

## **The role of health insurance in developing the health sector in Iraq**

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**Abstract.** Ignoring easily accessible information, facts, and expertise is a contributing factor in numerous problems in the healthcare system that lead to poor-quality healthcare services. It makes no sense to manage healthcare systems without the required data since doing so would prohibit the provision of high-quality medical care. An updated description of the Iraqi healthcare system is what this essay seeks to do. On the Iraqi healthcare system, we identified and assessed both published and unpublished data. Within the informational materials, both published and unpublished, are books, journal articles, and official reports and records of the Iraqi Ministry of Health. Also examined was the useful data that can be discovered on websites. The data that were retrieved were all related to healthcare, including information on the organisational structure of the healthcare system, information on national healthcare policies, including the purpose, objective, and beneficial goals, information on the financing of the healthcare system, information on the provision of healthcare services, information on the workforce in the Iraqi healthcare system, information on the health of mothers and kids they have, as well as details on the state of the healthcare system in Iraq.

**Keywords.** healthcare, paramedics. Medical laboratory technologies, dentists, hospitals, and healthcare organizations

### **Introduction**

Iraq's healthcare providers are battling to recapture lost impetus after decades of conflict, penalties, and invasion. Young graduates remain to flee the country, and many expert health professionals have also left for other nations. Despite extensive reconstruction, healthcare infrastructure has yet to be entirely recovered. The health system needs to be reorganised to achieve the nation's development objectives with primary healthcare as the cornerstone. The healthcare system is still centralised and primarily focused on hospitals. Such growth strategies also call for making private healthcare a significant player in the healthcare industry. Still, additional effort will be needed once the legislation is necessary to make this transition. Recent initiatives include a proactive effort to establish access to healthcare facilities given population geography and needs. (2013) (Al Hilfi et al.). The first national health accounting was created in 2010 and eventually included in the study on the advancement of the Iraqi business community. The Iraq Household Socio-Economic Survey (IHSES) from 2007 and WHO spending projections provide earlier information on healthcare financing. Iraq spent almost 84%

of its expected \$822 billion GDP on healthcare 2010. Only 0.8% of GDP was made up of health-related external resources. Compared to \$118 in 2008, the total price was projected to be \$247 (PPP \$340) per person. In 2010, it was anticipated that out-of-pocket expenses for medical treatment would total 18.8%. Following the 2007 IHSES survey, 34% of out-of-pocket spending went to doctor's private clinics, 18% to the Ministry of Medical facilities, 39% to pharmaceuticals, and 9% to travel.

While medical care receives the vast majority of government funding, data from the National Health Account show that pharmaceutical prices make up 36.8% of the national healthcare spending, and administrative expenses make up 23%. The growing private pharmacy sector currently accounts for 28% of prescription spending. Hospitals cannot operate their services efficiently because of the central management of budgets and purchasing methods. The Ministry of Health's poor coordination between the financial and organisational directorates is to blame for many of these difficulties. Future developments will see a significant increase in the private sector's influence. However, this growth must be complemented by the Ministry of Health's improved regulatory capacity, which will have a considerable financial impact. If Iraq's medical system remains centred on family medicine, public and private hospitals or healthcare organisations may have roles to play in this process. There are options for outsourcing in and out of small organisations. Depending on the type of social insurance plan adopted, private primary health care is most likely prevalent in affluent metropolitan regions (Al Hilfi et al., 2013).

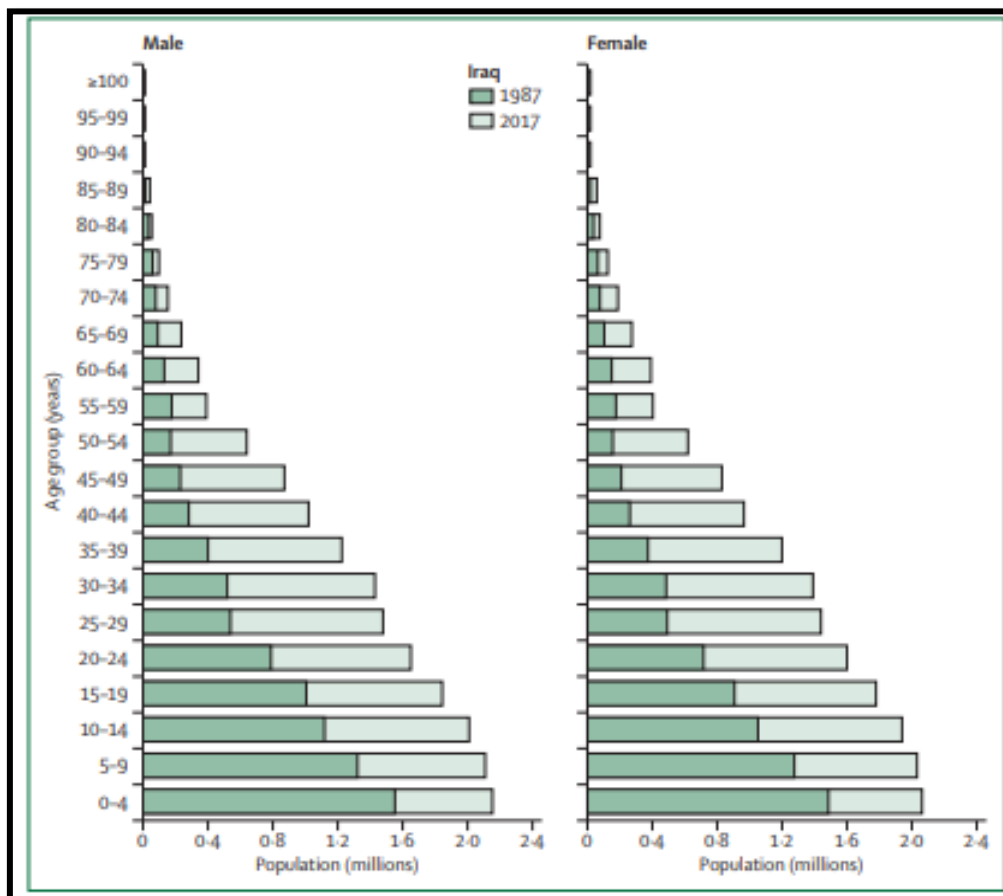


Figure 1 shows the age breakdown in Iraq between 1987 and 2017. US census agency data. Maternal and child health and illnesses that are not transmissible are top priorities given this demographic structure. A family healthcare strategy can be used to treat both.

Iraq has had a significant demographic and epidemiologic transformation during the last four decades (figure 1). A review of significant health and demographic variables is included in the following Review by Barry Levy and Victor Sidel<sup>24</sup>. Iraq's population is expected to be 32.2 million, with a projected yearly increase of 2.3%, down from 31% in 1990. In comparison, Syria saw a 0% increase, Iran saw a 1% increase, and Egypt saw a 17% increase. In 2011, the gross national income per person was predicted to be US\$2640.28. Around 22.9-29.7% of Iraqis are impoverished. Government spending on the social sector has expanded significantly in the last two years<sup>30</sup>, but maintaining this level of support is contingent on oil earnings.

School enrollment and literacy fell during the years of sanctions and conflicts. High unemployment is a significant problem, especially for young people. Sanitation facilities and access to safe drinking water are few. The 2013 Human Development Index score for Iraq was 0.573, which is lower than the norm for middle-income nations and Arab states and lower than the average of its neighbouring and other Middle Eastern nations. Transmissible epidemics of diseases are still occurring. Some, especially cholera and dysentery epidemics, are linked to the first Gulf War's significant environment and infrastructural destruction, with additional harm during the 2003 invasion. Northern Iraq saw a severe cholera epidemic in 2012, following a prior outbreak that affected several parts of southern Iraq, especially Baghdad (Khwaif et al. 2010).

In 2011, Baghdad experienced a hepatitis E epidemic. Tuberculosis remains an issue despite a drop in reports between 2002 and 2007. Incidence estimates for tuberculosis in 2009–2010 range from 74/100,000 (World Bank 40) to 56/100,000 (WHO 41), and it is anticipated that cases have significantly decreased since then due to better treatment protocols. Nevertheless, 203 instances involving multidrug resistance, up from 115 in 2009, were identified in 2011. TB, schistosomiasis, measles and varicella are other frequent infectious diseases. Only 615 HIV cases were reported in 2011 (Al Nasrawi et al. 2010).

Nevertheless, additional instances may emerge with increased migration across Iraq's borders. In Iraq, malaria is being reduced by treatment and protection of the environment, although leishmaniasis remains a problem in some locations. In Iraq, noncommunicable illnesses are increasingly posing a severe threat to the populace. 42% of men smoke, and 67% of people had a BMI over 25, according to the 2006 WHO STEPwise method to chronic disease risk-factor assessment of 4800 homes. During the conversation, blood pressure readings showed that 40.4% of the respondents had systolic and diastolic hypertension. Even though only 65% of people had been given the diagnosis of diabetes, fasting blood sugar testing showed that 104% of people had hyperglycemia. Low levels of regular exercise, defined as activities that have no effect on heart or respiration rates for 10 minutes or longer, were reported by 50% of the participants. The intensive-care unit's ability to provide care was compromised by a dispute in 2006, which was blamed for a spike in the case-fatality rate for the myocardium. Cancer is a growing concern, with higher juvenile cancer rates than in high-income nations. Over 15 years, Basrah had a doubling of childhood leukaemia.

Cancer incidence will climb as the population ages and becomes more sedentary. Many publications have addressed the estimations of violence in Iraq throughout intense combat; nevertheless, the disabilities and mental health damage suffered, as mentioned above, have not been widely recorded. Few efforts have been made to help the estimated 150 000 persons who landmines, fighting, explosive munitions, and other remnants of decades of war have physically

disabled. The Ministry of Health has incorporated mental health into the package of fundamental health care due to the high incidence of psychological trauma in society. Even though specific trial social and psychological programmes have been treated as created, it is not yet apparent how they will be incorporated into the primary healthcare package if they prove successful (Sadik and colleagues, 2011). In the accompanying Comment, Paul Bolton<sup>49</sup> explores the early results of community outreach efforts. In Iraq, maternal and child health is a significant concern. Years of conflict and the effects of sanctions have delayed the decline in newborn and child death rates. 15% of babies are thought to have low birth weight, and neonatal fatalities take into consideration more than half of all infant and young child mortality.<sup>22,50</sup> Despite a public distribution system that gives extra food rations to people living in poverty, 26% of children under five suffered from stunted growth in 2006, while 56% of children under five were slightly or seriously underweight.<sup>31%</sup> of infants less than six months were nursed exclusively. The final prescription of diphtheria, pertussis fever and tetanus immunisation regimen is given to 65% of children nationwide. In the accompanying Comment, Paul Bolton<sup>49</sup> explores the early results of community outreach efforts.

Studies indicate that 17% of births are caesarean procedures; according to popular belief, the growing private hospital industry may play a role. Despite considerable epidemiologic and demographic shifts in Iraq's population, the Ministry of Health needs to be faster to develop an effective strategy. The government remains very centralised and ambiguous. Public health initiatives are among the most urgent needs in the nation, but the administration is still struggling to resume basic operations. Significant policy changes are required at practically every level of government, but there is a need for more data to enable evidence-based taking decisions.

A national health strategy was implemented less than three years after the Taliban administration was overthrown, in contrast to the early work done in Afghanistan to develop a policy to direct primary medical care and hospital settings. Rebuilding healthcare facilities boosts government legitimacy visually while using resources for potentially subpar treatments. As it races to rebuild hospitals, Iraq must not compromise on its promise to offer primary healthcare and universal access for millions of underprivileged Iraqis. The physical and psychological trauma brought on by years of conflict and suffering, which jeopardises both individual recovery and the restoration of society's full functionality, may be best addressed at this initial stage of treatment. Iraq needs the skills and resources necessary to shift from the time of the socialists of centralised management to a decentralised participatory healthcare system. To develop a trained health workforce to meet future demands, health executives, developers, and educators must work together far more closely than they do now. Establishing private sector engagement in healthcare must be done with care, thought and enough oversight and oversight to give Iraq value for its money (Meri et al. 2019). More than 210 nations, regions, or territories worldwide are presently affected by the rapidly spreading COVID-19 pandemic, which is caused by the brand-new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

To manage the epidemic, the global community imposed policies that have significantly harmed global socioeconomic progress. During the year 2020, the pandemic known as COVID-19 costs the global economy at least \$1-3.94 trillion. The COVID-19 outbreak has had some long-term negative implications for the health sectors throughout Iraq; the impact of the upheaval occurred in individual, shared, and organisational life, primarily due to government closures (Risko et al. 2020). The strain on this sector was exacerbated by the hazardous conditions in which healthcare staff had to treat sufferers face-to-face during these necessary periods. The World Health Organisation (WHO) named COVID-19 a Public Health Emergency

of International Concern after it triggered a worldwide health crisis that continues to jeopardise public health (Al-Abrow et al. 2019).

### **Literature**

The health services of any society represent the country's social and economic situation because it is one of the necessities that have direct contact with the lives of individuals. Most of the world's communities utilise their potential to enhance medical care, so it's more effective to consider the spatial distributions of this right.

Health records management challenges have plagued the Iraqi healthcare industry due to insufficient information technology integrity and data intricacy. Cloud computing solutions can provide a simple, cost-effective, and dependable way to store, manage, and retrieve health-related data and track patients' conditions anytime, anywhere, and on every device. Health care providers in Iraq still need to prepare for the switch to cloud services due to a number of challenges, such as privacy and security worries, legal limitations, and implementation. For instance, no research has been done to provide light on the use of cloud computing offerings in the medical information systems of Iraqi hospitals (AL-Abrow et al. 2021).

Although medical data dissemination between subdivisions and areas has improved recently, Iraqi hospitals still need access to it (Sharma and Piachaud, 2011). This is especially true in times of emergency. The cloud platform's solutions to these problems have sparked the current push to implement cloud health systems in Iraqi hospitals fully. Healthcare organisations generally deal with management difficulties regarding medical data, including limited availability, rehabilitation, and transferring medical data. Because of the large number of patients and the recent increase in violence in the country, hospitals in Iraq are now dealing with enormous amounts of health information that continue to increase (Al Hilfi et al., 2013).

In order to provide healthcare practitioners with a reliable platform for engaging with and exchanging medical data, technology advancements like cloud health information systems are becoming more and more common. Healthcare apps and medical data are organised and distributed from servers with suitable storage space for health goods in the cloud computing environment. Additionally, it might make it possible to transfer and exchange repositories between departments. Due to the provision of a single computer system in hospitals for everyone who provides patient care, the use of cloud computing is thought to reduce IT expenses for healthcare institutions.

A few scholars have proposed healthcare cloud computing utilization/adoption models to help with particular medicinal needs. The researchers participating in this study did a literature review to identify and assess the most critical earlier models in order to better understand the present use of cloud health systems. For instance, Hsieh et al. (2015) offered a model for describing the acceptability and opposition of Taiwanese healthcare personnel to the installation of a health cloud system. The intention of medical professionals to utilise the health cloud service was linked to their intent to turn down it, according to the researchers, who employed technological acceptance and traditional wisdom viewpoints to make this determination. The authors found that the reluctance of medical professionals was brought on by regret prevention, a feeling of worth, switching expenses, and a sense of danger.

Researchers also found that professionals' motivations for implementing medical information technology were influenced by attitude, private norms, and what they believed about behaviour control. Hsieh (2016) developed a model of consumers' intent to use and refuse cloud medical care in Taiwan using UTAUT and SQB theory. Hsieh found that the main reasons for resistance included sunk costs, a state of perception of worth, transfer costs, and

uncertainties. Patient expectations of performance, expectations of effort, expectations of social impact, and facilitators had a positive and direct impact on patients' intentions to utilise the health cloud. The study illustrated the need to integrate opposition from users into research on the acceptance of technology as a whole and on the implementation of technology in medicine in particular. Essential factors affecting decision-makers in Taiwan's medical business to adopt cloud-based technology were also examined by Lian et al. (2014). The five most important factors were data security, acknowledged technical expertise, expense, support from senior management, and complexity.

A paradigm for private computing in the cloud that incorporates multiple characteristics was put forth by Lian (2017). The results showed how crucial information system trust is to comprehending cloud computing performance in Taiwanese hospitals. The proposed model was intended to help hospitals evaluate their use of private cloud computing for medical purposes or help them succeed. Lian found out and made it known. These elements affected users' contentment by influencing their trust. Ratnam et al. (2014) created a cloud adoption paradigm to enhance healthcare in Malaysia. They looked at interactions, investment in infrastructure and prices, medical supplies, and applications. Albar and Hoque (2019) combined the TOE and DOI models to produce a four-dimensional model with subdomains for technology, organisation, circumstances, and creativity. This paradigm was proposed for the adoption of cloud enterprise resource planning systems. The proposed concept was believed to help Saudi Arabia and other developing nations by offering step-by-step guidelines for installing cloud ERP. These illustrations show how different needs, traditions, and environments make implementing a particular model within the Iraqi healthcare sector challenging. Venkatesh and Zhang (2010) state that various cultural backgrounds must test the current theory/model in its natural environment.

Furthermore, most research on cloud utilisation in healthcare imposed some restrictions on the causes, context, and goal of use. Because no study was undertaken in Iraq, this was limited to specific developed and developing countries. Thus, our study was motivated by a genuine need to improve health care in Iraq by highlighting the significant factors that impede physicians' full utilisation of cloud services. Iraq's health industry is financed by public funds and governed by the Iraqi government through the Iraqi Ministry of Health.

At the time of writing, the public health crisis in Iraq was intensifying, and the number of likely and confirmed infections was rising quickly, reaching a magnitude of dispersion far more significant than that of the acute lung disease in humans (SARS) outbreak in 2003. The efficiency of COVID-19 interaction between individuals was not noticed during the early spread. As a consequence, healthcare workers' safety was insufficient, and job-related exposures and illnesses were common (Dai et al. 2020). Although the long-term impacts of COVID-19 remain unknown, they are anticipated to decrease job applications since the high-risk condition in the workplace will reduce people's desire to work there (Filimonau et al., 2020). Healthcare workers are more likely to contract an illness since they have direct contact with COVID-19 patients. To tackle COVID-19, hospitals had more personal protection equipment, PPE and other tools. Therefore, the health sector needed to be fully equipped.

Medical staff are contagious due to hospitals' inadequate personnel protection (Godderis et al., 2020). One of COVID-19's long-term negative repercussions on the health sector is anticipated to be a loss in organisational desirability. The antagonistic culture created by the epidemic has made it challenging to retain senior and experienced staff and attract fresh talent. Healthcare personnel have an essential role in the clinical care and treatment of patients and in

implementing suitable infection-prevention and control methods in healthcare institutions (Alnoor, 2020).

COVID-19 the most advanced healthcare services in the industrialised world were put to the test as 19 resources were depleted. For several reasons, the issue has been significantly more critical and complicated for Iraq, a developing Mediterranean country. First, the pandemic struck when Iraq was coming out of a four-year war with ISIS and going through political turmoil. Second, Iraq's healthcare system has struggled due to decades of inadequate infrastructure brought on by wars, sanctions, and civil unrest. Third, the general public's deep mistrust of the healthcare system has contributed significantly to Iraqis' pervasive lack of commitment to advised health measures. Over the past three years, institutions in Iraq, particularly the infectious diseases Control Centre (Iraq CDC), have invested in operations for disaster/crisis administration. In 2018, the Iraq CDC and the Eastern Mediterranean Public Health Network (EMPHNET) held various training seminars to teach many healthcare workers (HCWs) about the epidemic response. However, the unusual COVID-19 outbreak allowed little time for the training to be evaluated. Instead, it presented a real-world assessment of all preparation initiatives undertaken in recent years.

According to Lami et al. (2021), COVID-19 in Iraq will look at the particular problems the country's healthcare system faces, describe how it responded to the pandemic, point out areas of inefficiency, and suggest additional epidemic-control measures. Identifying the areas that require the most improvement to prepare the healthcare system to handle potential pandemics. The epidemiological situation in Iraq, COVID-19 among medical personnel, the response of the US government (including prevention strategies, identifying cases and tracking, risk propagation, fiscal strategies, and the administration of the air quality crisis), as well as successes and setbacks, will all be covered in this article.

## **Methodology**

In the Iraqi healthcare sector, this study intends to model the relationships among the critical factors impacting doctors' opinions and behavioural changes towards using online health data systems. Selecting the most effective research strategy and design is necessary to address the research issues. A quantitative research methodology was consequently used. Because a person served as the evaluation unit, this study was categorised as descriptive, correlated, cross-sectional in forecasting elements, and deductive. Surveys are regarded as a valuable method for collecting information because they enable a scientist to target the requirements and estimates of variables precisely (Sekaran and Bougie, 2016). For this inquiry, information from healthcare workers in Iraqi hospitals was gathered via an online survey questionnaire. The only way to contact them due to the access problem was online. Hospital health departments received the online survey and gave it to their staff members, who got in touch via the Internet.

## **Result and discussion**

Numerous wars and socio-political unrest have affected Iraq's public health system. Today, the nation still needs more adequate statistics and, as a result, response strategies to address the present and future health demands of its population since health data are not routinely gathered. Global cooperation is developing A Health Monitoring System in Iraqi Kurdistan to assist based on research health policy determinations. The health industry is one of the primary areas in Iraq

that was severely impacted by warfare. Become one of the worst in the area after being among the greatest (Emberty et al 2020).

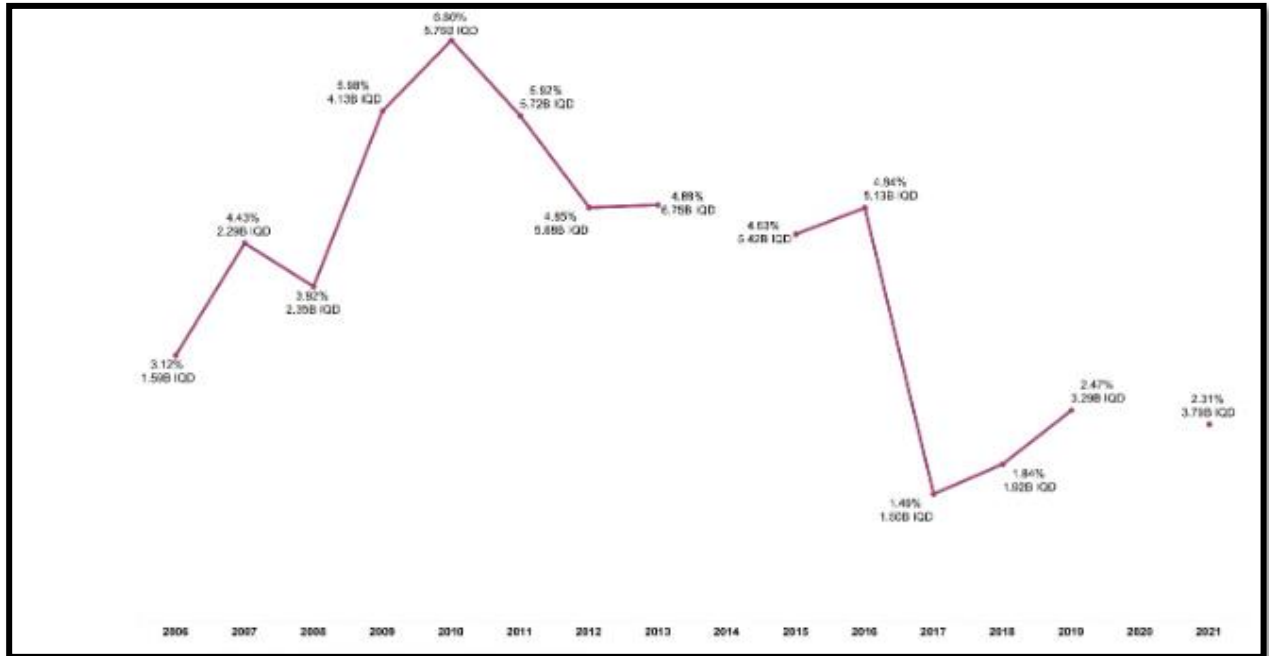


Figure 2

The report breaks down the financial status of the public health sector, which is supported by the national annual budget, and looks at the economics of the health sector. 3,291,900,658 Iraqi dinars were allotted in the 2019 budget for MOH expenses, which were split between 351,300,301 in investment projects and 2,940,600,357 in expenditures. While the budget for 2021 allotted 434,001,220 Iraqi dinars for MOH expenses, which were split between 97,553,513 in expenses and 336,447,707 in investment initiatives (Emberty et al 2020).

The population of Iraq has significantly expanded from 28,506,000 in 2006 to 35,095,772. However, the framework of the organisation of the Iraqi healthcare system, which forms the cornerstone of the system, has not changed considerably since the summary given above. The stated aim and mission of the Iraqi Ministry of Health have been altered. The Iraqi Ministry of Health has also established a priority value. Thirty thousand nine hundred thirteen physicians were in practice nationwide in 2013 compared to 15994 in 2007. In 2013, it was also predicted that 8.5 per cent of children under five were underweight. The newborn mortality rate was projected to be 17.9 in the same year, while the average death rate for children under five was 22.5. The primary cause of mortality in children under the age of five years was prenatal cardiopulmonary diseases. Two thousand thirteen, the two most frequent chronic infectious illnesses detected were hepatitis and TB. The most common causes of death were cerebrovascular diseases. According to a large number of reports and papers, fraud in Iraq—including academic, professional, and academic fraud—not only led to the loss of funding for



the healthcare industry but also to the loss of positions of authority in the field, such as in medical education at both the graduate and undergraduate levels (Al-Mosawi, 2020).

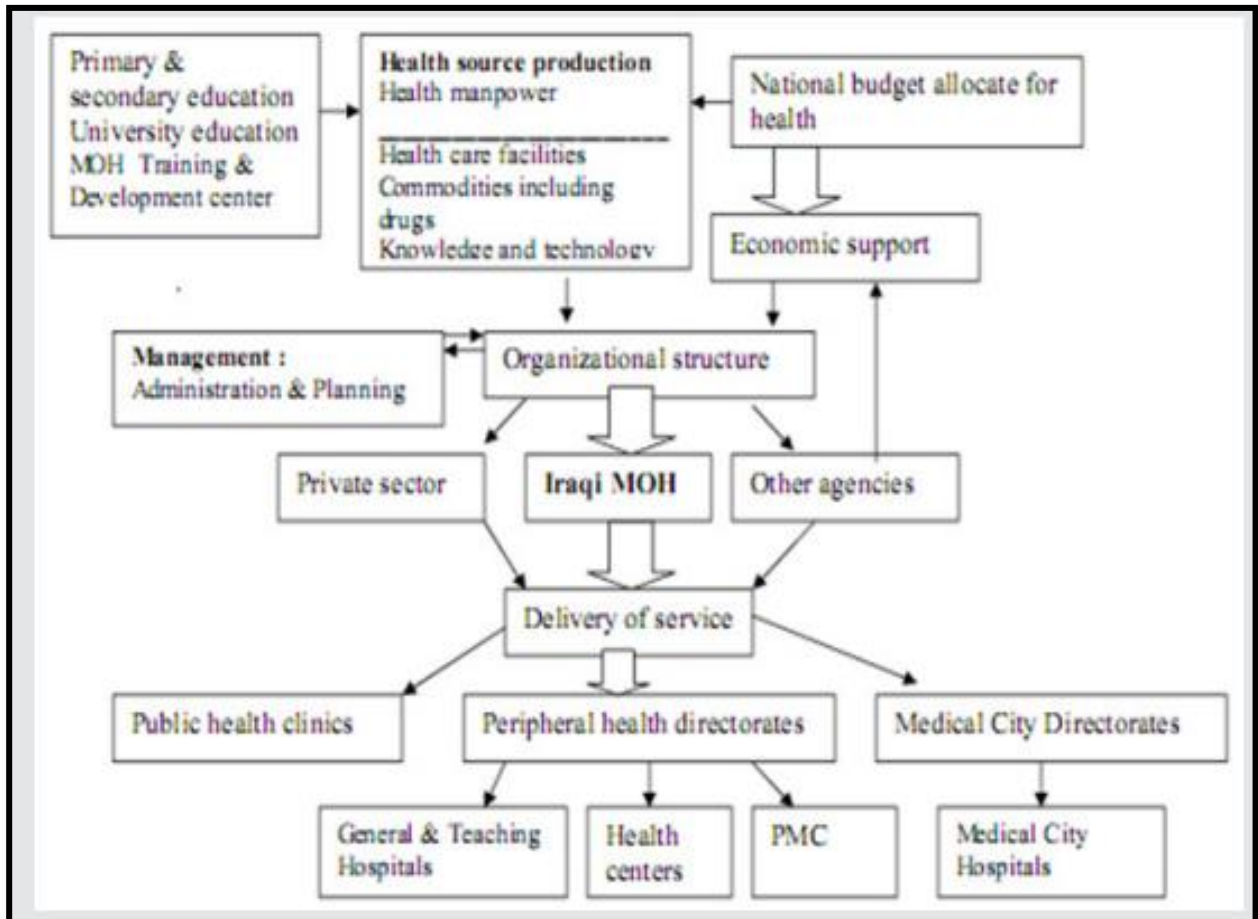


Figure 3: A condensed illustration of Iraq's national healthcare systems (we can reproduce this image from The New Iraqi Journal of Medicine). Primary Care Medical Centres (PMC) and the Ministry of Health (MOH).

Since the previous description, the organisational structure within the Iraqi healthcare system has mostly remained the same. The Iraqi Ministry of Health continues to be the principal provider of healthcare services and the backbone of Iraq's healthcare system. The private medical sector and other organisations like the Red Crescent support health care. As a result, the main parts of Iraq's health system architecture are under the direction of the Iraqi Ministry of Health. Figure 3 shows how Iraq's national health care system has been simplified. In the earlier description of the Iraq healthcare system, furthermore, to the minister, three deputies worked in the ministry: the deputy in charge of technical affairs, the deputy chief of administrative things, and the deputy of building and building-related affairs (Al-Mosawi, 2020). Iraq's health care system was expected to have employed 3586 people in total in 2007. This included 15994 doctors (4982 specialists and 11012 non-specialists), 3515 dentists, 3357 chemists, 31782 nurses, and 2581 assistant nurses. The most current published report from the Iraqi Ministry of Health states that 273318 people were working in the country's healthcare system as of 2013, including 30913 doctors (9856 of whom were specialists), 7541 dentists, 7879 chemists, and 65474 nurses. There were 8.8 physicians, 2.1 dentists, 2.2 chemists, and 18.7 nurses for every 10,000 persons.

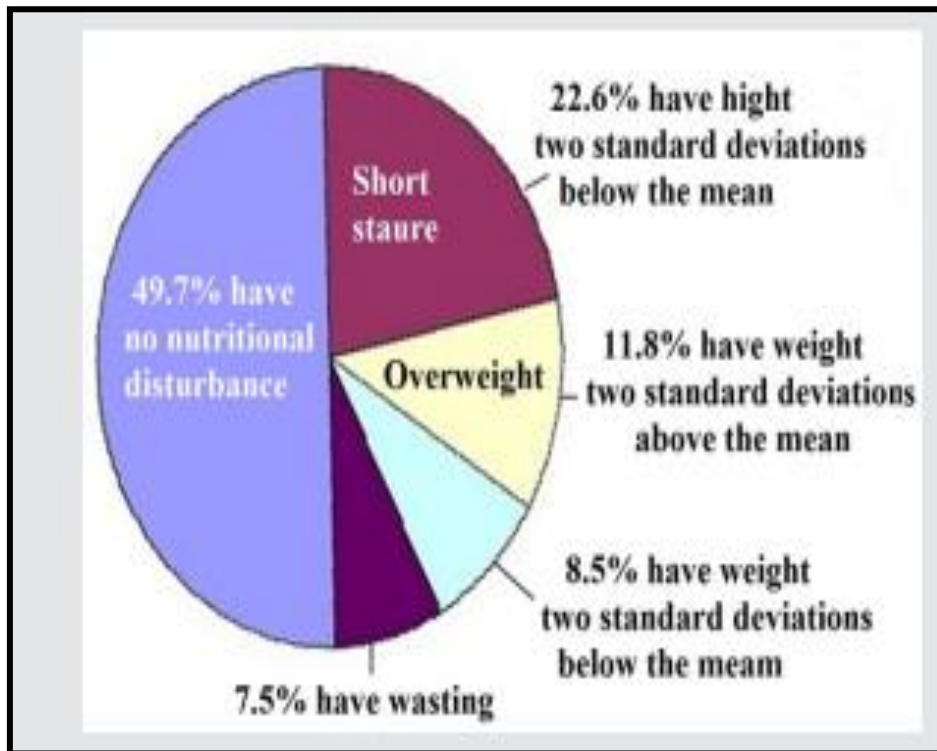


Figure 4: 2011 estimates of children under five's nutritional status. In 2013, 8% of women did not meet the standards set for contraceptive use, and 52.5% of women used some kind of contraception, based on the most available data from the Iraqi Ministry of Health. Excluding those who resided in the three Kurdish provinces, 34% of women were judged to have had excellent prenatal treatment after at least four visits. It was projected that 87.7% of births, including those in the three Kurdish provinces, would have qualified attendees. Except for births in the three Kurdish regions, 73.2% of women gave birth vaginally, and 26.5% through a caesarian delivery. It was predicted that just 3.5% of women aged 15-24 years had a thorough understanding of the condition known as acquired immune deficiency syndrome (AIDS), and the incidence rate of AIDS was most likely 0.075. It was also predicted 2013 that 10% of newborn infants weighed less than 2.5 kilogrammes, and 8.5% of children under five were underweight. Figure 4 depicts the 2011 dietary requirement estimates for children under five. During the same year, 4001 births (0.4%) in Iraqi provinces, excluding births in the three Kurdish provinces, suffered congenital abnormalities. Al-Mosawi (Al-Mosawi, 2020). Healthcare is one of the sectors with the quickest growth rates in developed and developing nations since it must improve to meet healthcare needs. Every health system depends on healthcare professionals, and their work aims to promote community wellness (George et al., 2014).

Healthcare personnel have a tremendous challenge from the COVID-19 pandemic, which is stressful for them and organisations providing healthcare. Many of these clinics need to provide the care that so many people who are critically ill require (Burdorf et al., 2020). The need for healthcare workers is increasing due to the increased workload. Few healthcare staff are available since some were quarantined after contracting the infection. The worldwide healthcare workforce is under increasing strain. The number of illnesses burdening the

healthcare system and harming medical staff, especially the risk of infection, are the leading causes of this stress (Adams and Walls, 2020).

Notwithstanding these limitations, global health systems endeavour to recruit and keep a skilled workforce while avoiding the detrimental effects of shortages of employees that can one day jeopardise society's security (Winter et al., 2020). Consequently, this study examines the role of views among healthcare employees as a moderator in the association between COVID-19 and the allure of a healthcare career. It is predicted that the COVID-19 outbreak will reduce interest in health-related careers. Due to the tremendous difficulties, these firms are below, which leads to a need for more organisational agility in reacting to the requirements related to this situation; this is tied to negatively influencing attitudes among staff members. They become less committed to staying with the organisation (Fanelli and Piazza, 2020).

Since the COVID-19 pandemic began in the nation, the Iraqi Ministry of Health has educated the public about the disease by outlining basic preventative measures, posting educational content on the ministry's website, giving publications to healthcare providers, and hanging advertisements inside MoH buildings. The Crisis Cell provided instructions to the public on how to fast safely during the holy month. Religious authorities assisted in educating the populace about COVID-19 and discouraging large gatherings, particularly prior to significant religious occasions. Nevertheless, numerous communication and social mobilisation gaps must be solved. Iraq is not a contributing factor to the international infodemic caused by COVID-19, but regrettably, little is being done to dispel falsehoods, conspiracy theories, and claims of a cure. Even worse, the majority of these claims came from medical professionals. Many individuals believe that the other side, rather than the MoH is because of the intense hostility between the healthcare sector and the Iraqi people.

Despite those initial efforts to control the global epidemic, Iraq has faced several persistent challenges ever since the outbreak began: Political and scientific issues have influenced making decisions since the outbreak. Numerous committees with overlapping tasks have been formed at various levels of the country's decision-making framework. The WHO and numerous scientific bodies worldwide have set forth specific requirements for reopening particular community sectors. The administration remains in the camp of reopening the country even though  $R_0$  has typically been above 1 and the PCR positive rate in Iraq has routinely exceeded 15%. The most obvious examples include the reopening of airports in July, the opening of malls and shopping centres in July, and the rebuilding of mosques, restaurants, parks, and gardens in September. The nation's ongoing conflict between politics, economy, health, and dual executive powers contributed to the inability. Walking within the sidewalks of Baghdad for less than an hour is all it takes to know that the brief absolute curfew, assembly bans, and even the requirement to wear a mask are not in force. Unauthorised borders are another renowned obstacle to adequate border security.

The government had sent patients from hospitals to their homes because of insufficient ICU and hospital capacity and the poor quality of care provided to patients in hospitals. Even though the WHO recommended that COVID-19 patients be managed at home, this practice has various adverse effects in Iraq, including underreporting the number of cases and misclassifying COVID-19 fatalities as deaths from other illnesses when they happen at home. If segregation is not adequately used, treating COVID-19 internally could aid in the immediate area virus's propagation. In addition to the unpredictability of quality, medical care at home can be costly for parents. One of the most significant large-scale gatherings globally occurs in Iraq. Even though it was far less severe than in previous years, many individuals disregarded the safety precautions. To manage large crowds, a structured structure is necessary (Lami et al., 2021).

The lockdown was completely removed in Iraq from September 2020 until February 2021. Due to inconsistently enacting preventative measures and more individuals being cooped up in their houses during the cold winter, the partial lockdown was then reinstated in February 2021 when the second wave of the pandemic began (Abdulah, et al 2021). Notwithstanding these limitations, the number of cases per day continuously climbed and crested on July 28, 2021, with 13,515 instances confirmed and 9301 total deaths (see Figure 5).

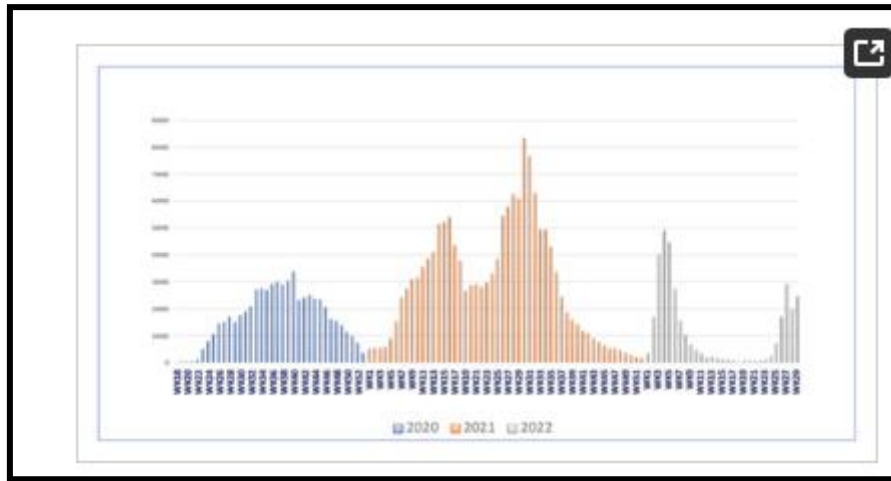


Figure 5 shows the COVID-19 epi curve for Iraq in weeks from 2020 to 2022. The graph was modified from a WHO situation report on Iraq as of July 24, 2022.

At the end of March 2021, AstraZeneca sent Iraq its first shipment of 336,000 doses of the COVID-19 vaccine, with an additional 1.1 million doses following shortly after. The Ministry of Health supplied vaccines to medical facilities around the country in accordance with the national vaccine deployment plan, with priority groups (healthcare workers, service members, and the elderly) receiving them first. Only 7.4% of the targeted Iraqis had received vaccinations by July 2021, yet the region had seen the second-highest cumulative number of confirmed cases (1,421,746) and the third-highest percentage of overall fatalities. Iraq set up more than 100 nationwide vaccination centres country in an attempt to increase vaccination when it was discovered that just 9% of the population had received all recommended vaccinations. By the end of July 2022, more than 11 million Iraqis, or more than 25% of the population, had been given at least one dose of the COVID-19 vaccination (see Figure 5).

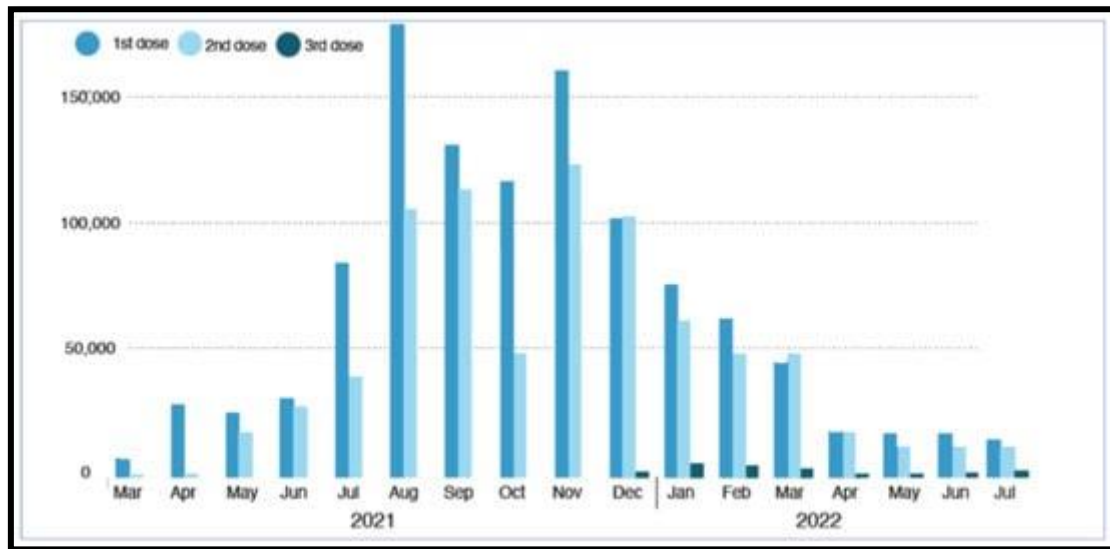


Figure 5 shows the dosages of the monthly COVID-19 immunisation in Iraq in 2021–2022. The graph was modified from a WHO situation report on Iraq as of July 24, 2022.

According to Tahir et al.'s (2022) investigated that , the Middle Eastern countries had a low level of vaccination acceptability for the COVID-19 vaccine. For instance, less than 20% of Iranians reportedly accepted the COVID-19 vaccine in 2021 . According to a research conducted in December 2020 to determine whether Arab nations (Jordan, Lebanon, the Kingdom of Saudi Arabia, and Iraq) would be likely to embrace the COVID-19 vaccine, vaccination acceptability was 17.1%, 18.5%, 29.4%, and 34.7%, correspondingly. . Abu-Farha et al's (2021) investigated that Most people in the Middle East were aware that COVID-19 existed, but two-thirds thought it was a biological weapon . This perception has affected the public's commitment to preventative measures. This disparity in vaccination uptake could be ascribed to local COVID-19 prevalence and death rates, the economic, social, and political state of the countries, education, national understanding, and most crucially, the confidence of the populace in their government and medical authority.

### **Conclusion**

A formerly prestigious and influential health system has been gravely damaged by decades of sanctions and war. Despite having sufficient financial resources, it cannot restore itself because it lacks the necessary tactics and abilities. Although the fragmented health strategy seems to emphasise creating a health system that uses the family healthcare approach, expenditures are mainly concentrated on increasing the number of secondary and tertiary healthcare facilities. The integration of needs, plans for strategy, and training programmes need to be revised to improve human resources. When the public sector sheds its exclusive hold on recruiting doctors, the health system will undergo significant changes without regulations. A solid empirical base for constructing policy is absent from discussions about strategic planning. Even the finest plans are challenging because of Iraq's ongoing sectarian unrest.

The need for increasing the use of cloud-based technology in medical facilities in Iraq has been demonstrated, which motivated researchers to look into the relationships between system variables- reliability, complexity, security, and privacy—on physicians' confidence and behavioural management. Physicians are more likely to accept and act in ways that support the adoption of cloud-based healthcare information technologies due to the system's reliability, complexity, safe medical data cooperation, and privacy. A novel strategy has been created to

increase the effectiveness of a health information system. Assume that the components that improve the utilisation of cloud-based health information systems are known to the system developers. If so, they can consider these things while designing the system's functioning. Doctors should be included in the system's development and implementation stages to increase its usefulness and efficacy. The ongoing provision of patient care in Iraq will be ensured by these procedures, making it simpler to maintain efficient interaction among medical professionals. To properly employ the cloud data system in Iraq, legislators must recognise the beneficial prior generations that impact medical conduct and confidence and ensure that the system currently in place has considered all of these variables. To improve system usage in actual practice, hospital administration must allocate resources, offer training, and guarantee user participation before system adoption.

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