confiscated or tampered with by any party including the Council of Ministers in an attempt to solve any finance-related issues associated with the current economic crisis. This law also protects citizens' right to withdraw all their allocated compensations provided by the NSSF and enforces penance on all violators (Lebanese Parliament, 2020).

Pillar 2.2 Institutional arrangements and public-private partnership

Public funds have different institutional arrangements with providers, a variety of payment modalities and diverse benefits packages, while United Nations agencies working with different NGOs and third-party administrators have their own system.

The Ministry contracts with hospitals to cover the services provided to its beneficiaries after receiving prior authorization. Contracting between the Ministry and public hospitals became feasible after the latter received their autonomous status. Autonomy motivates public hospitals to increase their productivity, and indeed, public hospitals recorded more than 30 per cent of admissions on the Ministry account in 2019 (Walid Ammar, 2009).

Public-private partnership includes also the Ministry contracts with NGO health centres for primary health care, whereby the Ministry provides guidelines, trainings, vaccines, essential drugs and medical equipment which allow a more efficient use of resources and prevent overconsumption (Walid Ammar, 2009).

Nevertheless, the relationship between the Ministry and the private hospitals needs regulation in terms of financial ceilings and patient selection (Walid Ammar, 2015). Moreover, improving coordination and data sharing between the Ministry and the private sector is essential to verifying the eligibility of Ministry beneficiaries to costly services (Eid, 2019). Additionally, while many private hospitals enforce additional fees on patients covered by the Ministry, extra fees or inequitable selection of patients in public hospitals is forbidden.

Pillar 2.3 Health benefits

Public funds cover a diversity of benefits with wide variations in terms of co-payment and services covered, which results in clear equity problems. Usually, public funds directly pay hospitals after deducting the co-payment paid by the patient. However, for ambulatory care, including consultations, diagnostic procedures and medicines, the patient has to pay the total amount and gets reimbursed partially several months later (Walid Ammar, 2009).

Ministry coverage was conceived to protect households from catastrophic spending on health care by covering only hospital care. Therefore, it originally covered hospital care and provided medication for catastrophic diseases such as cancer and mental diseases for free.

Back in 1998, the household survey showed that most of a household's health spending goes to ambulatory care, mainly because of the increasing prevalence of non-communicable diseases and the high cost of branded medicines. This was a major stimulus to accelerate the creation of the primary health care network, allowing access to affordable ambulatory care. Hence, while Ministry coverage does not cover ambulatory care, instead it provides a broad package of primary health care services through a vast network of primary health care centres (W. Ammar & Awar, 2012). Free vaccines for all children residing in Lebanon and other drugs are provided to the beneficiaries through these primary health care centres, which only charge them a minor fee for consultations and some essential drugs for all people residing in Lebanon (including refugees and migrant workers) and not only those benefiting from Ministry services (Walid Ammar, 2009). Recently, three types of health benefits packages were added to primary health care: The wellness health benefits package, the non-communicable diseases health benefits package and the antenatal health benefits package (Osman, 2014).

The main problem facing a rational redesign of a common benefits package for all the publicly ensured, to become compatible with available resources, is the people's refusal to renounce any of the acquired benefits. This attitude is reinforced by the demagogic speeches of politicians asserting people's rights to get the most advanced treatments.

In order to respect the health budget representing only 3per cent of the government budget, the Ministry enforced financial ceilings on all private and public hospitals, whereas populistic decisions generously offering expensive medications for free to patients do not match the limited available budget. However, successive ministers systematically exceeded the regular budget, incurring thus huge amounts of debt over the years. Moreover, this illegal practice did not prevent severe and repetitive shortages in drugs, considering their exorbitant costs.

The difference in benefits packages among public funds suggests that patients are not enjoying the same type of services at the same level of health care as they did before the crisis. As a consequence of the

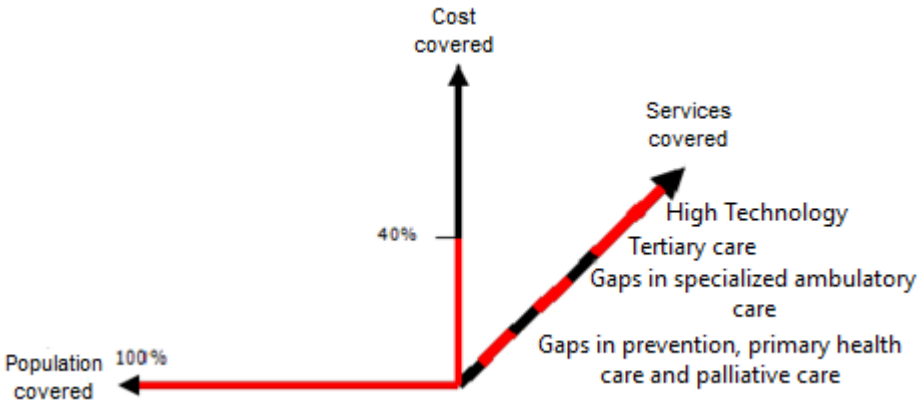
financial crisis, in order to avoid high co-payments, at times in hard currency, patients are postponing needed care, resulting in deterioration in their health status.

Pillar 2.4 The Lebanese health coverage paradox

Universal health coverage is, by definition, ensuring preventive and essential curative quality care for all people at a reasonable cost, without incurring financial hardship on households. In the common understanding, the Government would cover for as much as it could provide for the most essential interventions like vaccinations and antenatal care, then continuously upgrade benefits by adding increasingly advanced treatments such as renal dialysis, cancer therapy and complex procedures (Walid Ammar, 2014).

The health system in Lebanon is beset by a paradox: coverage is focused on tertiary care and advanced treatments such as open heart surgery, dialysis and joint replacement procedures, as well as costly cancer medications, whereas little attention is being paid to preventative and primary health care services. Palliative care is also not covered for, nor is home care. This reflects public preference for technologically advanced therapies and less interest in prevention such as additional vaccinations or mental well-being, and such preference impacts political decisions. Access to a full range of primary health care services, including promotion, preventive and palliative care, as well as early diagnosis and treatment, remains the greatest gap in achieving universal health coverage in Lebanon (Walid Ammar, 2014).

Figure 10.The three features of universal health coverage



In 2018, a road map to achieving universal health coverage was designed by the Ministry in which the implementation of universal health coverage services packages was to be facilitated by utilizing electronic medical records, establishing partnerships with third-party administrators and law enactment in favour of universal health coverage.

However, political disturbances, insufficiency of funding, and the influx of Syrian refugees due to pressure on health system infrastructure present serious obstacles to achieving universal health coverage (El-Jardali and others, 2017).

The lack of an electronic referral system between the primary and secondary care facilities remains a major challenge for case management and continuity of care.

Pillar 2.5 National health accounts

Before the current crisis, Lebanon had been successfully improving its health indicators while decreasing total health expenditure, mainly by reducing out-of-pocket health spending. When the health sector reform initiative started in the 1990s, health expenditures represented 12.4 per cent of GDP, and out-of-pocket spending 64 per cent of total health expenditure. The Ministry initiated a series of reforms that directly impacted health spending. Among these reforms was the establishment of a national network of primary health care centres with a covered package of essential services, including generic medicines for chronically ill patients, which directly impacted the utilization of expensive hospital services. In addition to the continuous expansion of the primary health care network, revisiting the pricing structure of drugs and the issuance of the law of autonomy of public hospitals with lower co-payment than private hospitals, were major policies aimed towards cost containment and decreased health expenditures, and household spending in particular.

In 2017, per capita current health expenditure reached $963, constituting 7.8 per cent of GDP. Households are the major source of revenue in the health sector, with per capita domestic private health expenditure amounting to 33 per cent of current health expenditure. Public sources are general government revenues either through taxes or contributions. Private sources are mostly household direct payments and private insurance premiums (MoPH, 2017d).

Table 3 National health accounts 1998–2017, expenditure in Lebanese pounds (LL)

	1998	**2005**	**2012**	**2017**
Total population estimate ('000)	4,005	3,870	4,104	4,421
Total health expenditure ('000)	3,013,517,785	2,625,569,226	4,647,637	6,238,413
Per capita expenditure	752,438	678,442	1,132,465	1,411,086
Total GDP (billions)	24,300	32,411	64,800	80,491
Health expenditure as % GDP	12.4	8.1	7.2	7.8
Percent Government of Lebanon budget allocated to Ministry	6.6	5.9	3.4	3.0
Sources of funds (%)				
Public	18.22	28.98	31.14	29.10
Private	79.84	70.99	68.39	68.40
Households (out-of-pocket)	70.65 (OOP 60)	59.82 (OOP 44)	53.02 (OOP 37)	46.74 (OOP 33.10)
Employers	9.19	11.17	15.37	13.64
NGOs	1.94	0.03	0.47	2.50

Distribution of health care expenditures (%)				
Hospitals including drugs and medical supplies	24.5	38.0	40.4	45.1
Private non-institutional providers	41.0	21.0	11.5	12.4
Pharmaceuticals	25.4	32.0	34.2	27.2
Others	9.1	9.0	13.9	15.3

Table 4. National health accounts of Lebanon 2017, expenditure in Lebanese pounds (LL)

Amounts in 000 LL

FINANCING INTERMEDIARIES	FUNDING SOURCES				EXPENDITURES
	Households		Employer	Treasury	Extra budgetary	
	Fees for Services (out of pocket)	Contributions/ Premiums	Contributions/ Premiums		Donations / Loans	
Ministry of Public Health				767,356,763	4,449,392	771,806,155
National Social Security Fund		278,765,007	588,054,515	378,788,543		1,245,608,064
Mutuelle des Fonctionnaires de L'Etat (previously known as CSC)		26,863,183	186,915,465			213,778,648
Army				302,904,016		302,904,016
Internal Security Forces				198,012,518		198,012,518
State Security Forces				11,208,202		11,208,202
Customs				12,299,633		12,299,633
General Security Forces				39,138,527		39,138,527
Mutual Funds Public		40,600,000		69,126,280		109,726,280
Mutual Funds Private		185,476,291				185,476,291
Corporations			44,051,099			44,051,099
Private Insurances		850,851,000				850,851,000
Non-Governmental Organizations				39,247,174	151,503,750	190,750,924
Households	2,062,801,153					2,062,801,153
TOTAL	**2,062,801,153**	**2,201,576,559**		**1,818,081,656**	**155,953,142**	**6,238,412,511**
%Total Health Expenditure	**33.1**	**35.3**		**29.1**	**2.5**	**100.0**
GDP (2017, CAS)	**80,491,152,889**					
THE%GDP 2017	**7.75**					
Household OOP	*33.1*					
Pre-payments	*35.3*					
Social Health Insurances	*17.32*					
Private Insurances	*13.64*					
Mutual Funds	*3.62*					
Corporations	*0.71*					

*** percent contribution of treasury to total current health expenditure dropped from 30.26 in 2015 due to a change in the classification of the source of the government contribution to Mutuelle des Fonctionnaires de L'Etat from treasury to employer contribution based on SHA2011 recommendations (comparable figure to 2015 is 32.14)**

USD exchange rate= 1507.5 LBP

Source: National Health Accounts 2017 (based on the new System of Health Accounts SHA2011), MoPH.

Dissecting the sources of the current health financing system reveals that 33.1 per cent of the total health expenditure comes from out-of-pocket household payments, 35.3 per cent from household and employer premiums and contributions, 29.1 per cent from the governmental treasury, and 2.5 per cent from donations and loans (MoPH, 2017d).

In 2019, the out-of-pocket payments were still considered quite high, reaching 31.7 per cent, despite their decline during the past years, representing a serious obstacle to the accessibility of the poor to health care services (Eid, 2019). When addressing the share of each one of the socioeconomic strata to the out-of-pocket payments, it is revealed that low-income households pay 30 per cent of the out-of-pocket costs, lower-middle income households pay another 30 per cent, and high-income households pay 40 per cent of the out-of-pocket costs, most of which are spent on unnecessary services, from a public health perspective, such as first class hospitalizations and cosmetic treatments (W. Ammar & Awar, 2012).

However, the system still suffered from many failures related mainly to a supply-driven provision of health care with largely supplier-induced demand for sophisticated expensive hospital services, overprescribing behaviour, a small share of generics use in the pharmaceutical market together with a tendency to provide expensive drugs without proper assessment of their added value. Also, at hospital level, covering non-cost-effective hospital treatments leads to significant depletion of, and even exceeding, the regular budget (Walid Ammar, 2015; W. Ammar & Awar, 2012). The high out-of-pocket expenditure represents a major challenge, particularly in a time of economic and financial crises with enormous devaluation of the national currency seriously affecting household purchasing power.

B. Impact of crisis on health financing

Lebanon is committed to achieving universal health coverage by 2030 and has made significant progress in promoting coverage, access and equity of health care services, and financial protection particularly for the most vulnerable populations. Some of the main achievements include incorporating essential services in primary health care packages and the establishment of new payments modalities such as performance-based reimbursement of pre-paid packages and capitation. Nonetheless, the restricted ability of the Government to regulate this highly privatized sector and the limited spending on the public sector's workforce greatly hinder the health system's efficiency and service quality. Also, the health sector is dangerously and progressively dependent on donor support, and the financial crisis has also made many international NGOs in charge of primary health care services. For example, in 2021, the Ministry established the donor-funded long-term primary care subsidized protocol, which provides the most vulnerable populations with primary health care packages addressing prevention, maternal and child health, non-communicable diseases, communicable diseases, disability care and psychosocial support.

Moreover, the current economic crisis necessitates the recalculation of health financing and spending due to the fluctuating health and economic sectors. The overall Ministry budget for 2018 was 728,849,074,000 LL, which was equivalent to $485.9 million but is now equivalent to less than $36.5 million. Since 2016, the national health accounts (NHAs) showed a 2.2 per cent increase in total health expenditure. This health expenditure made up 7.8 per cent of the GDP. Almost 47.6 per cent of the health expenditure came from government and compulsory insurance schemes, whereas 52.4 per cent came from private voluntary schemes and out-of-pocket payments. Today, almost 52.5 per cent of total health expenditure is spent on curative and rehabilitative services, 27.2 per cent on medical supplies, 4.6 per cent on ancillary services, 8.7 per cent on the administration of health and 7.1 per cent on other various services.

3. Health service delivery

A. Pillars and subpillars

Pillar 3.1 Outpatient care

Subpillar 3.1.1 Primary health care

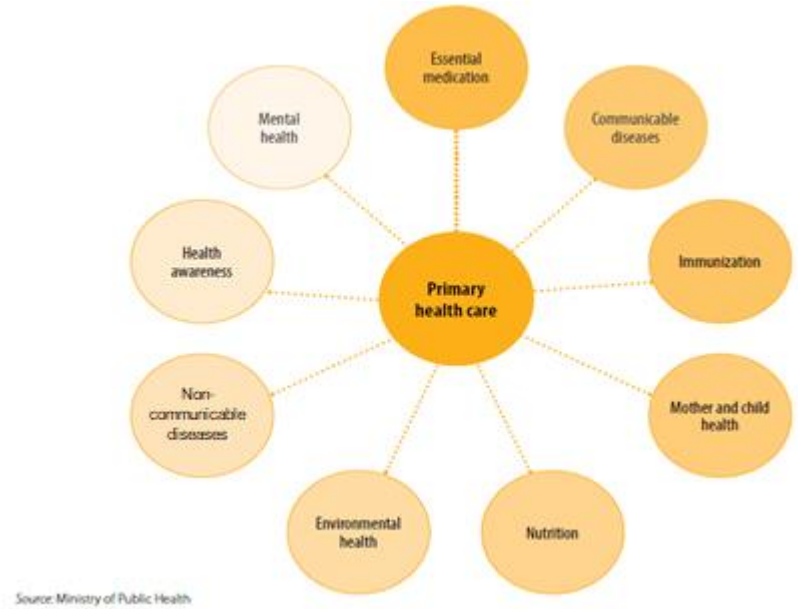
Since 1996, the Ministry of Public Health has been building a national network of primary health care centres capacitated to provide an essential primary health care services package. It started with 29 qualified centres capable of providing such services and has been increasing their number throughout the years, reaching 229 primary health care centres in 2019 (Asmar & Yeretzian, 2019a). Only 13 per cent of primary health care centres are run directly by the Government; almost 67 per cent are run by NGOs and 20 per cent by municipalities (El-Jardali and others, 2017).

The primary health care network is an illustrative example of collaborative governance, built around a tripartite contractual agreement between the Ministry, NGOs and municipalities. Many partners are associated in this endeavour, including the Ministry of Social Affairs, the Lebanese Red Cross and United Nations agencies caring for refugee health in addition to WHO and UNICEF. According to the contract, the Ministry provides in-kind contribution in terms of drugs, vaccines, some ICT and medical equipment, guidelines development and training; the centres provide standardized packages of services and are committed to improving the health status of the served community, whereas the municipality facilitates the work of NGOs and represents, as an elected body, their community's interests and views.

Centres working within the national primary health care network do not differentiate between people based on their insurance status, belief or nationality. They provide a variety of services including cardiology, paediatrics, reproductive health, mental health and oral health, each to its specified catchment area (figure 11) (Walid Ammar, 2009; Asmar & Yeretzian, 2019a; El-Jardali and others, 2017).

In 2008, an accreditation programme was developed to improve the national primary health care network's adherence to quality standards and in 2018 a plan was set to increase the number of primary health care centres to 250 (El-Jardali and others, 2017).

Figure 11.Components of primary health care



The strong commitment to achieving universal health coverage in Lebanon requires strengthening of primary health care as its backbone. Between 2015 and 2018, a 56 per cent increase in primary health care centres utilization was recorded in Lebanon (Asmar & Yeretzian, 2019b).

Primary health care services need to be enhanced due to the ageing of the Lebanese population and the high number of displaced Syrians, Palestinians and migrant workers who remain in Lebanon and who rely

heavily on primary health care (El-Jardali , 2017). Moreover, costs and expenses are increasingly becoming the main barrier to accessing primary health care for the refugee population (United Nations, 2020).

In spite of the wide variety of services it provides, primary health care still has a shortage in geriatric care, child protection, palliative care and gender-based violence services. Gaps and shortcomings in the referral system between primary and secondary care are also prominent and require optimization.

Subpillar 3.1.2 Private ambulatory care

Outpatient care in Lebanon can be provided by freelance physicians or by outpatient facilities (Asmar & Yeretzian, 2019a). These facilities, except for medical laboratories, radiology and physiotherapy clinics, are not controlled by any mandate since the medical and paramedical practice licence allows these professionals to open medical clinics and have any sort of devices needed for the provision of services at these clinics (Walid Ammar, 2009; MoPH, 2017a). This sector has been witnessing an increasing number of dermatology and cosmetic centres, while medical clinics and laboratories have usually highly advanced equipment (Walid Ammar, 2009).

Outpatient care is also provided by dispensaries, most of which are led by NGOs. These dispensaries have been the go-to hubs for underprivileged people since the 1990s. As the Ministry started expanding its primary health care network, an increase of primary health care services utilization has been recorded. In terms of coverage, medical consultations and dental care are not covered for 60 per cent and 80 per cent of the uninsured population, respectively. For those who are insured, medical consultations and dental care are not covered for 15.7 per cent and 60.8 per cent, respectively, of the population. These findings emphasize the need for ensuring coverage of outpatient care, especially for the uninsured (Walid Ammar, 2009).

Pillar 3.2 Secondary and tertiary care

Subpillar 3.2.1 Private provision

Generally, the health care system in Lebanon is curative-based and technology-oriented, with the exception of the primary health care centres, which are focused on community-based services and health promotion and prevention. In addition, the system is highly privatized; 83 per cent of the country's total hospital bed capacity belongs to the private sector. Most of them are small general hospitals with less than 100 beds, owned by physicians or as family enterprises (Walid Ammar, 2009; Asmar & Yeretzian, 2019b). Big private hospitals are mostly owned by universities or religious organizations, both of which have an influential position in the Syndicate of Private Hospitals. The lightlicensing requirements for the opening of private hospitals, along with an oversupply of physicians and the increasing investments of businesspeople in the hospital sector, has led to a surge in the number of private hospitals in the country and exacerbated the oversupply of their services and the overutilization of inpatient health services (Walid Ammar, 2009; MoPH, 2007). To maximize profit, most private hospitals are inequitably concentrated in the regions of Beirut and Mount Lebanon, leaving distant areas underserved. The Ministry made successful efforts in reducing inequity in service provision and inaccessibility of medical services for the poor by contracting with hospitals throughout the country, favouring underserved areas (Walid Ammar, 2009).

Financial incentives created by contracting with public funds are a driving force in the private sector. This explains why long-term facilities such as elderly homes, mental health and rehabilitation facilities, which receive low reimbursement from the Ministry of Public Health and the Ministry of Social Affairs, are mainly religious and philanthropic in nature (Walid Ammar, 2009).

The implementation of the Ministry accreditation system, which shifted the concept of quality from capacity, advanced technological devices and the level of hotel services to competencies and performance, has significantly improved the quality of care in the private sector and promoted the culture of quality. A significant factor that helped in this achievement was limiting Ministry contracting agreements to accredited hospitals. However, the Lebanese hospital sector still requires additional regulation to improve its efficiency and limit its as yet unchecked growth (Walid Ammar, 2009; Asmar & Yeretzian, 2019b).

Subpillar 3.2.2 Public provision

After losing almost half of the public hospitals during the civil war and the remaining ones being partly operational, the Ministry worked on a reconstruction plan in the 1990s, during which it established at least one public hospital per district. Although the resulting distribution of these hospitals was more equitable than that of private ones, the building of some hospitals was merely driven by political interests. Nevertheless, the main issue was in the inadequate clinical and managerial functions of the public hospitals, which impacted the quality of the services and their cost effectiveness. Freeing public hospital managers from the public administration bureaucracy was the only solution, and indeed once the law on public hospitals' autonomy was released in 1996, their overall performance improved significantly (Walid Ammar, 2009).

The public health care system includes 29 public hospitals and a network of around 229 primary health care centres, representing only 17 per cent of the total bed capacity. A referral system from primary health care centres should privilege public hospitals (Asmar & Yeretzian, 2019b).

Currently, both private and public hospitals are under huge financial pressure; episodic increases of public tariffs fall short in compensating for money devaluation, and patients cannot afford the extra cost of imported drugs and medical devices purchased by hospitals in fresh dollars. Many hospitals cannot sustain their services under such financial constraint where, for example, the cost of fuel alone exceeds the total amount of salaries.

Pillar 3.3 Long-term care

Subpillar 3.3.1 Palliative care

Lebanon has been on a long journey for incorporating palliative care into its health care system. Palliative care was first introduced in 1995 during the National Cancer Control Workshop, which was led by the Ministry and WHO. During this workshop, the debate on the importance of palliative care was initiated for the upcoming years. In a 1999 palliative care and ethics symposium, a list of recommendations was outlined which advocated palliative care as a human right for all chronic disease patients. This symposium proposed establishing a multidisciplinary national strategy for palliative care, developing an essential drug list including chemotherapy and pain relief drugs, reinforcing home-based care and imposing academic training on palliative care for all health care workers and reimbursing them for the provision of this care.

The following year, the Lebanese Pain and Palliative Care Initiative was inaugurated by the Lebanese Cancer Society, which aimed to initiate the introduction of palliative care into the undergraduate, postgraduate and continuing medical education curricula. Subsequent workshops incentivized medical and nursing schools to implement such undergraduate programmes and provided concrete examples on the curricula. These workshops also defined the principles and obstacles to establishing pain relief care in the country and resulted in the production of several peer-reviewed articles.

All these advocacy efforts finally bore fruit when the Ministry established the National Committee for Pain Relief and Palliative Care through decree no. 1/486 in 2011 to develop a national delivery plan for pain

relief and palliative care. The National Committee for Pain Relief and Palliative Care is divided into four subcommittees, education, practice, research and public policy, each with a specific set of objectives. The education subcommittee works on establishing palliative care trainings for health care workers and promoting their specialization in palliative care. It aims to appoint palliative care continuing medical education training as a prerequisite for recertification and outlines public awareness strategies. The practice subcommittee promotes service delivery models that employ palliative care in hospitals as well as in home-based care while enhancing family- and patient-centred care. It also develops national practice standards for palliative care and creates strategies to promote a multidisciplinary provision of care by professionals from various specialties. The research subdivision conducts research priority-setting exercises. It also conducts studies that identify gaps in the health, research and policymaking systems that hinder palliative care and proposes solutions to the identified shortcomings. The public policy subcommittee develops strategies that promote interdisciplinary palliative care practice and that enhance the reimbursement and subsidization of pain relief drugs and care.

One year after it was established, the National Committee for Pain Relief and Palliative Care initiated a national public awareness strategy on palliative care and introduced policy changes including improved public access to painkillers, and improved regulation of palliative care under the code of medical ethics. In 2013, palliative medicine was acknowledged as a new medical specialty by the Ministry, and efforts were made to incorporate palliative care into all levels of care, including community and home-based care, and in both the public and private sectors. Subsequently, in 2019, decree no. 1/447 was released, certifying monetary compensation for hospital-based palliative care while remaining a paid outpatient service.

Even though today pain relief in hospitals is covered by private insurance companies and the Ministry fund and cancer drugs are offered for free by the latter, palliative care is still not formally integrated into the health care system. To achieve this goal, a number of considerations should be ensured. First, legislative amendments should be made to acknowledge and incorporate palliative care in the health care system, including adjusting policies to improve the availability and accessibility of opioids. Second, while pain and palliative care have been integrated in the curricula of several universities, there remains a need to strengthen the education and training of all health care professionals in this domain (Zeinah, Al-Kindi, & Hassan, 2013). Third, as WHO recommends, palliative care should be an integral part of service delivery at the primary, secondary and tertiary levels of care, as well as at the level of community and home care, all of which have shown to result in improved patient outcomes. Finally, it is crucial that the public receive proper awareness on their right for palliative care and its benefits, to improve the utilization of palliative services and identify the gaps in its provision. To achieve these aims, it is essential to reinvigorate the National Committee for Pain Relief and Palliative Care so that it continues its pursuit of fully implementing palliative care in Lebanon.

Subpillar 3.3.2 Nursing homes

The increase in the number of older adults in Lebanon is accompanied by a growing burden of chronic diseases. The enhancement of long-term care is needed to accommodate these demographic changes. This is especially crucial in the absence of a concrete pension plan for retirees, who only receive an end-of-service lump-sum compensation. Also, almost half of the Lebanese elderly lack any form of health coverage, as NSSF coverage expires when a person turns 65 and insurance companies avoid covering this age group as they are not profitable clients. Additionally, the Lebanese health care system is designed to be curative-oriented and one that responds to sporadic needs instead of chronic ones, resulting in the absence of a comprehensive view of older patients' conditions. It also suffers from an overall shortage of geriatric facilities within and outside hospitals and has insufficient health care human resources specialized in geriatric care (MoSA, UNESCWA, & UNFPA, 2021).

Nursing homes in Lebanon have been on the rise since the civil war, with 33 nursing homes recorded in 2005 hosting 2,660 residents making up less than 1.4 per cent of the total elderly population (Chemali, Chahine, & Sibai, 2008) and 49 nursing homes in 2012 (Naja, 2012). These long-term facilities are concentrated in urban areas. Many of these institutions are established and funded by the civil sector contracting with either the Ministry of Public Health or the Ministry of Social Affairs, and 53 per cent of them are private facilities, most of which are run by not-for-profit charities. No public elderly homes are available (Naja, 2012). Moreover, the Ministry of Public Health and the Ministry of Social Affairs used to support 38.8 per cent and 40.8 per cent of these institutions, respectively; however, this support barely covered the total cost for an elderly resident per day and there is no official entity that manages the payment allocation between various long-term care funding sources (Abdulrahim, Ajrouch, & Antonucci, 2015; Naja, 2012). While a multidisciplinary team is required in each nursing home, these facilities suffer from shortages in staff and specifically in geriatric doctors and nurses due to the scarcity of these specialists in the Lebanese labour force and the limited financial capacity of facilities to hire them. This affects the quality of care provided. Another drawback is the the institutions' inability to expand due to financial restrictions, resulting in limited facilities and overcrowding of residents, which puts the residents' well-being at risk (Chemali and others, 2008; Naja, 2012). Moreover, many cases of elderly violence and neglect by the staff are being reported in nursing homes, where many studies show that institutionalized old individuals are more likely to suffer from malnutrition, lack of mobility, and depression and anxiety due to lack of proper care and harsh treatment. These studies propose introducing policies that enforce routine psychosocial and nutrition assessments for the residents of elderly homes as well as increasing the awareness of the facilities' staff on these issues. Perhaps all these factors contribute to the persisting taboo in the Lebanese society on placing one's parents in an elderly facility (Chemali and others, 2008; J. Doumit & Nasser, 2010; J. H. Doumit, Nasser, & Hanna, 2014; Hallit and others, 2020).

On the other hand, the Ministry of Social Affairs collaborates with many NGOs, charities and religious entities to provide social and health services to the elderly in social centres and health clinics. However, these efforts are fragmented and not viable. Professional home-based care has also been on the rise and is made available by a few private organizations offering nursing services at the patient's home. Nonetheless, these services are often costly and not covered by any public or private insurance scheme. Instead, people usually refer to migrant domestic workers, who often have no health care training, to provide nursing services to the elderly (Abdulrahim and others, 2015; Chemali and others, 2008).

Moreover, while intermediate rehabilitation care centres which deliver temporary rehabilitation and therapeutic services (occupational therapy, or physical therapy) to the elderly are much needed, their efforts are fragmented. A health system reform should aim to coordinate these services to ensure continuity of care which can allow the provision of proper rehabilitation services to older people without requiring them to be admitted to long-term geriatric facilities (Chemali and others, 2008).

The complex unprecedented crises that hit Lebanon starting in 2019 had significant repercussions on the health of the older population. The economic crisis, loss of livelihoods, lockdowns, and emigration of family members hindered old people's access to health services and exacerbated their physical and mental health while pushing them deeper into poverty and isolation. Moreover, during the COVID-19 pandemic, some long-term facilities for the elderly decreased their capacity by almost half and were advised to limit new admissions exclusively to medically urgent cases. Additionally, while efforts were made to diminish the risk of introduction and dissemination of COVID-19 in these facilities, they struggled to function during the COVID-19 outbreak. The main obstacles included occasional overcrowding, insufficient number of staff available to assign to COVID-19 isolation units and the struggle to enforce protective measures due to some patients' medical conditions and shortages in personal protective equipment caused by financial restrictions. (Yared, Sakr & Zoghbi, 2020b).

All these factors also contributed to the deterioration of the health status of the elderly in nursing homes. Previously, older people without any form of public or private health care coverage could benefit from Ministry coverage, affordable primary health care services and the Ministry public health programmes offered through primary health care centres like the national non-communicable diseases programme. Today, the Ministry can barely cover its beneficiaries' inflated medical bills and Ministry programmes are being challenged and disrupted by the increasing expenses of maintaining their services. These factors accentuate the responsibility of the Government and civil society in safeguarding the well-being of older people by developing critical health and social protection systems. With this in mind, the Ministry of Social Affairs and the United Nations Population Fund (UNFPA) developed the National Strategy for Older Persons in Lebanon for the year 2030, which adopts a framework with strategic objectives aiming to promote the health, economic security, social safety, engagement and belonging of the elderly. Under these objectives, several action items targeting nursing homes were proposed, including establishing a referral system between primary health care, tertiary care facilities and nursing homes for a holistic health care model; integrating long-term care and palliative care in the public and private specialized services; integrating home-based services within the health care system, expanding them to include mobile units and bridging them with the services provided at nursing homes; increasing the number of health care workers who manage old persons through integrating gerontology into university curricula; and building their capacity through continuous trainings and awareness sessions to enhance the quality of services. Additionally, it was proposed to integrate geriatric care in the primary health care system, set a national plan to train and support home caregivers and establish elderly care programmes such as surrogate families and senior sitters by the private sector (MoSA and others, 2021).

In light of all of the above, nursing homes should be secured with additional funding in order to improve their infrastructure and hire an adequate number of staff in order to provide proper care for all nursing home residents and diversify the services provided (Chemali and others, 2008). Aside from funding, many researchers were advocating for the development and enforcement of institutionalized policies and operational standards and guidelines to improve and standardize the level of care in all nursing homes, as there were no specific national requirements for licensing and monitoring nursing homes (Chemali and others, 2008; J. Doumit & Nasser, 2010). Consequently, the quality standards for elderly institutions in Lebanon were issued by the Ministry of Social Affairs and UNFPA in 2017, and an accreditation system was established to ensure the implementation of these standards at nursing homes. These standards were set based on the joint commission accreditation and the accreditation standards of seniors' institutions in other countries. The accreditation standards cover seven main topics with monitoring and evaluation indicators: environment care, human resources, infection control, information management, provision of care and services, quality management and development, and elderly and family rights, as well as three additional specific topics on elderly day-care centres, specialized elderly restaurants and care for Alzheimer's patients. Nevertheless, these standards are not fully implemented, and the National Strategy for Older Persons in Lebanon calls for the implementation of these quality standards and the nursing home accreditation system and proposes strengthening and financing the Permanent National Commission for Older Persons at the Ministry of Social Affairs in order to develop a monitoring system (MoSA and others, 2021).

Subpillar 3.3.3.Mental health facilities

The mental health system in Lebanon is dominated by the private sector, is fragmented and has a shortage of facilities (El-Khoury, Haidar, & Charara, 2020). The majority of psychiatric beds are confined to mental hospitals, followed by psychiatric wards located in general hospitals and community residential facilities, where there are three mental hospitals accounting for 42 beds per 100,000 population, five hospital-based psychiatric wards accounting for 1.175 beds per 100,000 population (El-Jardali & Yehia, 2014; Mourani &

Ghreichi), and seven community residential facilities[1] accounting for 1.68 beds per 100,000 population (Ministry & WHO, 2015). There are also 30 beds found in prison psychiatric treatment facilities. The three mental health hospitals, which include the Deir El Saleeb and Dar Al-Ajaza Al-Islamiya, are a result of religious missionaries. Also, most of the other mental health facilities and services are led by international and religious entities. Moreover, mental health hospitals and hospital-based psychiatric units are centralized in or close to large cities with a ratio of 2.25 beds per 100,000 people, limiting the accessibility of people living in remote areas to these facilities (MoPH, 2015a; MoPH & WHO, 2015).

In spite of the limited number of inpatient facilities in comparison to the many outpatient clinics, the mental health system is hospital-oriented, with a focus on inpatient and long-stay psychiatric wards, which increases the waiting lists for admissions to these facilities (MoPH, 2015a). Additionally, treatment in most inpatient and outpatient facilities is through the provision of psychotropic medication rather than psychosocial interventions, and that medication is often unaffordable to most patients. Physical restraint and seclusion practices are recorded in several hospital psychiatric inpatient units. In terms of quality, the mental health accreditation system was updated for the services provided by psychiatric inpatient units in hospitals and is under revision for implementation in mental hospitals (MoPH & WHO, 2015). Additionally, there are many laws and policies that protect mental health patients. Nevertheless, most of the mental health workforce and public are unaware of these laws. The Mental Health Act, which was submitted by the NGO Institute for Development, Research, Advocacy and Applied Care to the parliament in 2008 and which is much needed to combat the stigma associated with admissions to psychiatric facilities through the enforcement of a code of practice to safeguard the rights of mental health patients and their confidentiality, is yet to be approved (El-Jardali & Yehia, 2014; MoPH, 2015a). Also, the system lacks an authorized monitoring body to supervise the provision of appropriate care (MoPH, 2015a; MoPH & WHO, 2015). There is little follow-up on patients, with an absence of a referral system between different levels of care and different institutions (Mourani & Ghreichi). This also applies to outpatient and inpatient services, which prevents proper follow-up of patients and causes patients to directly refer to the emergency room or professional mental health clinics. This necessitates the establishment of specialized mental health care programmes which provide inpatient and outpatient services as well as daily treatment visits. Only two such programmes exist in Lebanon. These are the American University of Beirut Medical Center Psychosis Recovery Outreach Programme and the Partial Hospitalization Programme. These programmes have been shown to lower readmissions and length of hospital stay. While the mental health field lacks an adequate number of professionals (El-Khoury and others, 2020; MoPH, 2015a), analysing the distribution of mental health professionals including psychiatrists, psychologists, social workers, nurses and occupational therapists working in long-term mental health facilities shows that these human resources are concentrated in hospital psychiatric inpatient units rather than in mental hospitals (Ministry & WHO, 2015).

Regarding financing, mental health services have always been poorly financed in Lebanon. The Ministry designates 5 per cent of its budget towards mental health services, half of which is spent on inpatient care and hospitalization. In other words, coverage for psychiatric admissions represents only 1 per cent of the Ministry's whole budget. This is also reflected in the financing and coverage of mental health services, which are unaffordable, where public funds show discrepancies in their coverage of psychiatric consultations, psychiatric admissions and psychotropic medications. The Ministry and NSSF reimburse the provision of inpatient services in three public hospitals and allocate a small portion of this funding for private hospitalization after forming contractual agreements with them. As for the private insurance schemes and mutual funds, they do not cover these services. These factors result in the coverage being mostly financed from out-of-pocket payments (El-Jardali & Yehia, 2014; MoPH, 2015a; MoPH & WHO, 2015; Mourani & Ghreichi).

1 Community residential facilities are non-hospital, community-based psychiatric facilities that provide overnight residence for people with less severe mental illnesses.

The onset of the multifaceted crisis in 2019 exacerbated the pre-existing issues of the mental health facilities in Lebanon. The financial hardships that hospitals are currently facing can compromise the management of psychiatric inpatients (Yared Sakr & Zoghbi, 2020a). Moreover, the shortage of beds in hospital mental units became more striking with the emergence of the pandemic and the deteriorating quality of life in the country, since the occupancy rate of psychiatric hospital beds was already 97 per cent in 2014 and the government made little effort to expand the number of long-term mental health facilities in the country other than the establishment of the inpatient mental health unit at the Rafic Hariri University Hospital in 2018. The pandemic also resulted in restricted outpatient mental health consultations, which were shifted to psychiatric clinics (Yared, Sakr & Zoghbi, 2020a; Zoghbi, Nassif, Fakih, & Chammay, 2021).

While some long-term mental health residential institutions provide adequate health care services and living conditions, scandals of institutions violating human rights and having appalling living conditions have been identified prior to and after 2019. Assessments conducted by the Ministry National Mental Health Programme and WHO revealed that some facilities lacked proper hygiene and living standards, had insufficient health care staff and medical stock, and that their residents were malnourished, poorly monitored for behaviour and not followed up on for their health status and treatment. These assessments resulted in a set of short-, medium- and long-term recommendations, including providing proper nutrition, clothing and intake of medications; ensuring adequate hygiene conditions; conducting comprehensive medical and psychosocial assessments and routine medical screenings for non-communicable diseases, communicable diseases and essential diagnostics; the creation of complete medical files and close follow-up on patients. Medium-term interventions included incorporating leisure activities for the beneficiaries, building the capacity of the staff to provide proper care and conducting routine assessments of all long-term facilities across Lebanon. Such routine assessments were made a prerequisite for registration at the Ministry with decision no. 1/270. In the long-term, it was recommended that vocational and rehabilitation programmes are provided at these facilities to reintegrate the discharged patients into society (Ministry & WHO, 2019b; Zoghbi and others, 2021).

Also, in 2015 the Ministry collaborated with the European Union, UNICEF and the WHO country office in launching the Mental Health and Substance Use Strategy to align the national efforts with the WHO Global Action Plan for Mental Health 2013–2020. This strategy called for the development of a referral system between all mental health facilities; building the capacity of the psychiatric human resources; adopting a monitoring and evaluation system and setting a list of mental health indicators within the national health information system to measure the performance of the mental health facilities; developing and implementing clinical protocols, accreditation standards and a code of ethics for mental health facilities and ensuring that all practices and interventions are evidence-based, cost-effective and culturally acceptable (MoPH, 2015a).

Subpillar 3.3.4 Rehabilitation centres

Clinical studies show a significant correlation between mental health issues and psychosocial problems on one hand, and elevated susceptibility to substance use disorders on the other.

In Lebanon, drug rehabilitation centres are primarily run by NGOs (MoPH, 2015a, 2016a). The first rehabilitation centre in Lebanon was established by an NGO called Oum el Nour (United Nations Office For Drug Control Crime Prevention, 2002). Today, long-term rehabilitation programmes are provided by a number of NGOs including Oum El Nour, Jeunesse Contre la Drogue, and Sénacle de la Lumière, most of which also have outpatient facilities. Inpatient detoxification and rehabilitation services are also provided by one public hospital, the Dahr El Bachek Government University Hospital, which has 15 beds, and five other private long-term facilities totalling 90 beds (MoPH, 2015a). These NGO, public and private residential centres are mostly centralized in Beirut and other big cities (Bizri and others, 2021; MoPH,

2016a, 2017b). Similarly to the NGOs, the private sector also provides outpatient services, while the Ministry of Public Health and the Ministry of Social Affairs lack any outpatient community centres (Kerbage & Haddad, 2014).

While the NGO services are provided either for a minimal fee or for free, enrolment in these treatment programmes and rehabilitation centres requires registering on a long waiting list, since the number of potential enrollees often exceeds the available places at the rehabilitation centres, which admit an average of 85 patients annually. Financial coverage for long-term rehabilitation services is provided mainly by the Ministry of Public Health and the Ministry of Social Affairs; otherwise, they are covered from out-of-pocket payments. Inpatient rehabilitation services in the private sector are characterized for being expensive and unaffordable for the majority of the people suffering from substance use disorders, as they are not covered by private insurance and the Ministry only covers the bill in contracted hospitals and on a case-to-case basis. On the other hand, the Ministry covers 85 per cent of the rehabilitation bill in three contracted hospitals including the Dahr El Bachek Government University Hospital and in five other long-term rehabilitation facilities, where in 2017 the Ministry covered 7 per cent of the total cost of rehabilitation services and the Ministry of Social Affairs covered 9 per cent of the rehabilitation bills in NGOs. Although the Ministry of Public Health and the Ministry of Social Affairs collaborate with NGOs to regulate the provision of addiction therapy, a more effective involvement of the Ministries is required to provide nationwide, efficient and well-coordinated treatment and prevention programmes (MoPH, 2016a, 2017b). Additionally, the facilities that provide rehabilitation services lack a referral system between each other and with the civil society, including municipalities and prisons, to aid in the follow-up on discharged individuals after their recovery (MoPH, 2016a, 2017b).

Considering the large burden of mental illnesses in the Lebanese population as well as the high prevalence of substance use and the population's predisposition to these disorders due to the continuously unstable political and security situation, the rehabilitation facilities are at an increasing risk of a surge in addiction cases and substance use disorders as a result of the deteriorating situation, the economic collapse and the Beirut Blast (Bizri, El Hayek, Beaini, Kobeissy, & Talih, 2021; MoPH & WHO, 2015; Rahimi-Movaghar, Amin-Esmaeili, Aaraj, & Hermez, 2012).

Stigma, social taboo and limited knowledge of the available treatments and interventions also form a great barrier to accessing rehabilitation services (MoPH, 2016a). In 2013 and after a civil society movement against the judicial system, the 1998 Narcotic Drugs and Psychotropic Substances Act was enforced by the establishment of the Drug Addiction Committee, which refers patients to free treatment at the Dahr El Bachek Government University Hospital unit instead of prison and provides them with immunity against any judicial pursuit upon the completion of the treatment. Additionally, in 2016 the Ministry released a memo preventing hospitals from reporting overdose incidents to the security forces. These factors helped in ensuring the patients' confidentiality and minimizing stigma and fear (Kerbage & Haddad, 2014; MoPH, 2016a). However, there remain gaps in the system, where, for example, patients who need opioid substitution treatment must register in the governmental database which raises privacy concerns and often causes hesitation in seeking these services. As for databases, the substance use disorders rehabilitation centres and programmes lack a unified database that can aid in referrals and exchange of data (Bizri and others, 2021).

Along with inpatient and outpatient rehabilitation services, many NGOs work in prevention, harm reduction, awareness raising, community involvement activities and provision of counselling for people suffering from addiction (Kerbage & Haddad, 2014; MoPH, 2015a, 2016a). Nevertheless, only two mutual aid and self-help groups on alcohol and narcotics recovery are available in Lebanon (Bizri and others, 2021; MoPH, 2016a).

In an attempt to implement one of the strategic directions of the Mental Health and Substance Use Prevention, Promotion, and Treatment Strategy for 2015–2020 which suggests developing a national substance use strategy, the Inter-Ministerial Substance Use Response Strategy For Lebanon 2016–2021 was developed by the Ministries of Public Health, Social Affairs, Education, Justice and Interior and Municipalities. This strategy contained six domains with strategic objectives addressing substance use including leadership and governance, health and social welfare sector response, and monitoring and surveillance. The strategy called for ensuring multisectorial coordination for developing and implementing substance abuse policies, ensuring adequate and viable funding for substance use response, diversifying and expanding the available substance use disorders treatment and rehabilitation services, mapping the available services and connecting them to ensure timely referrals, building the capacity of the health and non-health staff working at rehabilitation centres, continuously improving the quality of services by developing national guidelines, accreditation standards and a code of ethics, and establishing a monitoring and surveillance system to measure the performance of the rehabilitation facilities (MoPH, 2016a). Consequently, the goal of annually mapping the available services and resources for substance used disorders was fulfilled starting in 2017, when the first mapping exercise was performed. The findings of this mapping exercise were categorized under the same domains of the interministerial strategy and were linked to the strategic objectives of the strategy to guarantee that the findings are translated into a national road map for action and that the identified gaps are addressed (MoPH, 2017b).

In addition to that, previously the quality of inpatient and outpatient rehabilitation services were not supervised due to the lack of an accreditation system specific to services on prevention and treatment of substance use. Instead, four facilities providing such services were accredited for general hospital performance by accreditation bodies such as JCI, OPC-HAS, APAVE, ISO 9001:2015, and by the Ministry hospital accreditation system (MoPH, 2017b). To improve the quality of the rehabilitation residential programmes, a set of accreditation standards were established in 2019. These standards are applicable to all long-term rehabilitation facilities and are grouped into six sections, where each standard has a set of measures of quality that help indicate whether the standard is achieved (MoPH, 2019a).

B. Impact of crisis on health service provision

The multifaceted crisis has also severely impacted access and utilization of health care services, with the main barriers being financial problems and issues of transport. Hospitalizations, particularly for surgeries, diminished by 30 per cent in 2021 and the average hospitalization days per month decreased by 25 per cent. This fall-off in hospital services, in addition to the 90 per cent drop in the third-party reimbursement rates, threatens the continuity of the hospital sector, where over 30 per cent of private hospitals have closed down since the beginning of the crisis. On the other hand, primary health care centres have seen higher demand for non-communicable diseases and acute care services, with more than 220,000 beneficiaries in 2021 in comparison to 78,000 in 2016. Referral to advanced diagnostics is also decreasing as the hospitals are operating with around 50 per cent capacity. Furthermore, delayed referral to health care facilities and utilization of traditional medicine have resulted in exacerbated health issues and increased morbidity and mortality. Additionally, the 2021 multisector needs assessment survey shows that the majority of the 45 per cent of Lebanese and 50 per cent of non-Lebanese who suffer from mental distress do not seek help. These phenomena are explained by the aggravated poverty, high cost of services and drugs, and shortages in medications and medical supplies, with stocks of critical items such as lab reagents and blood bags reaching grave levels. Also, the recent drain of well-trained human resources for health has become an increasing concern, particularly in peripheral and remote areas. Consequently, advanced hospital care will continue to be jeopardized and 25 per cent of the population will continue experiencing catastrophic health expenses and referring to burdensome coping mechanisms to access health care.

Figure 12.Number of primary health care beneficiaries for basic services (Ministry of Public Health network)

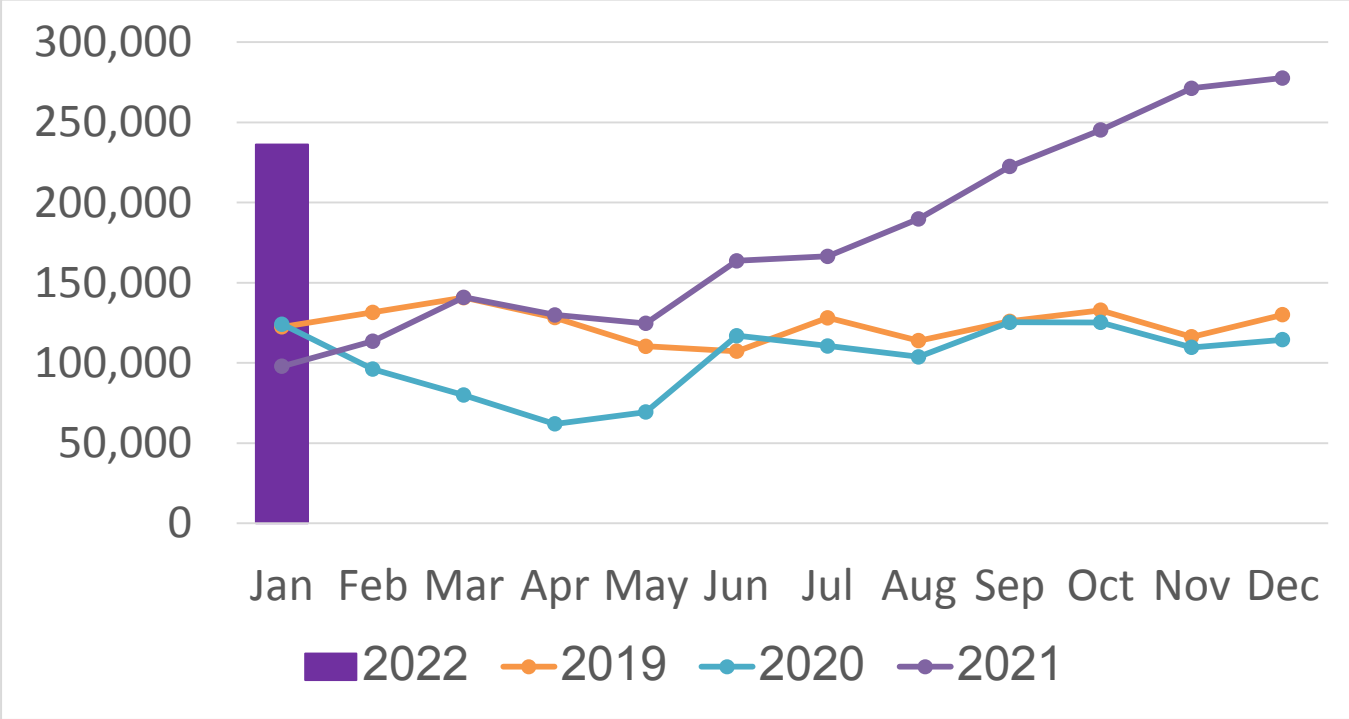


Figure 13.Number of hospital admissions of Ministry of Public Health patients

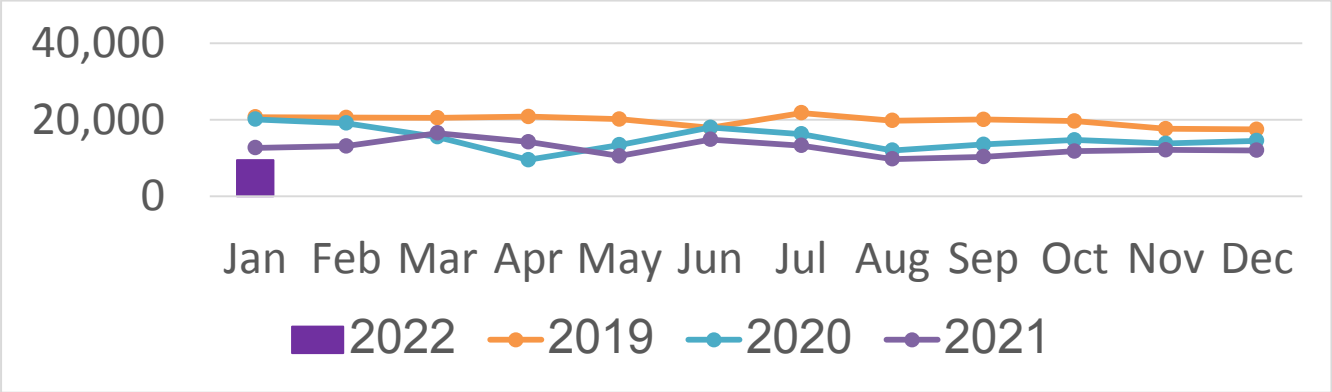


Figure 14.Percentage of acute disease medication out of stock from the Ministry-supported list

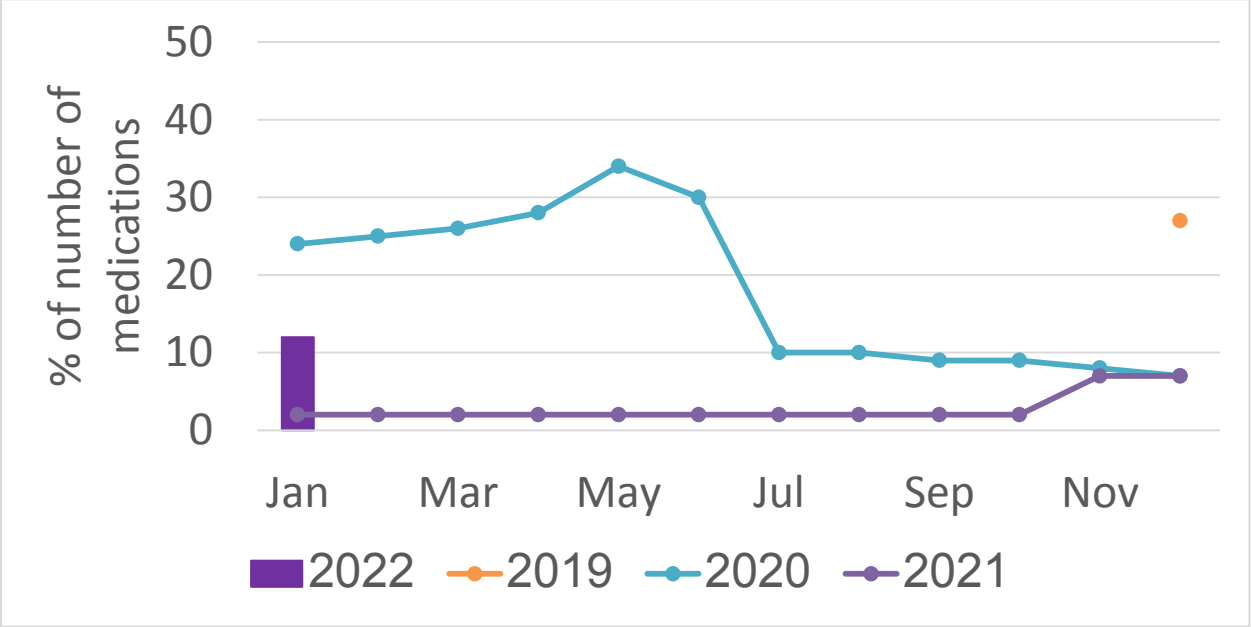


Figure 15.Percentage of chronic disease medication out of stock from the Young Men's Christian Association warehouse

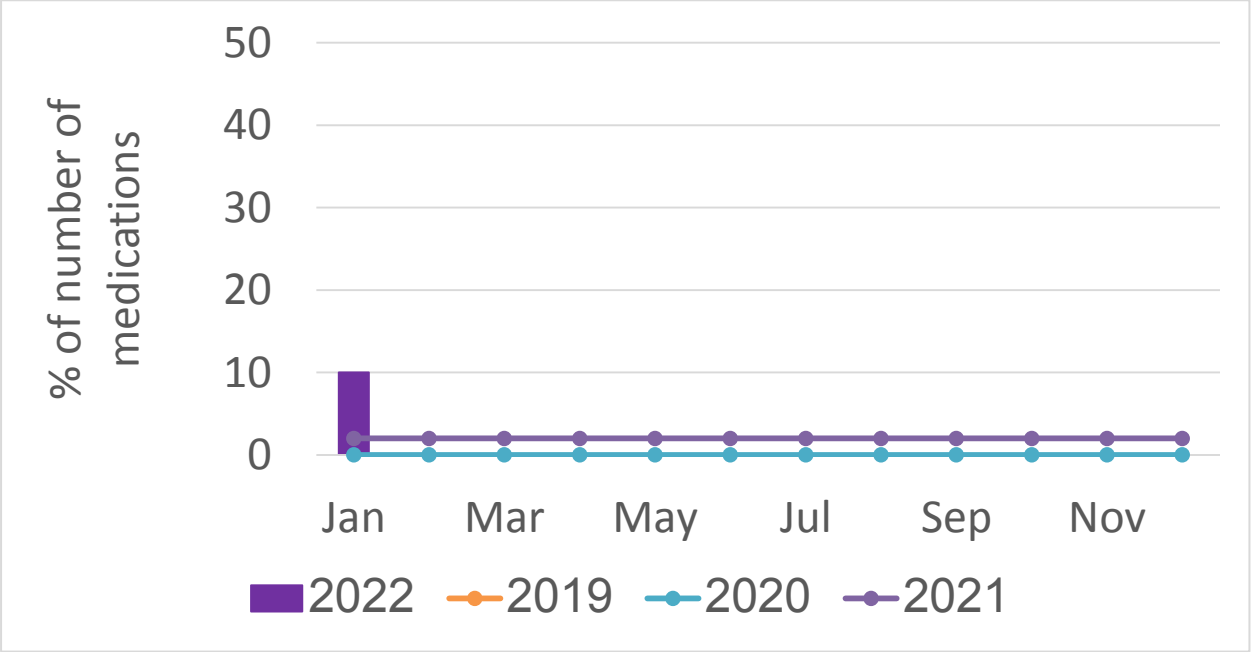
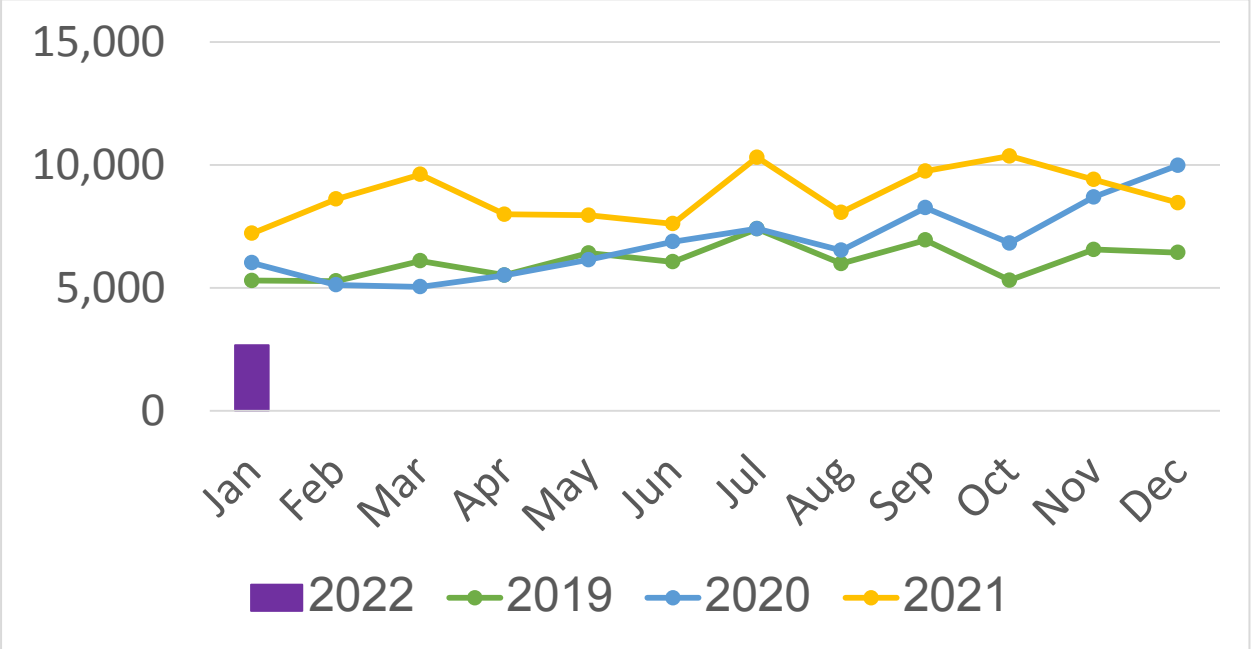


Figure 16. Number of specialized mental health consultations



Note: As reported on Activity-info UNHCR.

Figures 17–20 are based on a multisectoral needs assessment that was conducted by the United Nations in 2021 on health access, barriers and coping mechanisms.

Figure 17. Main barriers reported by households as preventing them from accessing health care when needed in the three months prior to data collection

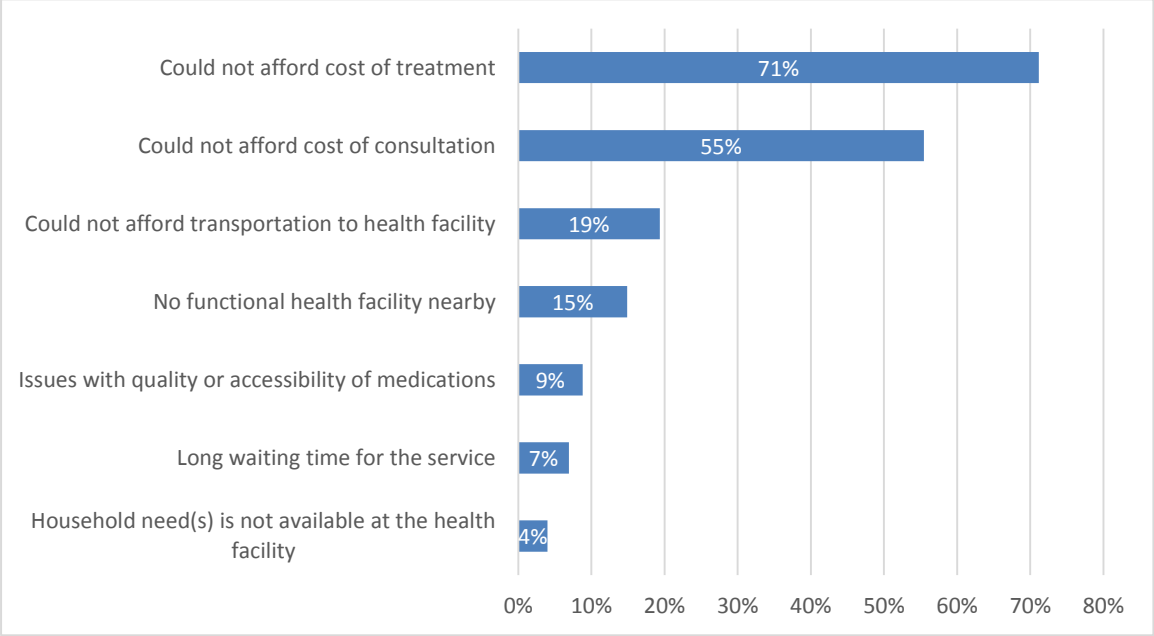


Figure 18. Coping mechanisms as reported as used by households to adjust to barriers in accessing health care, in the three months prior to data collection

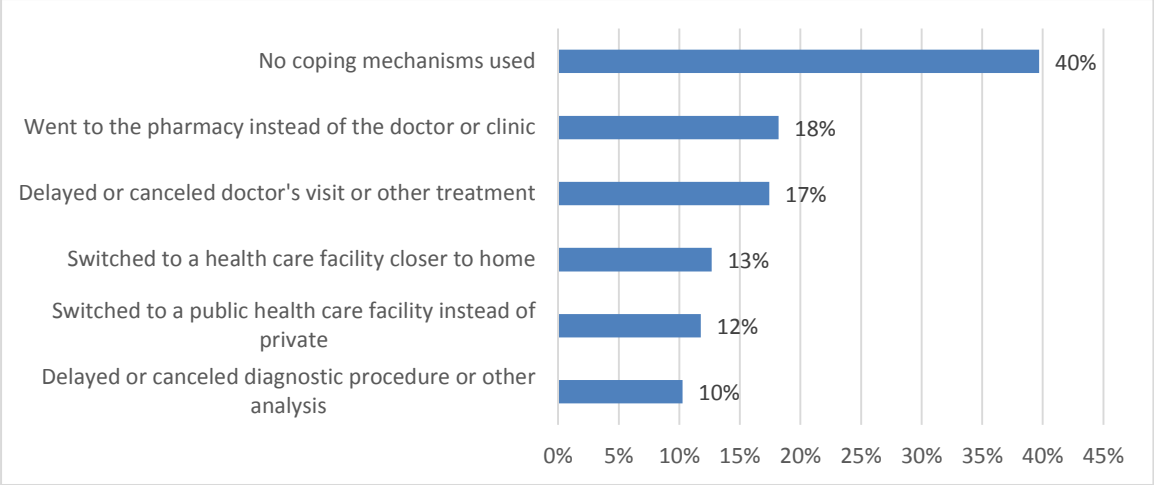


Figure 19. Main barriers reported as experienced by households that prevented them from accessing needed medication

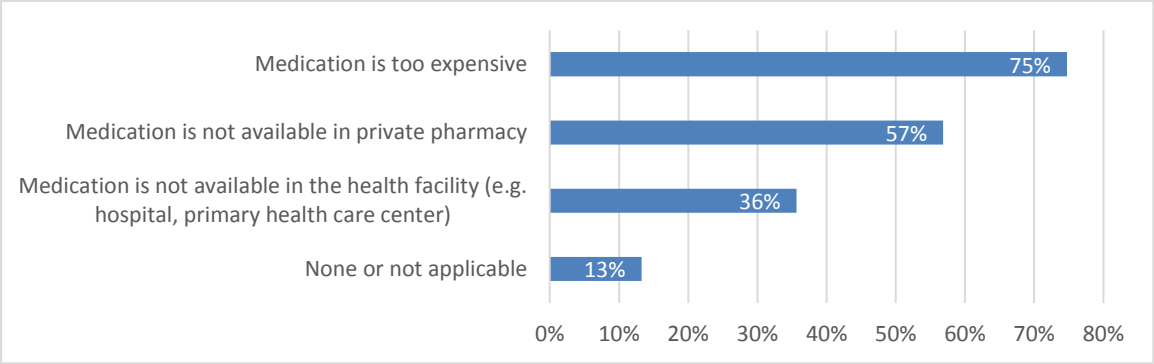
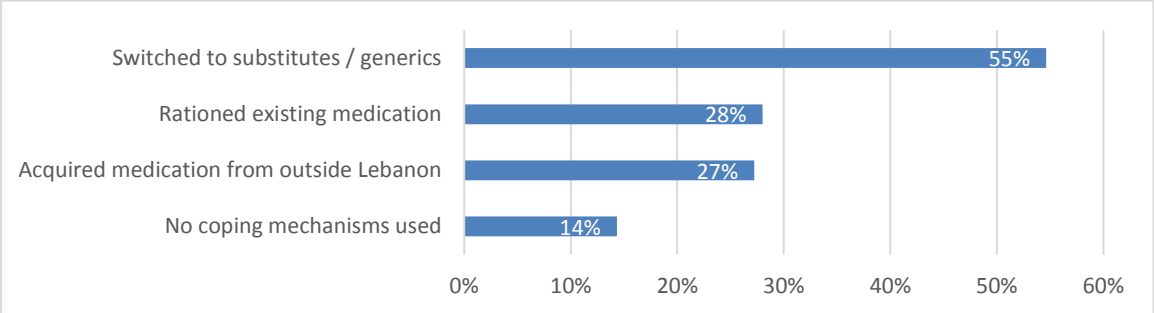


Figure 20. Main coping mechanisms reported as employed by households to adjust to the inaccessibility of medication in Lebanon, in the three months prior to data collection



4. Health security

A. Pillars and subpillars

Pillar 4.1 Preparedness and response

Lebanon shows a strong commitment to global health security, through building its international health regulations (IHR) core capacities and developing contingency plans for its public health emergency response, some of which have been applied in real-life scenarios like the Ebola and influenza pandemics. The Office of the Prime Minister coordinates the national crisis management, and an interministerial Committee for Emergency and Disaster Management ensures the governmental coordination.

In previous emergency situations like avian influenza, the Ministry of Public Health responded quickly in early diagnosis, isolating cases and tracing contacts. It was capable of effectively controlling the situation without surpassing its budget thanks to its epidemiological surveillance and response programme that was started in 1996. In the absence of a department with dedicated staff in the organizational structure of the Ministry, the programme had to rely mostly on existing staff working in other departments and distributed around different Lebanese districts, who worked on this programme with no extra remuneration. The programme was able, however, to engage a small number of qualified people with the episodic assistance of WHO and other United Nations agencies (Walid Ammar, 2015).

In 2018, a set of emergency response and crisis management processes were established within a five-year emergency response plan. This plan was based on collective decision-making, using technology and artificial intelligence (AI) to identify the closest and most suitable facility, establishing escalation, follow-up and review procedures, and preparing civil society for emergency handling (MoPH, 2018b).

Lebanon was able to effectively respond to the COVID-19 pandemic while sustaining most of the essential health services including emergency care, primary health care and hospital care, in spite of a drop in utilization rates throughout the pandemic (MoPH, 2020a; WHO, 2020). The Public Health Emergency Operations Centre was founded by the Ministry in preparation for facing upcoming pandemics, in response to the IHR laws on citizen protection and public safety. Yet, up to today, the Public Health Emergency Operations Centre is not enforced by a ministerial decree or law (MoPH, 2019c).

Pillar 4.2 International health regulations and Joint External Evaluation

The IHR compliance assessment by national and external experts was conducted in July 2016 using the WHO International Health Regulations (2005) Joint External Evaluation (JEE) tool. The JEE helps identify the most urgent needs in countries' health security systems, prioritizing opportunities for strengthened preparedness, detection and response capacity-building, and placing national priorities and assigning resources based on the findings (WHO, 2017a).

A self-assessment and self-scores were completed by the Government for the technical areas using the JEE tool. Their results were presented to the external assessment team, which met with national experts to identify and decide together on the strengths, areas that need improvement and priorities for Lebanon, and on the scores for the 19 technical areas (WHO, 2017a).

Three cross-cutting needs that are necessary for improved preparedness and response were extracted. These include the need for: systems/structures that ensure adequate coordination of data sharing, rapid response and multisectoral participation; private sector representation, which is crucial for providing services related to IHR capacity; and IHR-related human resource capacity at the central and peripheral levels.

The IHR national focal point is the Directorate of Preventive Medicine of the Ministry, where the Director General of the Ministry of Public Health is the primary IHR national focal point. As for the national IHR multisectoral committee, it is led by the Minister of Public Health and is composed of 11 high-level representatives from related sectors.

Regarding the establishment of systems/structures, Lebanon achieved considerable progress towards developing efficient multisectoral collaboration and coordination. Nonetheless, current informal and ad hoc networks could be considerably reinforced by applying a thorough legislative framework and outlining the roles and duties of stakeholders for the early detection and examination of, and response to, public health incidents.

Lebanon has high-quality facilities and proficient personnel, who ensure proper national coordination. Resources from the private sector are important, although the Government should safeguard clear national coordination, with approved regulations, policies and plans.

At the human resources level, the workforce of the public sector is insufficient to handle IHR-related tasks. The Ministry is constantly looking to hire new technical staff. To ensure sustainability, a formal public health workforce strategy should be put in place and accompanied with international support to improve the public sector human resources of Lebanon (WHO, 2017a).

A national framework law and a sectoral legislation for IHR were developed and await authorization by the parliament; once the law is passed by the parliament it will lay the groundwork for implementing the policies and guidance.

One of the key lessons of the mission was increasing efforts for combatting antimicrobial resistance, where the national plan should be completed and aligned with the WHO global action plan on antimicrobial resistance. Additionally, an animal health laboratory that would monitor antimicrobial resistance analysis in the Ministry of Agriculture should be established, and a national multisectoral strategy for preparedness and response to zoonotic outbreaks should be developed and enacted, along with official coordination and information sharing systems that would engage all relevant stakeholders.

Moreover, IHR priority diseases can be identified through the advanced diagnostic tests available in Lebanese laboratories. Still, there is a need to establish a central public health lab or an equivalent structure, and a distinct national laboratory network, to enhance national coordination and safeguard critical reference functions to other laboratories on animal and human health (WHO, 2017a).

For achieving adequate vaccination coverage, unvaccinated and undervaccinated populations, especially refugees, need to be identified and directed towards adequate, equitable and accessible expanded programme on immunization (EPI) services. The surveillance system should be improved by streamlining reliable electronic reporting systems.

Consideration should be given to developing a national workforce strategy, along with a national advanced field epidemiology training programme, which would improve the employment, training and retention of skilled public health workers at the various levels of administration (WHO, 2017a).

An inclusive national emergency response plan including all stakeholders is required. While the national emergency operations centre is adequate, it is not fully functional or tested in an actual public health event. Along with coordinating pandemic response, the emergency operations centre is a platform for systematic data sharing and risk assessments of these public health events. Law enforcement agencies support the public and animal health systems of the Government with potential health threats through the Chemical, Biological, Radiological and Nuclear (CBRN) Committee or the Supreme Commission for Relief. Although the Ministry would be engaged in responding to health-related events, standard operating procedures for enhanced coordination are not set.

The Office of the Prime Minister manages the national crisis management along with its communication plan, and the Ministry has recently developed a website and other media platforms for proper

communication. However, it should crucially reinforce its Public Relations and Health Education Department, which oversees health-related communication for IHR (WHO, 2017a).

Even though Lebanon has appointed all points of entry for the application of IHR capacities, and sufficient medical services are in place at the main points of entry, processes to safeguard fundamental health safety like safe food and water and a cross-departmental public health contingency plan for each point of entry are absent.

Furthermore, there is a need to establish a national strategic plan for chemicals as a component of the national emergency preparedness plan, which should also reflect human and financial resources, and promote capacity and the capability to respond to all priority public health emergencies. Moreover, a national poison control centre has to be selected and prepared. Although national guidelines and schemes for radiation emergencies are in place and the responsible authorities for nuclear and radiation hazards have an assigned focal point to coordinate and communicate with the IHR national focal point, the coordination with all relevant stakeholders from the different sectors is insufficient and the medical facilities designated to treat radiation-exposed persons or victims should be improved (WHO, 2017a).

Box 12. Main Observations from Joint External Evaluation and International Health Regulations, 2016

The JEE mission for IHR was implemented in 2016.

The main observations of the JEE at that time, and that are still valid currently, included: 1) the need to put in place governance systems/structures and arrangements to ensure adequate coordination of information sharing and rapid response as well as full multisectoral engagement; 2) the private sector in Lebanon has an important role in providing services related to the national IHR capacity, and needs to be adequately engaged and represented; and 3) the insufficient IHR-related human resources capacity at different levels of administration.

Pillar 4.3 Functions of the Department of Preventive Medicine and Communicable Disease

The Department of Preventive Medicine and Communicable Disease manages three main programmes: communicable diseases, CBRN events preparedness; and antimicrobial resistance.

In terms of the communicable diseases department, it has a clear set of responsibilities and duties, all of which feed into the enactment of the IHR regulations. This department is in charge implementing the national communicable disease preparedness and response plan at the regional and district levels, which it manages in collaboration with the epidemiological surveillance programme. It works on building the capacity of the health care workforce on managing communicable diseases, by organizing trainings and workshops for health care workers, developing and disseminating awareness materials and conducting simulations to assess preparedness and knowledge. Moreover, the programme serves as a focal point for the WHO Solidarity Plus trials on a number of medications. It also oversees the malaria, leishmania & tuberculosis programmes and supervises adult vaccinations for rabies, meningococcal disease and yellow fever, although the sustainability of provision of these vaccines has been at risk.

As for CBRN hazard prevention, the CBRN programme conducts capacity-building activities to enhance the detection, prevention, readiness and response to CBRN threats. Its efforts were strengthened by the establishment of district-level multidisciplinary national hazmat teams. In partnership with WHO, the CBRN programme performs drills at the Rafic Hariri University Hospital and in hospitals in the South and Bekaa districts. Additionally, it managed to update the contingency plans in all governorates.

Combating antimicrobial resistance falls under the umbrella of preventive medicine. As such, the Department of Preventive Medicine and Communicable Disease directed the establishment of the national antimicrobial resistance action plan under the antimicrobial resistance programme such that it is supervised by a national antimicrobial resistance committee. Through this action plan, control programmes for the prevention of infections associated with health care are implemented. Efforts to develop national guidelines for health facilities and preform proficiency examinations for hospital microbiology laboratories have been successful in controlling antimicrobial-resistant bacteria; however, the antimicrobial resistance programme is facing challenges in maintaining these proficiency tests. Additionally, the Department of Preventive Medicine and Communicable Disease also suffers from an overall shortage in staff and in office supplies, which hinders the efficiency of its various programmes.

During the onset of the COVID-19 pandemic, the Department of Preventive Medicine and Communicable Disease helped the national COVID-19 committee manage the COVID-19 response by issuing travel restrictions and case management protocols. It developed awareness materials and promoted the application of points of entry measures by delivering trainings to all staff in health care facilities. Once vaccines became available, it ensured the sufficient provision of vaccines and medical supplies to vaccination centres.

Pillar 4.4 Epidemiological surveillance programme

The Epidemiological Surveillance Unit (ESU) was established with the help of the World Bank as an attempt to help the health sector recover and to reactivate surveillance of communicable diseases after the civil war. Today, the ESU has expanded into a national programme that is incorporated within the Ministry directorate of prevention and is supported by United Nations agencies and WHO in performing its functions. Its main purpose focuses on disease surveillance, the early warning alert and response system and enhancing national capacity.

The communicable disease surveillance is done in cooperation with health care facilities and medical laboratories, whereby a list of 40 diseases is compulsorily reported to the Ministry. The ESU posts weekly updates of the surveillance findings on the Ministry website and shares a weekly summary with a list of health care experts. It also manages the national cancer registry.

The early warning alert and response system function of the ESU depends on indicator-based surveillance which compares the collected data with projected historical figures, in addition to the event-based surveillance which captures unstructured data from different sources for selection, confirmation and examination. Event-based surveillance was initiated in 2014 and has three data collection sources. The first is through NGOs and community field workers who were trained to identify and report priority diseases to the ESU. Data are also collected from the public through hotline calls reporting disease incidents. The last data source for event-based surveillance is the online news and media platforms which are screened on a daily basis by the WHO Epidemic Intelligence from Open Sources platform, allowing daily confirmation and inspection of the collected warnings followed by the sharing of this data with the partners of the ESU. In addition to that, the ESU takes part in outbreak investigation and even contributes to the Global Outbreak Alert and Response Network (GOARN). Moreover, standard operating procedures and partnerships with national and supranational labs are in place to detect several priority diseases. During the COVID-19 pandemic, nearly all of the efforts of the ESU shifted towards the pandemic response, where it contributed to the daily surveillance, contact tracing and case analysis. The ESU also provided support in the establishment of the COVID-19 call centre and in training the Ministry staff and health care workers on surveillance and investigation. Since mid-2021, the ESU has resumed its surveillance activities on other diseases, in addition to COVID-19.

Finally, the ESU conducts annual capacity-building sessions and trainings on disease surveillance and outbreak inspection for the central and district level Ministry employees, as well as for health care facility staff. Furthermore, the ESU is a member of a two-year field epidemiology training programme called the Mediterranean and Black Sea Programme for Intervention Epidemiology Training (MediPIET). After graduating the MediPIET, enrollees contribute in implementing a three-month public health empowerment programme as a complementary training, with support from the Eastern Mediterranean Public Health Network (EMPHNET), with the aim enhancing the competency of the Ministry staff on disease surveillance and outbreak investigation.

Pillar 4.5 Interministerial overlapping/coordination

By legislation, the Ministry of Public Health is in charge of the safety of the population. Ministerial agencies have been given the authority to inspect, sample and analyse any suspect items to take appropriate action in cases of need. Different legislation, on the other hand, has involved additional ministries in the monitoring and surveillance programme. Thus, instead of conflicting authorities, this plurality should foster collaboration among the several ministries (Walid Ammar, 2015; El-Jardali and others, 2017).

In addition to water and food safety, many intersectoral factors should be considered following the One Health approach including air pollution, waste treatment, road hazards and animal health, which necessitates the expertise of various specialists and the inclusion of all ministries (WHO, 2017a).

In areas where another ministry is primarily responsible in addressing issues of potential health impact, the Ministry retains its responsibility to exercise a second control, through either random sampling or targeted sampling based on epidemiological data. Other ministries' responsibilities in public health safety are provided for by law, which puts them in charge of taking related healthy security measures. For example, consumer protection code number 659/2005 puts charge the Ministry of Economy and Trade in charge of assessing the quality and safety of food products available in the market, while the Ministry of Public Health intervenes urgently in cases of food poisoning, or in preventive sampling analysis based on risk analysis (Walid Ammar, 2015). Additionally, local authorities should have clearly assigned responsibilities in risk management and in addressing any public health threats in their territories (Walid Ammar, 2015; WHO, 2017a).

In terms of achieving SDGs, partnership between various ministries is crucial to address social determinants of health. In the light of this, the Ministry of Public Health should play an important role for including Health in All Policies and in guiding related ministries in fulfilling their share of obligations (Walid Ammar, 2015; El-Jardali and others, 2017).

B. Impact of crisis on health security

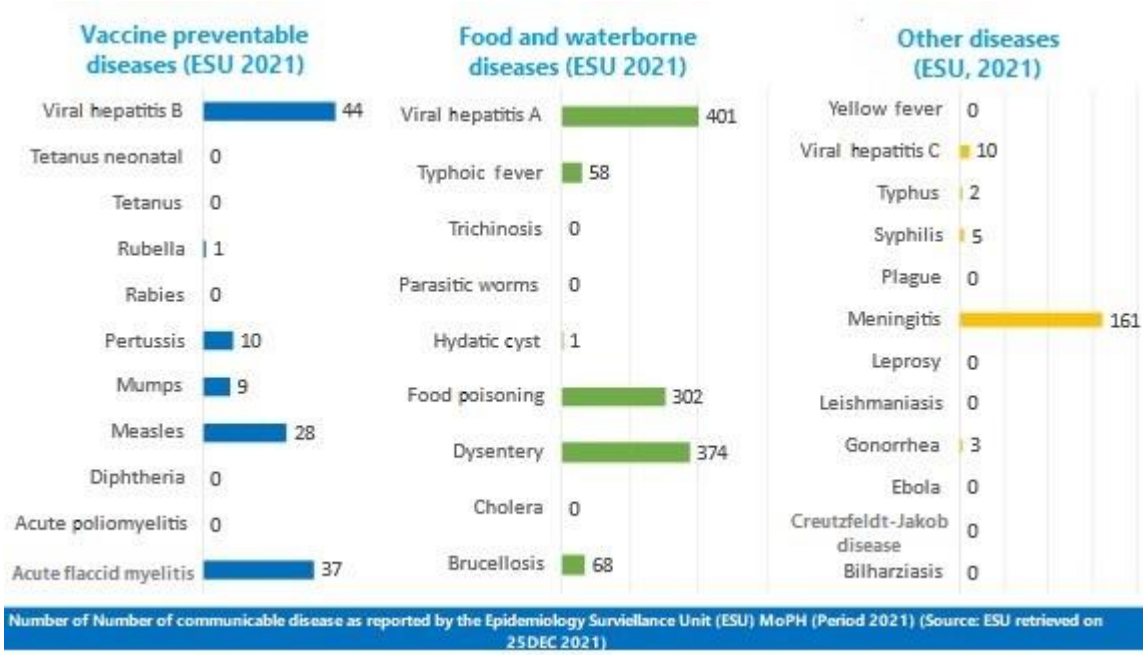
The current complex crisis uncovered the gaps and weaknesses of the health care system. It highlighted the public sector's poor emergency preparedness, the system's heavy reliance on the private sector and the latter's lack of willingness to respond. In the absence of an adapted national health emergency and pandemic plan, most of the response to the COVID-19 pandemic and the other emergencies were improvised and greatly relied on international agency support to hastily expand public hospitals' bed, personal protective equipment, medical supply, medical equipment and staff capacity, and to monitor the points of entry. Among the international agency support, was the proper implementation of the IHR by WHO, which allowed the Rafic Hariri University Hospital to properly accommodate the first wave of COVID-19.

In addition, the COVID-19 pandemic was an opportunity to promote infection prevention and control practised at health care facilities and to enhance the civil registration and vital statistics systems which

were efficient in monitoring the deaths related to COVID-19during the pandemic. Nonetheless, the pandemic shifted the routine of Ministry surveillance activities, impeding its ability to detect other outbreak risks. Moreover, while the success of the COVID-19 vaccination campaign resulted in having a 40 per cent fully vaccinated population within one year of deployment, reaching the WHO 70 per cent target is constrained by vaccine hesitancy and exhaustion of the vaccination centres' capacity. The complex crisis also caused a drop in immunization against other diseases due to decreased primary health care operational capacity, lower purchasing power and scarcity of vaccines in the private market. Thus, the risk of vaccine-preventable diseases was amplified, and the ESU has recorded a rise in vaccine-preventable and waterborne diseases such as hepatitis A, salmonella, rabies and food poisoning cases. Some of these outbreaks are associated with the poor inspection and accountability of water and food safety.

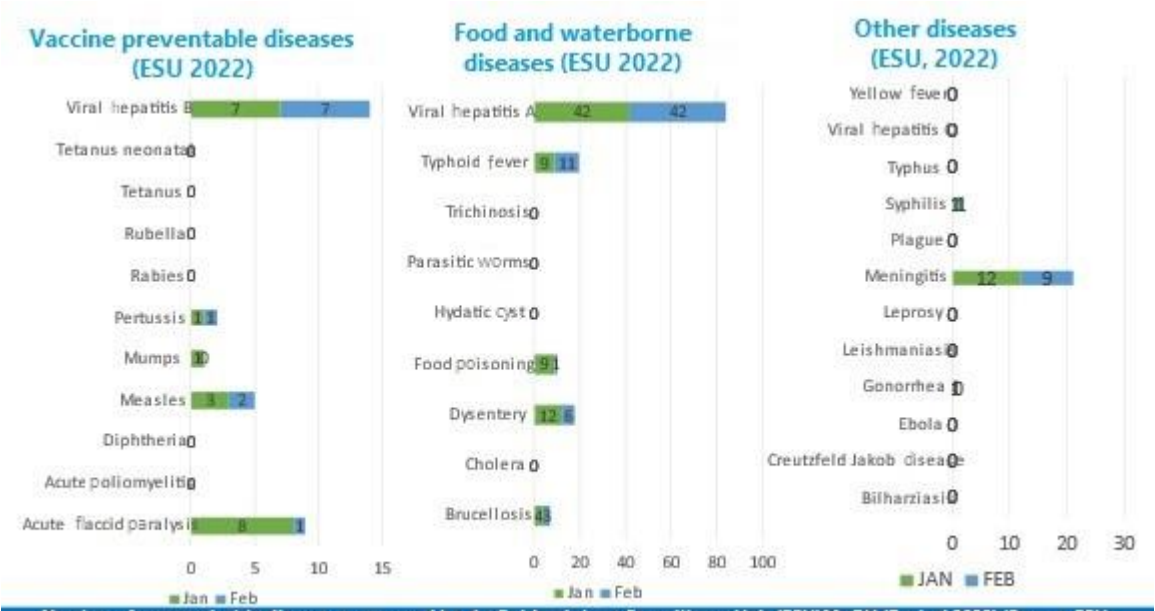
In terms of the early warning alert and response system at the Ministry, continuous efforts are underway to strengthen this system and establish it in other relevant ministries under the One Health umbrella. However, this system is almost fully dependent on donor funding. Furthermore, in line with the 2019 national antimicrobial resistance strategic plan and the One Health approach, WHO is supporting the national antimicrobial resistance programme at the Ministry in antimicrobial resistance surveillance and testing and in the provision of infection prevention and control and awareness initiatives. Like many other ministerial programmes, the national antimicrobial resistance programme suffers from shortages in human and financial resources and is also totally dependent on WHO funding.

Figure 21.Number of communicable diseases as reported by the ESU at the Ministry of Public Health in 2021



Number of Number of communicable disease as reported by the Epidemiology Surviellance Unit (ESU) MoPH (Period 2021) (Source: ESU retrieved on 25DEC 2021)

Figure 22.Number of communicable diseases as reported by the ESU at the Ministry of Public Health in 2022



Number of communicable disease as reported by the Epidemiology Surveillance Unit (ESU)MoPH (Period 2022) (Source: ESU retrieved on 12MAR 2022)

Some factors which hamper the emergency response of the Ministry is the lack of a Ministry unit in charge of emergency and crisis management. During the pandemic, a temporary, ad hoc, national, interministerial committee and multidisciplinary task force were formed with poorly defined terms of reference. Other factors include the improper implementation of IHR requirements and the absence of an autonomous central public health lab that would be accountable for the detection of outbreaks early on.

Instead, the central public health lab's role is distributed to different entities such as the National Influenza Centre, the National Measles Reference Lab, the National Centre for Research and Development for Chemical Hazards, the Université Saint-Joseph de Beyrouth (USJ) Laboratoires Merieux for Tuberculosis and Antimicrobial Resistance Outbreak Surveillance, the Lebanese Agriculture Research Institute of the Ministry of Agriculture for Food Safety, the American University of Beirut (Pulsenet), the Industrial Research Institute and the laboratories of chambers of commerce.

Furthermore, the economic crisis has contributed to the worsening of the environmental conditions.

There is high risk of an increase of: cancers associated with environmental hazardous exposure and pollution such as thyroid, colon and lung cancers; waterborne diseases; and hospital admissions due to respiratory difficulties directly reflects the exacerbation of pollution. This is validated by the fact that more than 50 per cent of the tap water is contaminated with E. coli, 88 per cent of the wastewater is untreated and the annual mean PM 2.5a levels are higher than the WHO guideline value of 10 µg/m3 in four Lebanese cities, which is associated with the increased utilization of diesel generators. Efforts have been made by the Ministry of Public Health, WHO, civil society organizations and the private sector to implement the updated national environmental health strategy and apply alternative, safe, viable, environmental solutions. However, the lack of definite policies and buy-in of politicians, and the presence of corruption and competing interests, halted these efforts.

Health security is also about reducing vulnerability to health threats at individual and collective levels and investing in health emergency and disaster risk management.

Box 13. Establish a national network of reference labs in Lebanon

The Ministry of Public Health in Lebanon is highly committed to re-establishing the central public health lab's various functions (including disease prevention, control and surveillance; and reference and specialized testing and drug quality control), and is currently engaging with WHO on how to execute the task by adopting the decentralized model of the central public health lab and formalizing and expanding on the roles and responsibilities for several reasons. This approach is based on the fact that no one institution has the capacity to support the entirety of the country's public health laboratory programme. This precludes apportioning central public health lab functions to a central institution. With the current crises and financial restraints, the priority must be in utilizing and strengthening services already in place and implementing improved governance. Most important is the huge financial burden involved in securing funding to establish a single entity with all necessary equipment and staffing. For the proposed implementation process, public, private and academic laboratories will be officially designated as reference laboratories and engaged through a formal framework of collaboration with each other. This national network of reference labs and the Ministry are to carry out public health laboratory testing and other core duties of the central public health lab. The Ministry will take a supervisory and coordinating role over the system. The decentralized model proposed offers the Ministry the choice of the most suitable capacities where they currently exist and the ability to monitor and review these capacities in five-year cycles. The proposed model provides a novel flexibility in maintaining a level of quality of laboratory services that is in line with the needs and resources of Lebanon.

The vision of the network of reference labs is to provide high-quality public health laboratory testing that will contribute to the overall health of the country.

The mission of the network of reference labs is to provide high-quality laboratory testing with the capacity to detect, assess, notify and report all public health events in the country. The network of reference labs will also strive to strengthen and maintain these capacities and develop new capacities for public health response.

The public health testing activities planned to take place for Lebanon include:

- Communicable diseases of public health importance (bacteria, viruses, parasites).
- Drug quality control testing.
- Food and water testing.

The government of Lebanon recently issued a national law establishing the LDA, but the implementation legislation for this law is not yet developed. Moreover, the current legislation allows for significant overlap in the mandates of various ministries, especially in terms of food and water safety and monitoring.

The proposed structure of governance is to be considered a transition mechanism to ensure public health functions of the central public health lab, awaiting enactment of the LDA and revision of the Ministry organigram and legislation governing the central public health lab. The proposed structure is in harmony with the international and WHO recommendations and focuses on functions and performance rather than on premises and structures, and it exploits the potential of a well-established public-private partnership in the country.

Awaiting review of the current laws and enactment of the LDA, the governance structure proposed is as follows:

- National steering committee for the network of reference labs will be created by a Council of Ministers decree to oversee and facilitate coordination between the various reference laboratories involved in public health risks monitoring, preparedness and response.
- The Ministry will establish a network of reference labs coordination unit. The unit will be

headed by a coordinator, and supported by data management staff, including at least one staff member with a background in public health.

5. Health promotion and disease prevention

Pre-2020 situation and post-crisis meltdown

The commitment or the Ministry to "health for all" was expressed through the initiation of many population health initiatives to promote the public's health and well-being, including providing refugees with health promotion and disease prevention awareness and services. The backbone for health promotion and disease prevention and non-communicable diseases targeted programs have been integrated within the primary health care network. These public health programmes focus their activities on promotion and prevention, outreach activities and case management including early detection, treatment and follow-up on cases. Mother and child care, including immunizations and reproductive health measures, has always been an integral part of primary health care. The implementation of these initiatives was supported by the presence of proper infrastructure and health human resources, but mostly benefited from international financial support. Many of the non-communicable diseases targeted programmes are supported by the chronic disease medication programme managed by the Young Male Christian Association (YMCA) and financed by the Ministry of Public Health, which was introduced in 1993 covering the distribution of chronic medication at a wide network of primary health care centres (YMCALebanon). Additionally, the Ministry commitment to achieving the Millennium Development Goals enhanced its efforts on improving the social determinants of health, community engagement and enhanced social mobilization for health which were included, for example, as accreditation requirements for primary health care centres (Walid Ammar, 2015; El-Jardali and others, 2017).

As a result, Lebanon has proven to be one of the few countries to achieve the Millennium Development Goal 4 (reduce under-5 mortality by two thirds) and Millennium Development Goal 5 (reduce maternal mortality by three fourths), landing among the only 45 and 19 countries, respectively, to achieve those targets. Where Millennium Development Goal 4reached 9.6 per 1,000 live births in 2018 (MoPH, 2019d) and Millennium Development Goal 5 reached 25 per 100,000 live births in 2010 (MDGMonitor, 2016) and decreased further to reach 13.8 in 2019 (MoPH, 2019d). These achievements would not have been possible without appropriate tools and targeted programmatic interventions led by the Ministry and in collaboration with health centres and hospitals. The epidemiological surveillance and the safe motherhood and maternal death surveillance, in addition to EPI, were key interventions along that line.

The Lebanese population underwent an epidemiological transition and reached a relatively high prevalence of chronic diseases, where 55 per cent of the population is obese, 14.5 per cent is diabetic and 35 per cent has hypertension, all of which are rooted in similar risk factors. Cancers and cardiovascular diseases are the top causes of death in Lebanon and are continuously increasing. Lebanon even ranked the highest incidence of cancer among the Arab countries. This is partly due to insufficient risk prevention and health promotion measures, and the fact that non-communicable disease programmes often suffer from shortages in qualified staff and challenges in procuring medication and diagnostics, conditions which were exacerbated by the economic crisis since 2019 (MoPH, 2019e; Osman, 2017).

A. Pillars and Subpillars

Pillar 5.1 Various programmes of the Ministry of Public Health

Subpillar 5.1.1 Tuberculosis programme

The national tuberculosis programme was established in collaboration with WHO in 2002 (MoPH, 2017c). It oversees tuberculosis case management from reporting to testing to treatment, and to the monitoring of treatment success rate. The programme provides patient support through directly observed treatment and video observed treatment, as well as contact screening. It also offers preventive treatment for latent tuberculosis cases in high-risk groups and active case management in vulnerable populations.

In the context of the current crisis, the programme is working on enhancing community outreach, including providing drugs to patients at home when necessary. Campaigns were organized to highlight the importance of continuing tuberculosis treatment during the COVID-19 pandemic, and bidirectional testing for tuberculosis and COVID-19 at the main tuberculosis centre is being performed, while expansion to other centres is planned. The programme also conducts awareness and screening campaigns in primary health care centres, and currently a pilot study is underway to engage civil society in tuberculosis activities.

The success of the programme was shown mainly by reaching the national strategic plan targets set for 2021 for the proportion of pulmonary tuberculosis cases confirmed by bacteriology (target 85 per cent), and treatment success rate among new and relapse cases in Lebanese citizens and refugees (target 90 per cent). Also, success was demonstrated by the continuous availability of drugs and medical supplies, and the free access to laboratory and diagnostic services for all presumptive tuberculosis cases. Despite some challenges in implementation, the surveillance system software was updated to cover for tracking cases and drug management.

Nevertheless, many challenges still face the programme. There was a noted drop in tuberculosis notification in the different population subgroups over the past two years. This could be explained by the consequences of the economic crisis and the COVID-19 pandemic such as the increase in poverty rates, the barriers in accessing health services, the changes in health seeking behaviours and migration trends. These factors have potentially led to missed tuberculosis cases and to delays in tuberculosis diagnosis and more severe cases, and thereafter to an increase in tuberculosis transmission in the community. Also, there was low bacteriological confirmation in extra-pulmonary tuberculosis cases, reflecting low referral of extra-pulmonary specimens to be tested at the national lab. Noted as well was the low bacteriological confirmation in tuberculosis cases in persons below the age of 14 (diagnostic interventions previously not covered). A critical challenge exists regarding the lack of financial support and the absence of vacant beds for advanced tuberculosis cases that require admission to the intensive care unit. In addition, just as in many Ministry units, the understaffing of the programme, especially in key positions such as physicians and nurses, presents a threat to many activities. Moreover, a major challenge facing tracking treatment success rate is the lack of trans-border communication to ensure treatment continuation and to reflect the treatment outcome correctly. Obstacles also exist concerning the systematic screening of migrants at entry points, and that of prisoners and vulnerable members of the population, and compliance with treatment.

Subpillar 5.1.2 National AIDS programme

The national AIDS programme takes an integrated approach to containing the HIV/AIDS epidemic through promoting prevention, limiting the spread of HIV and sexually transmitted infections, reducing the health and social impact of the epidemic, assisting in counselling, providing care and treatment to people living with HIV/AIDS, reducing the vulnerability of high-risk groups to HIV infection, alleviating the impact of HIV infection on the patient and their families and advocating for stigma-free and discrimination-free environments grounded in equity and human rights.

The programme was issued in 1989 and has been ensuring the rapid and free provision of drugs for infected and eligible patients, and access for high-risk groups, since 1997 (MoPH, 2022c). Today, almost every HIV patient in Lebanon is receiving proper treatment. The programme works in a multisectoral

approach, networking with other ministries, the private sector and NGOs while ensuring linkages with regional and international agencies.

In the context of the current crises, in addition to ensuring human rights and non-discriminatory aspects, the programme advocates for increased commitment by the government in policies, visibility and resource mobilization. It also calls for increased commitment by professional groups, employees and workers. The programme succeeded in initiating partnerships with religious leaders and conducted several awareness sessions for uniformed forces and provided care and support for affected prisoners.

However, the programme is still facing several challenges, the most severe of which is a shortage in financing, in addition to lack of capacity due to high staff turnover related to job insecurity. The high burden inflicted by the crisis, including that of the refugees, in addition to the insecurity in drug availability, pose serious threats to the continuation of the programme. The difficulty of access to vulnerable and marginalized population groups, potentiated by social and legal challenges, also represents another barrier to continuation of access.

Subpillar 5.1.3 Sexual and reproductive health programme

The main purpose of the sexual and reproductive health programme is ensuring and improving the provision of sexual and reproductive health services to all and especially to vulnerable populations through reinforcing the capacity of national primary health care centres and civil society organizations. This programme's services are accessible to the public through 263 primary health care centres, 82 dispensaries and 14 public hospitals, where they provide a set of preventive services. These services include ensuring maternal and newborn health through a maternal package of antenatal care, postnatal care and ultrasound visits; screening for gynaecological cancers; awareness, counselling and educational initiatives on contraception methods and family planning; and community outreach campaigns on serious reproductive health issues. Additionally, the sexual and reproductive health programme monitors the surveillance and analysis of the trends of live births, normal and caesarean deliveries, and maternal and perinatal mortality.

While the COVID-19 and economic crises diminished the affordability and accessibility of the public to sexual and reproductive health services in all facilities, the uptake of such services has been on the rise since 2020. This rise is explained by the increased demand for the essential services provided at public primary health care centres due to the worsening economic situation. Another factor is the continuous efforts of the Ministry to partner with national and international agencies and NGOs to ensure the sustainable delivery of sexual and reproductive health services at the primary and secondary health care levels. Among these efforts is the Ministry partnership with the Lebanese Red Cross to conduct national outreach campaigns which spread awareness and enhance the utilization of these services in primary health care centres. Financial accessibility to sexual health and reproductive health services was also improved through the long-term primary care subsidized protocol, which offers an affordable or even free package of services including antenatal and postnatal care visits, ultrasound check-ups and some blood tests. Moreover, a collaboration between the Ministry and UNFPA resulted in an increase in the number of midwives available at a number of primary health care centres, which also enhanced the uptake of sexual and reproductive health services by the public in these facilities.

However, this Ministry-UNFPA initiative was disrupted. This might lead to a drop in sexual and reproductive health service provision. The sexual and reproductive health programme also faces several barriers which hinder its efforts such as the shortage of human resources at the primary health care level, and the hesitancy of health care institutions to share data. In addition to that, the programme has been overwhelmed by the surge of reproductive health problems which accompanied the Syrian refugee influx,

along with the worsening access to antenatal care and inadequate family planning. These phenomena are exacerbated by the public's lack of awareness on the sexual and reproductive health services available in primary health care centres.

Subpillar 5.1.4 Mental health programme

In Lebanon, mental health indicators in the most recent global school health survey were alarming. About a third of the students had felt so sad or hopeless almost every day for two weeks or more in a row that they stopped doing their usual activities, 15 per cent had seriously considered suicide, 12 per cent had made a plan, and 14.2 per cent had attempted at least once. Alcohol consumption was also high, and so were risk factors to mental health such as bullying.

However, only 9.8 per cent of people with a lifetime mental disorder in Lebanon seek care, due to a low perceived need for treatment among the majority. Among those who do seek treatment, substantial delays ranging from 6 to 28 years between the onset of disorders and onset of treatment had been reported. These delays are burdensome to persons and to the overall health system, because early assessment and intervention can prevent mental health conditions progressing to chronic and disabling ones. The burden of mental disorders also extends to other diseases as it can worsen the outcomes of comorbid non-communicable diseases such as cancer, heart disease and diabetes. This is particularly alarming for Lebanon, where non-communicable diseases account for 91 per cent of all deaths.

Misconceptions and stigma associated with mental illness within the Lebanese community are additional barriers to seeking help. For instance, a study assessing the knowledge, attitude and behaviours towards mental disorders among a nationally representative sample of the Lebanese population which was conducted between November 2017 and May 2018 showed that public stigma toward mental illness was found in 67.8 per cent of the participants.

As revealed by the 2014 assessment of the mental health system in Lebanon, all components of the system were evidently limited with no governance structure or legal framework for mental health and limited availability, accessibility and affordability of services. The increased demand for health services following the Syrian crisis, including mental health services, widened the already existing gap in such services and exacerbated the inadequacy of the limited mental health system in the country to respond to the growing needs.

To address these gaps, developing a sustainable national mental health system became increasingly urgent. The Ministry opted to commit to a long-term vision for sustainable mental health reform that looks at mental health comprehensively, actively building on the humanitarian crisis as an opportunity to launch a system reform and to develop a national policy in the form of a comprehensive strategy with a clear vision. Three strategic steps to concretize this long-term vision were taken:

1. The establishment of the National Mental Health Programme within the Ministry in May 2014, with the support of WHO, UNICEF and the International Medical Corps (MoPH, 2022d). The NMHP was assigned the role of leading the reform of the mental health system in the country.
2. The development and launch in 2015 of the first national strategy for mental health covering the period of 2015 to 2020 to guide the mental health reform. The strategy's mission is: "To ensure the development of a sustainable mental health system that guarantees the provision and universal accessibility of high-quality mental health curative and preventive services through a cost-effective, evidence-based and multidisciplinary approach, with an emphasis on community involvement, continuum of care, human rights and cultural relevance". It aimed to do so through achieving a set of

goals in five domains of action mirroring the system building blocks: 1) leadership and governance, 2) service provision, 3) promotion and prevention, 4) information, research and evidence and 5) vulnerable groups. The strategy was built in accordance with the comprehensive mental health action plan 2013–2020 and took into consideration the human rights approach promoted by international treaties, covenants and conventions in this field. The priorities are aligned with available evidence and respond to the main insufficiencies of the mental health system.

3. The establishment of a national coordination mechanism for the mental health and psychosocial support response to the Syrian crisis, the Mental Health and Psychosocial Support Task Force, with the aim of ensuring an effective, coordinated and focused inter-agency response to the mental health and psychosocial support needs of persons living in Lebanon, with a special focus on persons affected by the Syrian crisis and vulnerable Lebanese, in line with the national mental health strategy of Lebanon.

Finally, it is worth noting that the reform implementation has been ongoing through a collaborative governance approach based on cooperation with other ministries, the private sector and local and international NGOs in order to achieve the national mental health goals.

Subpillar 5.1.5 Expanded programme on immunization

The EPI is funded and governed by the Ministry in collaboration with UNICEF, the Ministry of Social Affairs and several NGOs. Through this programme, children can get vaccinated in any primary health care centre against poliomyelitis (OPV); diphtheria, tetanus and pertussis (DTP); measles, mumps and rubella (MMR); hepatitis B; and Haemophilus influenzae. While EPI has been showing remarkable results in the past years, these results are recorded mainly in central areas where remote regions are often left uncovered, and the significant immunization coverage done by private physicians should be considered (Walid Ammar, 2009).

In 2021, EPI recorded a drop in the levels of immunization in all age groups and especially in children below 2 years of age in comparison to the immunization levels during 2019 and 2020. As this decrease puts children at risk of contracting life-threatening diseases, the Ministry conducted a root-cause analysis in 2021 to identify and address the gaps within the routine immunization processes causing this decline in immunization. These causes can be divided into social, environmental, health system, regulatory and ICT factors. The social factor included the lack of awareness, incentive, financial resources and public trust in vaccines and the health system. The environmental factors that influenced immunization were mainly access problems regarding transportation, lockdowns and road accessibility, financial restrictions and availability of promotion initiatives and monetary incentives. In terms of the health system, there is the lack of cooperation of private physicians; the multiplicity of programmes; flow obstacles, or the fragmented follow-up between the different levels of care; and the overcrowding at the primary health care centres, the long waiting hours and the inadequate visiting hours, all of which are caused by shortages in staff and vaccines. Some policies and regulatory procedures also contributed to the dropout in immunization. These regulatory shortcomings included an unregulated vaccine market, the absence of a unified national calendar, a unified procurement system and a unified patient identification number, in addition to the shift from routine vaccination towards COVID-19 vaccination in the past couple of years. The final major factor which contributed to the dropout in immunization is the ICT system, where the primary health care centre vaccination platform, mobile EPI registry application (MERA), does not indicate all the required doses for drop-out and allows only the retrospective entry of data, which increases the risk of forgetting to input cases and document vaccine doses. Additionally, the ICT system lacks live data, reminders and reliable data production.

Consequently, the Ministry outlined several recommendations to address the identified gaps. At the ministerial level, the Ministry should prioritize the issue of the decrease in vaccinations with a special focus on the areas showing the highest dropout in child vaccination. It should create incentives for primary

health care centres that follow up on vaccination records, work on improving the ICT system to minimize errors and collaborate on social media campaigns to spread awareness and the culture of vaccination in the public. Regarding the ICT system, a dashboard of the stock and immunizations should be created, and the collected data should be cleaned for proper utilization in decision-making. Additionally, the ICT system should be redirected to focus on enhancing the children's immunization processes through school and day-care centres instead of the health care referral system, and dropout process and protocol should be revised to prevent missing data. As for the primary health care system, it should boost the daily identification and regular follow-up on child immunizations and establish a finding called "no show-up" to help learn the reasons for no-shows.

Pillar 5.2 Health literacy

The improvement of the public's health status depends not only on the availability of services, but also on the population's social determinants of health including poverty and literacy. This explains why the lowest health indicators are recorded in the poorest areas with low educational levels (Walid Ammar, 2009, 2015). Studies emphasized the importance of patient education in achieving better health outcomes, more effective health initiatives and better-informed self-management of illnesses (Osman, 2017). Aside from patient health education, the public's knowledge of the availability of services is also a critical factor in disease prevention. This necessitates the strengthening of clear communication on the available service packages (Eid, 2019; UNHCR, 2017).

Planning and implementing screening and awareness campaigns, and expanding existing ones on different types of cancers and other non-communicable diseases and their risk factors, is an efficient way to reduce the rates of these diseases (Walid Ammar, 2015). Consequently, the Ministry organizes a number of annual national campaigns which aim to increase the screening and early detection of a number of diseases while expanding the public's awareness on the prevention, identification and treatment of these diseases. This includes annual campaigns on breast cancer, chronic obstructive pulmonary disease and diabetes. The success of these initiatives can be utilized to initiate screening and awareness campaigns targeting other diseases such as other types of malignancies, cardiovascular diseases and obesity. Also, the chronic disease medication programme allows the screening and early detection of chronic diseases at primary health care centres and the enrolment of the patient in the programme to receive treatment early on, where the medications are distributed through NGOs and public health care centres. Moreover, other programmes such as EPI, the national AIDS programme, the tuberculosis rogramme, and the sexual and reproductive health programme provide screening and diagnostic services and conduct periodic national campaigns to enhance testing, early detection and counselling activities. In addition, realizing the cost-effectiveness of primary prevention of non-communicable diseases and their common risk factors, the Ministry launched the non-communicable disease preventive programme, which educated the public on preventive measures and health promotion methods. However, the programme's achievements were insignificant due to the limited commercial capabilities of the Ministry in comparison to those of the industries that advertise for harmful lifestyles and products.

The school health programme is an initiative organized through a collaboration between the Ministry, WHO, the Ministry of Education and Higher Education and the Order of Physicians. It aims to ensure a healthy school setting, enhance health awareness and education, and promote students' health. All the programme's activities are aligned with the 2010 national school health strategy, which was endorsed by the National School Health Committee that in turn consists of relevant ministries, United Nations agencies, NGOs and academic institutions. In terms of healthy school settings, the School Health Programme ensures the compliance of the schools with standards relating to proper sanitation, cleanliness, quality of water, ventilation and safety. It also oversees the dietary products sold in the school shops. Through this programme, students undergo immunization rounds and annual medical check-ups for the early detection of any health issues. These medical examinations are based on a school health inspection guidebook and

are performed by trained school doctors who refer students to nearby primary health care centres if any health problem is detected. Additionally, health education and activities on topics such as health risk behaviours in youth, reproductive health and environmental issues are incorporated into the curriculum and extracurricular activities. Awareness campaigns and workshops are also provided to school health educators and parents to follow up on students' health issues and promote healthy behaviour. In 2006, a five-year strategic plan resulted in the development of the school-based oral health programme, which extended over a period of several years. During this programme, dental check-ups were conducted in public schools, students practised mouth washing at school premises and were given mouth hygiene products, and teachers were educated on oral hygiene and dental care to relay the knowledge to their students (Walid Ammar, 2009; WHO, UNICEF, UNESCO, UNAIDS, & CDC, 2017).

Pillar 5.3 Non-communicable disease best buys

In the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020, which was endorsed in May 2013 and updated in May 2017, there are 88 interventions, including overarching/enabling policy actions and the most cost-effective interventions that were considered the "best buys". No assessment has been done regarding their applicability to the Lebanese context, but the Lebanese Non-communicable Disease Prevention and Control Plan (2016–2020) will be revised in the coming year and will be aligned with the WHO global action plan and its best buys.

Lebanon has a long way to go in achieving the best buys, as the Non-communicable Disease Prevention and Control Plan was never implemented. Also, the system lacks a governance structure that empowers and organizes the coordination between the different stakeholders. Additionally, the current economic crisis has made health coverage by public funds almost non-existent, and along with the COVID-19 pandemic it has strained the health system and particularly the public health system due to the public's inability to afford private services, while simultaneously increasing the burden of non-communicable diseases in the Lebanese population. The current crisis might also shake the buy-in and commitment of officials to health promotion and disease prevention, as they might instead prioritize more urgent issues (Ministry & WHO, 2016). Consequently, Lebanon is one step behind in achieving objective 4 of the WHO global action plan, even though the health system used to provide adequate and timely treatment of non-communicable diseases like diabetes, malignancies, and cardiovascular and respiratory diseases (WHO, 2017b). Nevertheless, it is in these critical times, when health care is inaccessible, that strengthening health promotion and disease prevention policies and interventions is needed most, as this preventive approach is more cost-effective than the curative one.

Several factors of the health system in Lebanon are already present and facilitate the implementation of the Non-communicable Disease Prevention and Control Plan and consequently the implementation of the best buys, such as the established multisectoral collaboration of the Ministry with other health and non-health stakeholders in reducing the prevalence of non-communicable diseases. Other facilitators include the continuous provision of trainings by the Ministry for the health care workforce on non-communicable disease prevention, which aim to increase patient self-care prior to the development of non-communicable diseases, the provision of subsidized chronic disease medications and primary health care service packages, and the implementation and development of non-communicable disease screening campaigns. In addition, the Ministry has been executing a number of health promotion and disease prevention programmes and initiatives which have contributed to the improvement of population health indicators, health literacy, awareness and health-seeking behaviour. However, these programmes are not well-coordinated, and the initiatives are done on an ad hoc basis instead of an evidence-based one. Moreover, even prior to the crisis, the programmes had been suffering from shortages in financial and human resources and were not always capable of procuring the needed equipment and medications or of reaching the most vulnerable and marginalized populations, which makes it much harder to achieve that in the current context (Ministry & WHO, 2016).

Many efforts were previously made in line with achieving the best buys, but they were often not brought to effect. For example, Lebanon has been a signed and ratified party of the Framework Convention on Tobacco Control (FCTC) since 2005, but limited legislative progress has been achieved since then (Walid Ammar, 2009). It took six years to issue the tobacco law no. 174, which bans smoking in public places and dictates the labelling, packaging and advertising of tobacco products. Even after implementation, the law was weakly enforced (Walid Ammar, 2009, 2015). To help reduce the use of harmful products, the WHO best buys call for increasing the taxes on all tobacco, nicotine and alcohol products, which is yet to be achieved in Lebanon (WHO, 2017b). Such policies can not only promote healthy lifestyles but also help finance health care services through the additional tax money collected. Additionally, while other ministries collaborate with the Ministry of Public Health in promoting public health, their contribution should be enhanced and better monitored by the Ministry for optimal results. For instance, the consumer protection code number 659/2005, which puts the Ministry of Economy and Trade in charge of assessing the quality and safety of all services and products, and especially alimentary ones, could be adjusted to limit the addition of salt in these products (Walid Ammar, 2015). This could also be enforced by the national central public health lab, which conducts chemical and safety analysis on alimentary products. Moreover, the Ministry collaborates with the Ministry of Education and Higher Education in implementing the school health programme, through which awareness campaigns on proper nutrition and physical activity can be incorporated and promoted (Walid Ammar, 2009; WHO and others, 2017).

B. Post-economic meltdown situation

With the current economic crisis, which became mostly visible in October 2019, the public's ability to access health care services and medications has been severely hindered. The crisis impeded the distribution of expensive drugs for cancer and other diseases due to a speedy increase in the rate of the dollar and the unavailability of alternatives to some imported drugs (Isma'eel and others, 2020), and it has disrupted health services due to the high burden of hospital care on government and household budgets. In addition, other emerging barriers such as transportation difficulties and COVID-19 lockdown management protocols have been limiting the public's access to health care services (WHO, 2020). These phenomena increase morbidity and mortality related to complications, which in return increase the strain on the health system and present an urgent need to enhance prevention and health promotion initiatives through educational campaigns and spreading public awareness on non-communicable disease risk factors. These efforts should be coupled with strengthening and expanding existing disease prevention and control programmes, including early diagnosis and management of different types of cancer, diabetes, obesity and cardiovascular and pulmonary disease (Walid Ammar, 2015; WHO, 2018), especially as an association has been found between chronic diseases, aggravated severity of infection and high mortality rates due to COVID-19.

The complex crisis has direct and indirect repercussions on population needs and health indicators. More than half of the Lebanese population is in health need since mid-2021, with surveys showing a growing number of regions reporting high and severe poverty levels. Lebanon was recording improved population health indicators up until 2016 when the maternal mortality rate had dropped to 16 per 100,000 live births and 5.1 years were added to life expectancy at birth, but population health since has been deteriorating, as evidenced by the tracer indicators monitored. Under-5 mortality rates recorded an increase from 9.4 to 14.5 per 1,000 live births between 2018 and 2020; maternal deaths reached 47 in 2021, an increase from 18 in 2019, with more than half of the deaths associated with COVID-19, and excess mortality of 15.4 per cent in 2020 and 34.4 per cent in 2021 were recorded mostly due to non-COVID-19 illnesses. Additionally, since 2019, vaccination coverage is estimated to have dropped by at least 30 per cent, with a higher percentage drop among the new vulnerable groups. Referrals to mental health services have increased by around 50 per cent and suicidal behaviour increased fourfold. In terms of malignancies, more than 8,000 new cases are identified each year, with five cancer types accounting for 73 per cent of the overall Ministry spending on cancer drugs.

Promoting population health should target regions with health indicators below the national average, not only by enhancing access to health services but also by improving the social determinants of health including poverty, unemployment and illiteracy (Walid Ammar, 2015).

WHO created a mechanism to follow some contingency indicators since 2019; figures 23–26 show some of the most important trends and changes in specific health indicators.

Figure 23.Number of children under 5 receiving routine vaccinations, 2019–2022

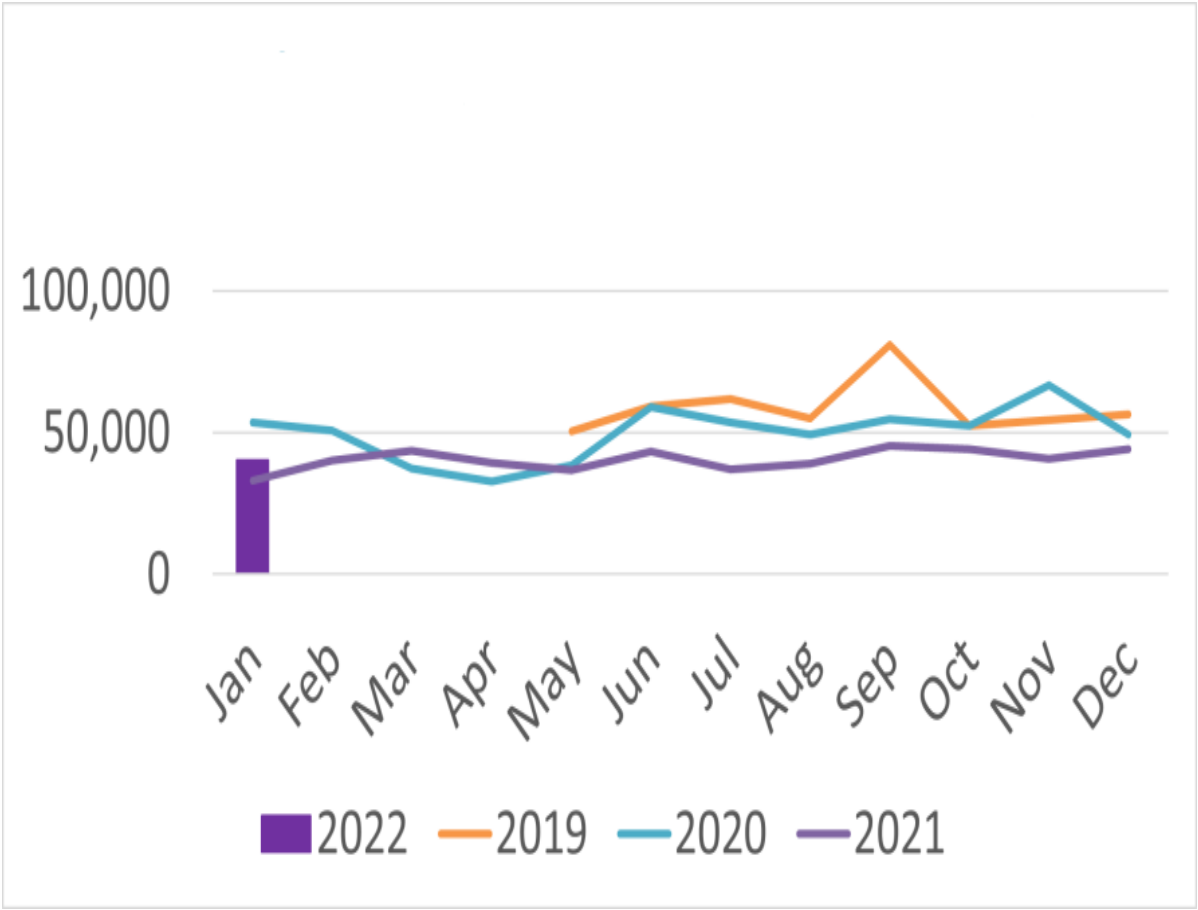


Figure 24. Total number of neonatal deaths, 2019–2021

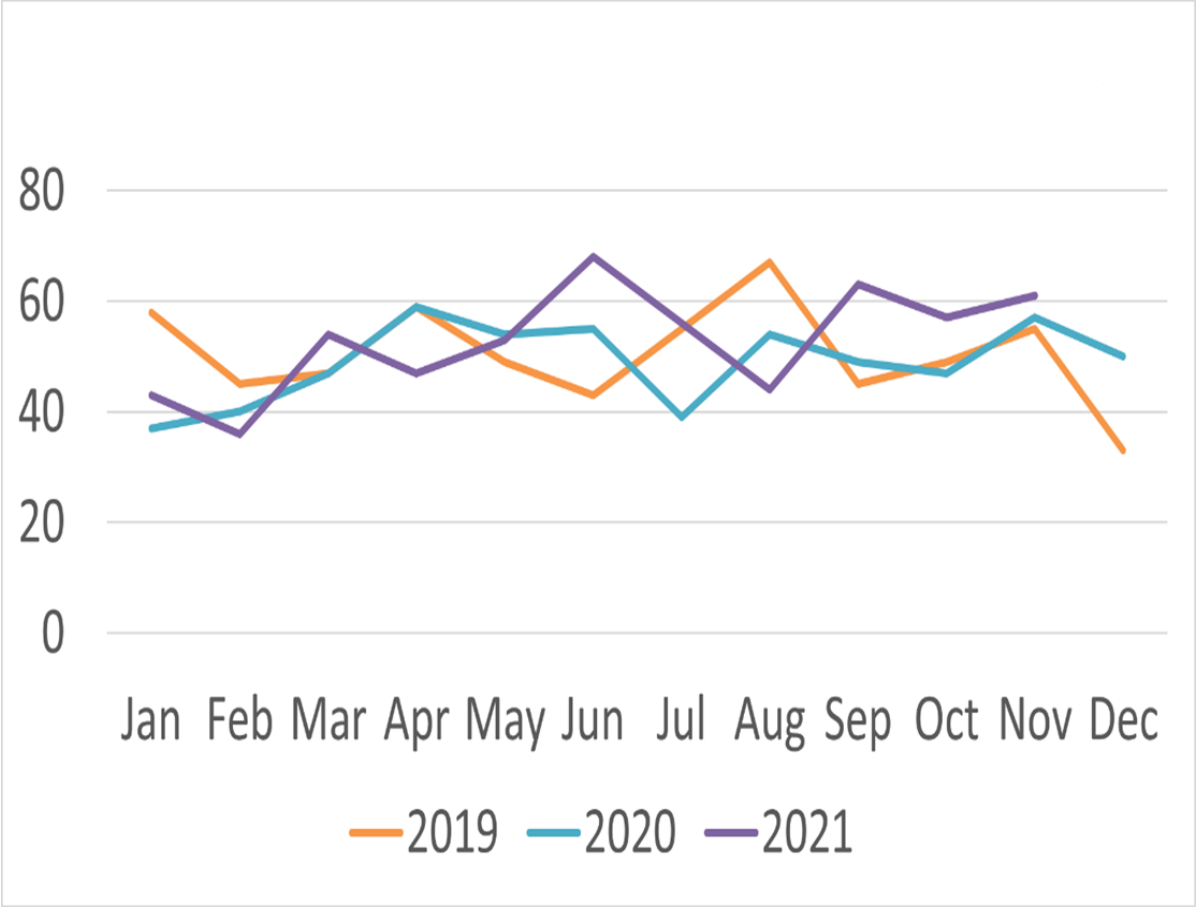


Figure 25. Total number of newborns with low birth weight, 2019–2021

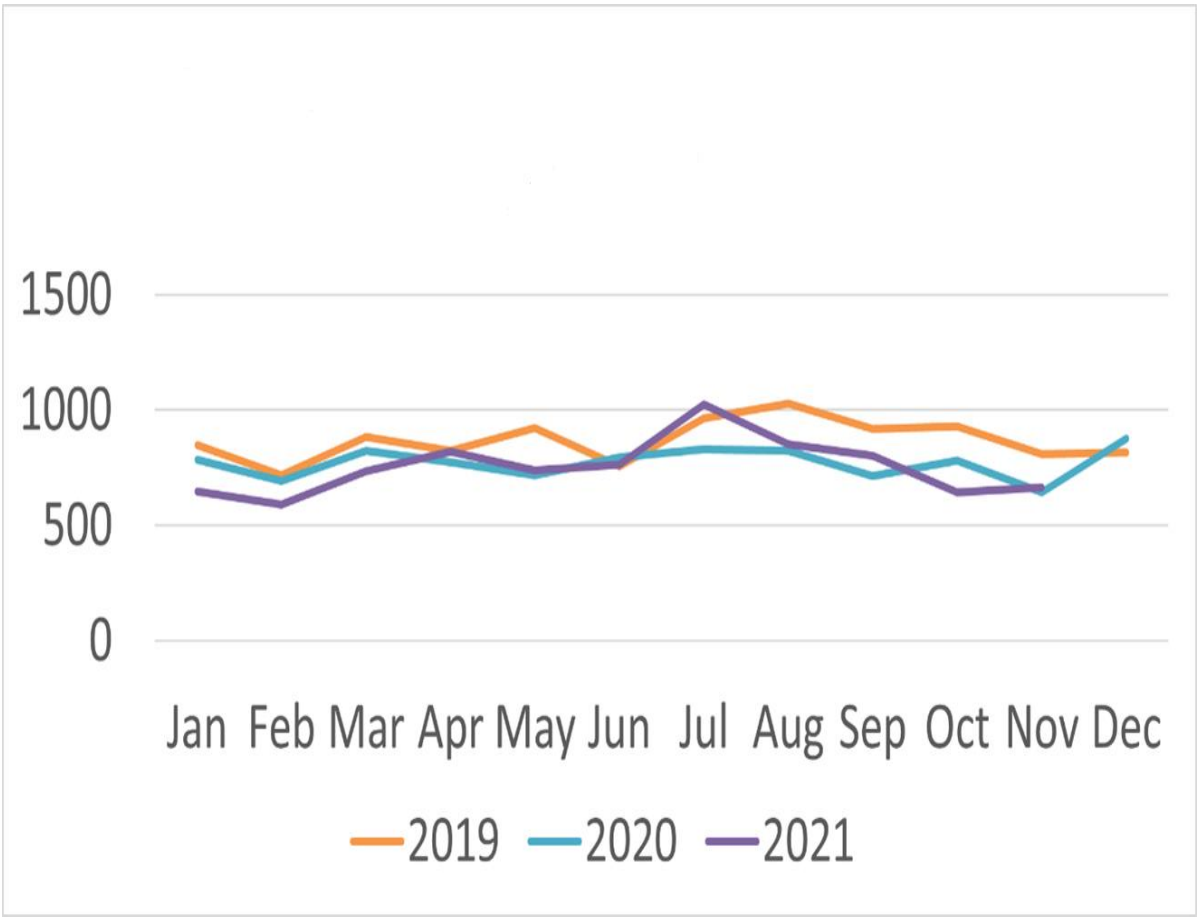
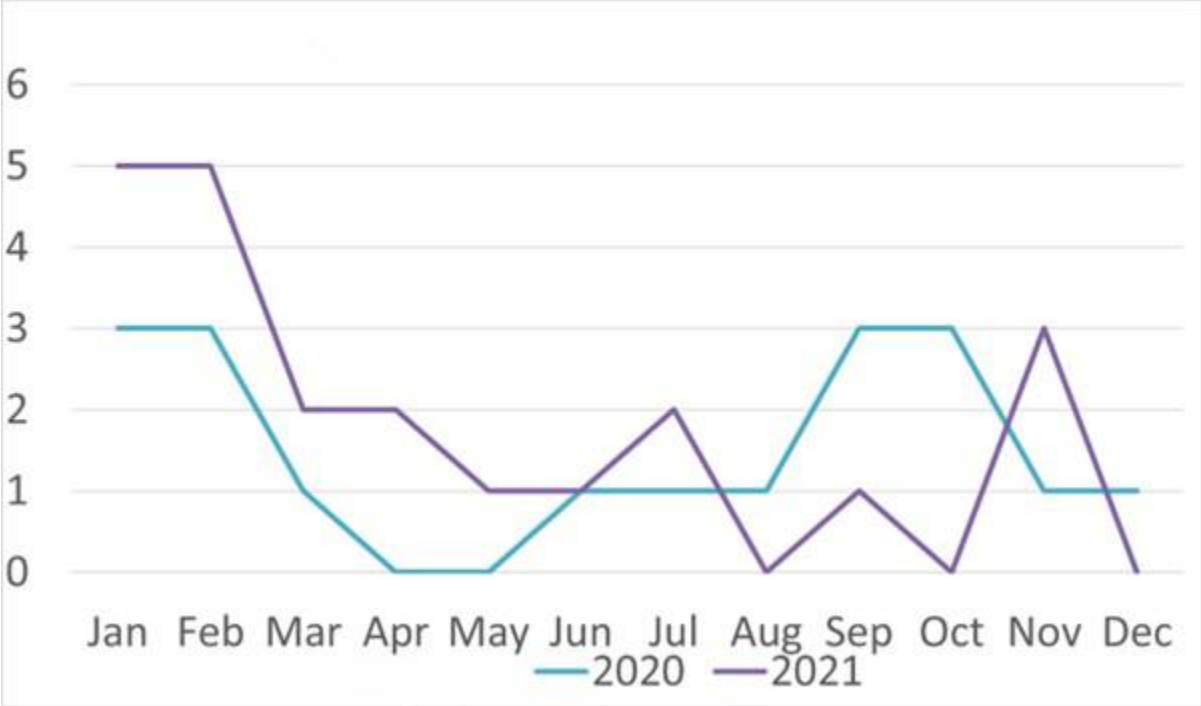


Figure 26. Total number of maternal deaths, 2019–2021



The programmes mentioned above are led by the Ministry of Public Health and the United Nations, and are significantly supported by NGOs, which also conduct independent health promotion and disease prevention campaigns and services (ESCWA, 2021; Isma'eel and others, 2020). In addition to playing a major role in health promotion and disease prevention, NGO-led primary health care centres support the health care system by providing outpatient care, conducting surveys, organizing trainings and providing essential medications to a large number of primary health care centres, which ensures the continuous provision of services and medications to patients (Walid Ammar, 2009). In order to enhance these public health programmes, there is a need to mobilize the assistance of NGOs and the international community, as many of them provide special health programmes for maternal and child health, malnutrition and other health topics. Additionally, municipalities should be incentivized to play a bigger role in health promotion and disease prevention through initiatives like awareness campaigns as was seen during the COVID-19 pandemic. It is necessary necessity to engage in policy dialogues with the Gavi Alliance and the global fund to receive funding for increasing vulnerable population's access to vaccines within the universal health coverage vision. Scaling up the availability and accessibility to medications and essential health care services should be applied to all non-communicable diseases so that any person suffering from a non-communicable disease has access to medication and treatment (ESCWA, 2021; Isma'eel and others, 2020). The services should be expanded and sustained at the level of primary health care facilities to improve and accelerate the detection, prevention and treatment of these diseases. Mental health, psychosocial support, and substance use services should also be made more accessible and expanded to include more evidence-based intervention packages like the WHO Mental Health Gap Action Programme (mhGAP).

6. Health workforce

Pre-crisis situation

The Lebanese health workforce is highly trained and qualified but needs further planning and organization in terms of supply, distribution, retention and continuous education. The oversupply of physicians, with a high proportion of medical specialists compared to general practitioners, has marked the Lebanese health

care system. Although many efforts to improve the skill mix in favour of nurses were made and proved to be successful, issues such as dual practice of medical doctors and nurses, and the understaffing of the public sector, still need to be addressed (Asmar & Yeretzian, 2019a).

Incapable of effectively influencing the supply of medical practitioners, the Ministry focused over the last three decades on increasing the number of nurses, which resulted in a clear rise in the young nursing workforce. Nonetheless, there is still a shortage of nurses in the primary and tertiary health sectors that was exacerbated by the recent crisis. This is mainly due to chronic brain drain and low retention rates, added to the short career life of nurses related to social and cultural issues. The low retention is mainly caused by low salaries, limited benefits, poor work environment and restricted opportunities for professional development (Alameddine and others, 2017).

Discrepancies were recorded between the number of active nurses and the number of eligible ones registered in the Order of Nurses. This is due to the absence of a health workforce information system to track health care providers' career paths and practices.

There is still a need to upscale nursing educational programmes and promote enrolment in private and public universities through scholarship opportunities. Particular attention should be put on sustaining the funding of nursing training through existing partnerships between the Ministry and the Lebanese University's faculty of health sciences (Alameddine and others, 2017; Walid Ammar, 2015).

As for physicians, surveys from 2009 show that 38 per cent of them work in the public sector including in the Ministry and public funds, 29.9 per cent are in hospitals and primary health care centres, 25.4 per cent are in academia and 1.87 per cent are in insurance agencies and other organizations. These exclude private ambulatory care (private clinics) (WHO, 2009). However, the economic crisis, the devaluation of the Lebanese pound and the increased workloads after the influx of high numbers of Syrian refugees have resulted in declining retention rates of doctors, and especially in public hospitals (Isma'eel and others, 2020).

Health care professionals show interest in engaging in continuing medical education activities, which are mainly taking place in the private sector where there are sufficient financial resources (Jaana, Majdalani, Tamim, & Rahbany, 2018). These continuing education activities are supervised and rewarded by the Lebanese Order of Physicians.

More than 70 per cent of physicians are specialized and subspecialized, leaving only a small portion of general practitioners trained as family medicine practitioners. However, some specialties are still in shortage such as geriatric specialists, psychiatrists, emergency doctors and palliative care specialists (El-Jardali and others, 2017). Moreover, there is an inequitable distribution of doctors across regions and an uneven distribution of revenue, where around 17 per cent of the doctors drain more than 74.5 per cent of the total income of physicians in the country.

A significant number of physicians are registered in the Order of Physicians but are not practising. Some, especially non-Lebanese, are even practising illegally (WHO, 2009). The current economic crisis has also severely changed the numbers of the health care workforce, since it was accompanied by nurse layoffs, salary cuts and closures of many pharmacies, which caused an increase in migration of physicians and nurses.

The Syrian refugee crisis highlighted the shortage in human resources, especially in primary health care centres, to cover the needs of the increasing workload. With the economic crisis and the migration of skilled physicians, the health workforce presents a major problem to be dealt with in the coming decade.

Impact of crisis on health workers

Loss of human resources has been recorded at the central and district Ministry departments, which are functioning with less than 30 per cent of their original staff capacity. This diminished capacity severely affects the regulatory role of the Ministry and the sustainability of its programmes. Additionally, professional orders estimate that more than 40 per cent of physicians and 20 per cent of nurses have left the country. This has a direct negative impact on the quality and availability of health care services.

Post-crisis situation

Two national surveys were conducted during the development of the strategy, whose objectives were to contribute to a better understanding of the demographics of physicians and nurses in Lebanon during the current crisis by looking at a variety of settings in which they operate in Lebanon: hospitals, health centres, private clinics, primary health care centres and other settings beyond the health sector. The focus was on demographics, work environment, multiplicity of practice (for physicians), workload, career professional expectations including plans to leave the country, and estimation about income and incentives. The findings of the surveys should be used to help in developing human resources strategies for health care workers in Lebanon with a focus on production and retention.

The below is a summary of the findings from the survey of nurses:

Working conditions, work environment and workload

While some of the nurses acknowledged that they were being accorded the support that they required, notably during probation and orientation, others noted that gaps still exist, given the fact that both nurses and their supervisors are plagued by similar working conditions that at most times constrain the optimal execution of some duties, especially for nurses working at public hospitals. The lack of supervision was associated with the supervisor's insufficient competence and skills in managing personnel and giving instructions and appropriate feedback, and highlighted the importance of appropriate staffing for leadership positions. Nurses, regardless of their workplace or specialty, reported experiencing high workloads. The combination of the pandemic and the economic crises has reoriented many patients away from private hospitals towards public, which increased the workload on the already understaffed hospitals. Another factor associated with the increased workload was the clinical condition of the admitted patients, who were delaying or avoiding medical care due to the economic situation and COVID-19. Such patients often require special considerations and more time for treatment, which further increases the nurses' workload. Also, poor working conditions had been anchored by the shortage of medical practitioners such as doctors and nurses. Extended working hours due to high workloads were reported, and incommensurate compensation, which led to demotivation of the nursing practitioners.

Recent challenges faced by nursing practitioners

Due to COVID-19, the workload increased, and stress levels also doubled given that nurses were in the midst an emerging pandemic that they had never encountered before. Nurses noted that they were inadequately compensated and appreciated for their input and for ensuring balance was achieved during the time of the pandemic.

At the onset, the economic and humanitarian crises (following the Beirut Blast) have affected the nursing workforce in Lebanon, leading to an increase in the patient load with limited to no increase in the number of nurses, inadequate access to medication that had also been driven by constrained movement driven by infrastructural challenges and triggered by limited renovations. It is noted that some nurses quit their jobs mostly due to lack of motivation and inadequate appreciation. The lack of motivation affected nurses'

overall performance and their professional development. Nurses reported that before the economic crisis and before the country deteriorated, they used to have the enthusiasm to look and even pay for development opportunities such as workshops and training, whereas now this is the last thing on their mind.

Human resources turnover and shortages

The deteriorating work and country conditions are pushing the nursing workforce to emigrate without being replaced by competent experienced nurses, thus compromising the quality of care provided.

Reasons that push nurses to leave their current place of employment or exit nursing

The key reasons that trigger nurses to transition and exit their current occupation include inadequate compensation, incentives and benefits packages. Further, the high cost of living has led to diminishing returns for most medical practitioners, leading them to resort to alternative comparable employment (in terms of hospitals) and sometimes other countries in search of better opportunities as well as better employment packages. The long working hours forced them to leave inpatient settings and transfer to outpatient settings where work conditions might be less stressful, as shifts are generally shorter and typically do not require nurses to work nights, weekends or holidays. Nurses make these moves for the sake of their physical and mental well-being or for the sake of their families and being able to care for their children. The nursing job is not adequately appreciated, coupled with a lack of awareness of the positive contribution of the nursing role to the entire medical fraternity. It was also observed that whereas nurses invest a lot of effort that translates into long working hours, the compensation package awarded fails to compensate for the input.

Overall effects of work on health

The tedious work conditions have been reported to have detrimental effects on nurses' psychological, physical and mental health. In reported extreme cases, nurses lack comprehensive insurance packages, and thus they sometimes rely on personal savings to pay their medical bills.

Challenges that nurses face that can be identified as barriers

Key challenges that nurses face are related to lack of motivation and lack of job security. Other challenges are brain drain resulting in inefficiency in attending to patient issues, inadequate funding of health care services, economic crises that have a direct impact on nursing, unaffordability of services to patients and inadequate facilities such as medication and supplies that lead to suboptimal levels of patient care.

Opportunities to start over

Given the opportunity, most nurses would not pursue nursing as a career as a result of challenges that they have had to face. Some would have chosen the career but in another country, whereas others would have chosen it since they felt it was a job meant to make a difference.

Nurses' needs and expectations

From a bottom-up perspective, the key needs for nurses ranged from adequate compensation and incentives, work-life balance and adequate appreciation, to training and motivation. The salary adjustment was the main demand reported by nurses, to be able to keep up with the tough living conditions and the spike in prices. The need for appropriate retirement plans was also highlighted by nurses, given the fact that Lebanon lacks pension schemes for workers in the private sector. The issue of health insurance is also

a crucial issue for nurses; with the massive increase in costs for care and the nurses' salary devaluation, nurses are not able to afford care even at the hospitals where they work.

Feedback on dual practice

Respondents expressed positivity towards dual practice and noted that if they had the opportunity, they would engage in multiple practices just so that they could make ends meet. Others noted that since current laws do not permit dual practice, the best option would then be to migrate. A great proportion of nurses are alternating between two jobs in the hope of improving their income and sustaining their families, which is draining them and further exacerbating burnout.

Stress factors

The key stress factors are anchored by the economic situation, as nurses are unable to lead an optimal life due to the tough economic times. Stress among nurses is further aggravated by inadequate compensation, inequalities in compensation and poor working conditions. Nurses reported that they are suffering the most from the life stressors due to the compounded crises that have assailed Lebanon -- specifically, the economic and financial crisis, followed by COVID-19 and, lastly, the explosion at the Port of Beirut which made daily life a struggle starting among which are soaring poverty levels, salary devaluation, daily struggle to go to work due to the tremendous transportation costs and fear for their children's future.

7. Health information systems

A. Pillars and subpillars

According to its Health Strategic Plan for 2016–2020, and realizing the substantial role of an integrated health information system, Lebanon accessed WHO technical support to strengthen its health information systems and build its capacity to align with Ministry of Public Health strategic goals and the WHO Thirteenth General Plan of Work (WHO, 2021).

Pillar 7.1 Administrative information systems

Subpillar 7.1.1 Workflow management system

The Ministry started establishing a personnel management system in 1998, in addition to several systems that enable simple point-to-point electronic networking within the Ministry and referred to as a "star" network (WHO, 2014). These networks include the transactions and workflow management system, a one-stop shop system for administrative workflow and the professional licensing database established in 2005 (Harb & Abou Mrad, 2009).

Subpillar 7.1.2 Pharmaceuticals management systems

Internal Ministry ICT systems include the MedPrice information system, which monitors data on the prices, brand name, chemical formula, registration number and manufacturer and market agent details of all imported and locally manufactured medicines. Moreover, the drug distribution system and the drugs stock control system were established in the central drug warehouse, where the first manages the distribution of medications to critical patient cases, and the other oversees the dispensing of drugs to health care facilities. The Ministry monitors and tracks the distribution of medical supplies at the Quarantina warehouse through another ICT system called the medical supplies stock management system, located in the department of equipment and procurement. As for the national database system, it is also specialized

for narcotics and has been providing data on the import, export, manufacturing, consumption and stocking of narcotics and psychotropic substances since 2001 (Harb & Abou Mrad, 2009).

Subpillar 7.1.3 Ministry website and mobile applications

The Ministry launched its new website as a part of the e-government plan, through which citizens today can track their transactions and access information on health services, medications and other health system activities (Harb & Abou Mrad, 2009).

Pillar 7.2 Public health information systems

Subpillar 7.2.1 Vital and health statistics

The Vital and Health Statistics Department (VHSD) at the Ministry is responsible for collecting information on births and deaths and causes of death from public and private institutions.

The human resources allocated by law to the VHSD are only two employees, including the head of the department. The advancement in data needs on epidemiology and mortality, together with new technology used, necessitates an equal advancement in the structure which is not easily implemented by law. Thus, the department is currently relying on temporary personnel hired through temporary projects.

The VHSD is overseeing work on civil registration and vital statistics at the Ministry, the Vital Data Observatory, NHAs, national health indicators and the production of the statistical bulletin of the Ministry.

By law, registration of births and deaths is the responsibility of the Ministry of Interior and Municipalities. But, after many initiatives to advance the work on civil registration and vital statistics with the Ministry of Interior and Municipalities that were not up to par with the needs, the Ministry established the hospital-based mortality system late in 2016 in collaboration with WHO, covering more than 90 per cent of functioning hospitals. The system started officially in 2017. It solved a major public health problem in Lebanon regarding the absence of reliable and complete information on medical causes of death (World Health Organization, 2021). The system uses a data entry platform based on an excerpt from the official form of the certificate of death, namely demographic and medical information. Real-time data are entered by focal points at hospitals, which code the recorded causes of death using the ICD10 coding system and enter them into the online platform. The data are validated centrally by the VHSD at the Ministry through phone calls with hospitals, and the underlying cause of death is determined.

During the COVID-19 pandemic, the system proved its usefulness, as hospital deaths due to COVID-19 were reported daily and further verified by the ESU to ensure accuracy in recording a COVID-19 underlying cause of death.

However, due to the emerging economic crisis, the hospital-based mortality system faces a sustainability challenge. Many hospitals are losing their staff to emigration, which might affect the timeliness of reporting and completeness of data. Moreover, the high turnover requires frequent training to ensure quality.

As an important milestone in the efforts exerted to improve the health status of mothers and children, the Ministry initiated in 2011 a hospital-based surveillance system of all maternal deaths, neonatal deaths, births and birth defects, as well as other important variables. This system has moved from manual reporting of data to an online reporting system. The Ministry is now receiving information on all maternal deaths from hospitals, and in collaboration with the Lebanese Society of Obstetrics and Gynaecology, reviews are done on all reported maternal deaths. Completeness of reporting on maternal deaths is being

verified through cross-checking between the Vital Data Observatory and the hospital-based mortality system.

The VHSD is also in charge of generating the health indicators of Lebanon. The main challenge encountered with indicator generation is the lack of unified denominators due to unavailability of timely generation of population estimates. Thus, the VHSD uses the latest population estimate produced by the Central Administration for Statistics and the registered births and deaths at the Ministry of Interior and Municipalities, to estimate the Lebanese resident population each year. This, in addition to UNHCR and UNRWA population figures for the Syrians and Palestinians, respectively, helps generate the estimated resident population of Lebanon. The latest estimate, in 2020, was a population of 5,656,000 residents. However, it remains an estimate and there should be a permanent solution to the population figure, the best of which is a population census that Lebanon, unfortunately, has conducted only once since the year 1932.

The generation of the NHAs is considered one of the major systems that were developed. So far, many policies have been initiated based on the results provided by the succeeding NHA surveys conducted. The latest NHA report produced by the Ministry was in 2017. Nevertheless, obtaining data in a standardized way, on a timely periodic basis, is quite difficult and necessitates very tedious manual data collection and analysis from the various sources of funding. The work requires also long official correspondences and willingness to share data and compliance to technical requirements, to validate the data obtained.

Currently, the VHSD, in collaboration with WHO, is in the process of going one step further in institutionalizing NHAs. Data from the various public funds based on a standardized structure of the health accounts production tool will be now collected through a platform tailored to the specific needs of the different public funds to facilitate the timely collection, tabulation and analysis of the data for NHAs.

One of the major outputs in the development of a comprehensive activity record of the Ministry is the statistical bulletin of the Ministry. It summarizes information produced at all departments of the Ministry. As such, it includes vital statistics and cause of death information, Ministry budget and NHAs, population estimates, Ministry services utilization data, epidemiology, vaccination campaigns and disease surveillance data. Data to produce the bulletin come from various sources inside and outside the Ministry, and in various forms, to be analysed and shaped for posting on the Ministry website. The main challenges in this project is the fragmentation of the data forms between manual and fully automated, in addition to the lack of staff for timely production.

In 2013, a regional accelerated interest in civil registration and vital statistics emerged and an assessment was done on the quality of data on causes of death (Ministry & WHO, 2019a; WHO, 2021). In 2017, WHO supported the establishment of the hospital-based cause of death reporting system through a partnership between the Ministry and hospitals, solving thus a lurking problem in identifying medical causes of death in Lebanon (WHO, 2021).

Subpillar 7.2.2 Epidemiological surveillance information system

The Ministry has a number of computer-based systems that collect and track information on public health and health programmes. The epidemiological surveillance system gathers data from various health providers on the burden of communicable diseases and identifies potential outbreaks (WHO, 2014). In 2015, WHO supported Lebanon in the establishment of the DHIS2, a web-based surveillance platform, to enhance the reporting of routine data on communicable diseases (WHO, 2015). The DHIS2 ensures the cohesive surveillance of diseases, allowing the reporting of the source of the identified infection, case characteristics and other features of the disease. This reporting mechanism is the result of decades of advancement which started from mail notifications and evolved gradually to electronic surveillance in

2017, through which data could be entered and accessed at any of the central or peripheral levels and reaching the DHIS2 platform today.

While active cancer surveillance in Lebanon started in 1998, it was not until 2003 that the National Cancer Registry (NCR) was established, and only in 2007 was it formally integrated into the ESU. The NCR includes all patients irrespective of financial coverage, and monitors the incidence of various types of cancers, classifying the cases by age, sex, type of cancer, and time and place of data collection (Syndicate of Hospitals, 2015). Data is collected through a capture system based on physicians' reporting cases of their patients, either directly from clinics or through the Ministry drug dispensing centre, where anti-cancer drugs are distributed to eligible patients. A recapture system, based on gathering information from histopathological and haematological laboratories, is also in place to validate and complement the capture approach. The NCR also helps in informing policies targeting priority diseases and drug choice (Syndicate of Hospitals, 2015). The latest NCR data published on the Ministry website is dated back to 2016, and the ESU is now working on publishing NCR data from 2017 through 2019.

Pillar 7.3 Health services information systems

The Ministry has the primary health care information database, which has been collecting managerial and practice-related information from primary health care centres since 2002 (Harb & Abou Mrad, 2009). The Phenics information system connects primary health care centres to the YMCA drugs distribution system and to the primary health care department. This system would include the digitalized health electronic record, once that is in place, and will be connected to hospitals as a backbone for the referral system (CRD, 2020).

In addition, contracted private and public hospitals are connected to the Ministry through the visa system for prior authorization for hospital admissions and the billing system for financial audit and reimbursement (WHO, 2014).

Public and private hospitals are at different levels of digitalization of health records, and there is no unified patient identification number to follow up on patients between different levels of health care. Nonetheless, in collaboration with WHO, the Ministry started working on establishing a state-of-the-art electronic health record for easier and secure access and coordination of medical, service and financial information between the Ministry and other institutions (Hamadeh and others, 2019; Ministry & WHO, 2019a).

Pillar 7.4 Health coverage information system

Interconnecting System is a unified beneficiaries database centrally located at the Ministry through which the Ministry and public funds share data on patient demographics and eligibility and helps prevent duplication of spending by public funds (Harb & Abou Mrad, 2009).

Pillar 7.5 National e-health programme

The national e-health programme was launched by the Ministry through decision no.1/227 in 2013 under the Directorate General of Health. This programme's overall purpose is utilizing innovative ICT in advancing health service quality.

The e-health programme's functions revolve around reinforcing the country's health information systems and managing and overlooking the implementation of the e-government. Its main set of duties involve improving national databases, forming a health information and data centre, and safeguarding interoperability and data exchange between the central and district Ministry offices, and between the

central administration of the Ministry and its numerous stakeholders. It is also in charge of enhancing telemedicine and the development of electronic prescriptions, which reduce the risk of human error and promote patients' access to health care services, especially physically disabled patients and those living in distant areas. The provision of these electronic services dictate that the programme establishes security and privacy principles and ensures that all involved parties comply with the ethics of e-health, which protect patients' privacy and confidentiality. Additionally, the e-health programme oversees the use of mobile health technologies, which provide an easy means to communicate and disseminate information required for the provision of health services. The programme also provides electronic learning (e-learning) and training opportunities to help build the capacity of health care professionals and collaborates with national and international experts to ensure the continuous innovation and advancement of the e-health field in Lebanon.

Furthermore, and in partnership with WHO, the e-health programme governs a pharmaceutical track and trace system called MediTrack, which safeguards patients' access to safe medications. This system utilizes a 2D matrix barcode based on GS1 standards and collects pharmaceutical data from all importers, suppliers, wholesalers and manufacturers. The system has already been successfully piloted for cancer drugs in several pharmacies and hospitals and the e-health programme is now preparing to implement the MediTrack system on local pharmaceutical manufacturers. This system entails meeting regulatory conditions and printing the 2D barcode on the products' packaging, and then connecting the 2D barcode to the MediTrack system and continuously updating the gathered information.

During the pandemic, and in an effort to reduce the impact and spread of COVID-19, the Ministry developed several digital platforms based on artificial intelligence and geographic information systems to facilitate surveillance, contact tracing, case identification and vaccine deployment. These platforms include the COVID-19 vaccine platform, the COVID-19 positive cases daily assessment survey mobile app and the ArcGIS database and dashboard management system through which the COVID-19 hotline operated. Moreover, the Ministry has selected the IMPACT platform to document all vaccination activities.

This is in addition to the symptoms checker chatbot and virtual consultation platform, the Ministry PASS platform, which manages the polymerase chain reaction (PCR) tests of all arrivals from abroad, and the "Ma3an" mobile application, which was developed with the help of the ESU and American University of Beirut as a contact tracing notification system. Finally, the Ministry collaborated with several international social media platforms to raise public awareness on COVID-19 and infection prevention methods.

While COVID-19 was an opportunity for the e-health programme to show its true potential, it also exhibited the pre-existing challenges which the programme has faced since its formation, and which hamper its efforts in implementing its action plan. These challenges have been exacerbated by the multiple crises that hit Lebanon in 2019, and they include the weak bureaucratic administrative procedures and the absence of proper leadership in the Ministry which can manage this context of multiple crises. This is coupled with shortages in financial resources and insufficient numbers of motivated and competent staff in the domain of ICT, and the absence of a national e-health strategy and the inefficient coordination between Ministry departments resulting in fragmentation of data and duplication.

Health information system assessment and recommendations

The health information system was built to answer the immediate needs of distinct entities and Ministry departments. While there is a rich production and collection of data on population health and the health system by the Central Administration for Statistics, the Ministry and other stakeholders, this data remains fragmented, unorganized and incoherent. Such a fragmented system produces inconsistent data and patchy flow and exchange of information between the Ministry and other entities of the health sector. Infrastructure, literacy and staff skill in ICT, in addition to systematic standard operating procedures, are

problematic and not always available. There is a critical need for a well-coordinated and well-monitored health information system which would harmonize data collection and analysis from all relevant partners and thus promote evidence-based decision-making. This can be achieved through a health information management system master plan (Kamal, 2019; Ministry & WHO, 2019a).

The assessment of the current state of the four main components of an efficient health information system revealed many points of strength to build upon. The factors that facilitate the enhancement of the national health information system are staff commitment and interest in implementing electronic health records and the e-health strategy, the presence of the Vital Statistics Unit in the Ministry and the health information system structure and accreditation standards which are already in place. Ministry teams that are continuously involved in data aggregation and analysis and problem solving are available and the health care staff and coders are well qualified and undergo periodic capacity-building and training. Previous experience in using and establishing web-based surveillance programmes and information technology systems at the national level also place Lebanon one step closer to achieving an advanced health information system. Nevertheless, the current system lacks strategies that ensure the involvement of development partners in setting the priorities for the health information system. It also lacks a complete national e-health strategy and has a shortage in updated legislation. Additionally, there is a gap in the institutionalization of consistent and autonomous data quality assessments and in data collection and feedback mechanisms from reporting units and facilities (Hamadeh and others, 2019; OMSAR, 2002).

In order to improve the flow of information inside the Ministry and between its departments and units, a suggestion was made to create an intranet, which is a computer web-powered network which collects information and allows sharing of this information and collaboration between all Ministry units. In order to organize the information flow between the Ministry and other health stakeholders, a Health Information Management Unit (HIMU) was proposed, which would present an interface for the information received and released by the Ministry. The formation of such an entity would first require the joining of the Ministry's various ICT systems. This unit would gather data directly from some stakeholders or from its administrative district centres, which will be in charge of collecting and reporting the local data to the central HIMU unit (Harb & Abou Mrad, 2009). The establishment of the HIMU cannot be done without legislative measures that would enforce it, a budget plan and a clear set of duties that would differentiate it from the ICT and vital statistics departments of the Ministry. Additionally, at the district level, district health departments and their ICT systems will need to be strengthened (Harb & Abou Mrad, 2009).

The emergence of the crisis in the end of 2019 caused efforts to be halted in addition to exposing areas of priority such as the importance of a unified patient identification number and harmonization of fragmented systems. During the COVID-19 pandemic, it was difficult to track cases from diagnosis to treatment and potential death due to the absence of a unified patient identification number programme (WHO, 2020). In addition, on top of the chronic problem of lack of population estimates, the absence of denominators by place of residence made it difficult to implement zoning initiatives (Harb & Abou Mrad, 2009; Ministry & WHO, 2019a).

B. Impact of crisis on the health information system

The current crisis is leading to loss of institutional memory and a growing obsolescence of information gathered at great cost in the period before the crisis broke through. One example is that of the NHAs. The information provided by the 2017 NHA can hardly serve as a detailed guide for decision-making in the current context. The same goes for a whole range of other issues: the distribution of human resources, the trends in out-of-pocket expenditure, the performance of health care providers, funding flows, the epidemiological situation, unmet needs and so on. Importantly, brain drain, both from the Ministry and from academia, risks curtailing the capacity to prioritize, design and launch the surveys and studies necessary to guide recovery.

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