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# Performance evaluation of health houses in Iraq 2021–2022: A descriptive study

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## Abstract:

**BACKGROUND:** A health house (HH) is a basic health facility in rural Iraq. The function of a HH is to provide simple health services and treatments such as giving injections, dressing simple wounds, and monitoring mother and child health. The duties also include dispensing medications, measuring blood pressure, and the daily monitoring of chlorine levels in water. These HHs also provide awareness on different subjects. The main objectives of this study are to assess the availability of the basic features of the HHs and core components of the framework of the World Health Organization (WHO) building blocks.

**MATERIALS AND METHODS:** A multistage sampling technique was used to select 50 HHs out of 497 in Iraq. A questionnaire comprising closed-ended questions was developed to be completed using the researcher's observations and interviews with the healthcare workers in the HHs. The questionnaire covered the basic features of HHs as recommended by the Iraq Ministry of Health (MOH) and the six WHO health system building blocks.

**RESULTS:** Fifty HHs were enrolled in the study. The availability score of basic features was 43.6% and the general service score was 55.1%. The service-specific score was 23.3%, the health workforce score was 29.6%, and the health information system score was 79.5%. The availability of essential medicines score was 21.2%, the health financing system score was 0.0%, and the leadership and governance score was 66.7%.

**CONCLUSION:** The HHs need to follow the standard criteria determined by the Iraq MOH to ensure the proper functioning of the health outlets.

## Keywords:

Blocks, evaluation, health, houses, performance, rural, World Health Organization

## Introduction

The Ministry of Health (MOH) is the leading healthcare provider in Iraq and its health system is mainly hospital oriented and capital intensive and therefore is unable to provide equitable access. Access to the health system is limited, and geographical disparities are significant. Public health services are provided through primary healthcare centers (PHCs) and public hospitals at a minimum charge.<sup>[1,2]</sup>

The Iraq MOH has undergone a reorientation making primary healthcare (PH) on the basis of its health system. The MOH's vision of primary healthcare is "An accessible, affordable, available, safe and comprehensive quality health service. With the highest possible standard, financially sound and founded on scientific principles to meet Iraqi people's present and future health needs, regardless of ethnicity, geographic origin, gender or religious affiliation." To achieve this vision, the MOH developed a basic health service package (BHSP) as an initial step.<sup>[3,4]</sup>

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A BHSP is defined as a “minimum collection of essential health services to which all populations need guaranteed access. Essential services are those health services that provide a maximum gain in health status (on the national level) for the money spent. Conversely, essential services are those that, if not provided, will result in the most negative impact on the health status of the overall population.” BHSP offers four facilities: community health houses (HHs), PH subcenters, PH main centers, and district hospitals.<sup>[3,5]</sup>

In suburban and rural Iraq, 29% and 26% of the people have to travel 30 km to the nearest PH center, whereas only 5.4% of urban dwellers travel that distance. The poor security environment has negatively impacted access to health facilities.<sup>[3]</sup>

To solve this problem, HHs were established with basic features suggested by the Iraqi MOH: fixed places such as a caravan or a building belonging to the MOH in a geographical area with 400–1000 persons. The nearest PH center would be 5 km or more away. The HH must have at least four rooms, one service delivery room, one nursing room, and two prevention rooms. It should have one medical assistant, one pharmacist assistant, another medical assistant to replace the pharmacist assistant in his absence, one conductor and registrar of tickets, one service worker, and one guard.<sup>[6,7]</sup>

HHs totaling 497 are distributed in different governorates in Iraq. Their responsibilities are to provide simple health services and treatments such as the administration of injections and dressing simple wounds and monitoring mother and child health. Furthermore, these HHs provide awareness on immunization schedules, food safety, and other diseases. Their duties also include the dispensing of medications according to the guidelines of the Directorate of Technical Affairs/Pharmacy Department, measuring blood pressure, and daily monitoring of water chlorine levels.<sup>[3,8,9]</sup>

This system was initially developed in the Islamic Republic of Iran when, in 1981, HHs were suggested as part of the Iranian PH system in rural areas to focus on the participation of individuals in the community. Thus, HHs were managed by trained local healthcare workers (HCWs) or “behvarzan” to provide basic medical needs.<sup>[10,11]</sup>

Evaluation of HHs in Iraq is done on a small scale. Periodic assessment of the overall/health system is essential to identify gaps and define appropriate interventions, as the HH scan improves health-care services and the healthcare system.

The World Health Organization (WHO) building block framework assesses the performance of a health system.

This framework of building blocks divides health systems into six core components: service delivery, health workforce, health information systems, access to essential medicines, financing, and leadership/governance.<sup>[12]</sup>

Therefore, the main objectives of this study were to assess the availability of the basic prerequisites of the HHs as recommended by the Iraq MOH and determine the availability of core components of the WHO building block framework.

## Materials and Methods

A descriptive study was conducted between November 2021 and April 2022 to evaluate the performance of 50 HHs in five governorates in Iraq, namely: Baghdad (Karkh and Resafa), Wasit, Diala, Babel, and Karbala. Ethical approval was obtained from the Institutional Review Board vide letter No. 1327 dated 19/11/2021 and informed written consent was taken from all participants in the study.

The inclusion criteria were HHs in fixed places, caravans, or buildings belonging to the MOH, but mobile HHs and those that were closed, insecure, difficult to access, or did not belong to the MOH were excluded.

A multistage sampling technique was used to select 50 HHs in Iraq. Ten of the 18 governorates were excluded. Simple random sampling was used to determine five governorates out of the remaining eight to cover 10% of the HHs in Iraq to generalize the results. Out of 41 health districts from the 5 governorates, 12 were selected based on accessibility and security. Then, a simple random sampling based on accessibility and security was used to determine the HHs in each health district to obtain the final 50 HHs out of 217 HHs in the last health districts.

The structured questionnaire covered the checklist of the six core components of the WHO health system building blocks as well as the basic requisites of HHs determined by the Iraq MOH. Specific indicators were adapted and adjusted to fit the Iraqi health system.<sup>[6,7,12]</sup>

The researcher collected data during multiple direct visits to each health department in the assigned Directorates of Health, health districts, PHCs, and HHs, discussed the objectives, and get official approval. Researcher observations and interviews with the HCWs in the HHs asking close-ended questions were used to complete the questionnaire. Furthermore, the HHs’ records, such as the total number of patients and the annual reports of medicines, were reviewed to obtain specific information required in the questionnaire. Google Maps were used to

locate HHs in remote areas, and assistance was sought from colleagues domiciled in those areas.

Multiple visits had to be made by the researchers to each health facility to get administrative approval because of different administrative protocols followed by the Directorates of Health. The direct visits to the HHs were challenging because of their remote locations that needed clear directions to reach.

The questionnaire was formatted into two parts. The first part comprised the availability of the basic features of the HHs, including a signpost, the distance to the nearest PH center which should be  $\geq 5$  km, recommended type of rooms, the number of rooms which should be  $\geq 4$ , and a catchment population of 400–1000 persons. The questionnaire also included questions on the type of premises. The first five features were given a value of one if present and zero if not present. The mean sum of the variables was calculated to obtain the score.

The second part comprised the adjusted WHO building blocks of the health system which included service delivery (general service readiness and service-specific readiness), health workforce, health information systems, access to essential medicines, financing, and leadership/governance.

General service readiness included basic amenities, equipment, and standard precautions for infection prevention. Basic amenities included power, water source, a room with privacy, adequate sanitation, communication equipment, access to a computer with the Internet, and emergency transportation. Basic equipment included an adult weighing scale, child weighing scale, thermometer, stethoscope, blood pressure apparatus, and a light source. Standard precautions for infection prevention included safe final disposal of sharps, safe final disposal of infectious waste, appropriate storage of sharp waste, proper storage of infectious waste, disinfectant, single-use disposable/auto-disable syringes, soap, and running water or alcohol-based hand rub, and latex gloves.

Service-specific readiness included family planning (FP) which includes (guidelines on FP, staff trained in FP, combined oral contraceptive pills, injectable contraceptives, and condoms); Antenatal care (ANC), which includes (guidelines on ANC, staff trained in ANC, iron tablets, folic acid tablets, and tetanus toxoids); child healthcare which includes (guidelines for Expanded Program on Immunization (EPI) and Integrated Management of Childhood Illness (IMCI), staff trained in EPI, IMCI, growth charts, packets of oral rehydration solution, amoxicillin, co-trimoxazole (trimethoprim), paracetamol, Vitamin A, Me-/albendazole (zental), and

zinc); daily monitoring of chlorine levels in water, and health education.

Each variable of service delivery was given a value of one when available and zero if not available. The mean sum of the variables was calculated to obtain the score.

Health workforce included the type of jobs the HCWs did (medical assistant, pharmacist assistant, conductor or registrar, service worker, and guard). Every job position of HCWs was given a value of one when available and zero if not available. The mean sum of the variables was calculated to obtain the score.

Health information systems included disease, events, and reports of outbreaks, monthly reports of the total number of patients, annual reports of medicines, and feedback from the primary health-care centers. Each variable was given a value of one if available and zero if not available. The mean sum of the variables was calculated to obtain the score.

Essential medicines required included salbutamol, glibenclamide, atenolol, captopril, simvastatin, amitriptyline, ciprofloxacin, amoxicillin, ceftriaxone, diazepam, diclofenac, and omeprazole. Each variable was given a value of one when available and zero if not available. The mean sum of the variables was calculated to obtain the score.

Health financing system included HH's establishment, additional wages, and financial allocation. The last two variables were given a value of one when available and zero if not available. The mean sum of the variables was calculated to obtain the score.

Leadership and governance included monthly and quarterly supervision at a higher level, weekly visits of the primary health-care center to the HH, and monthly and quarterly evaluations of the performance of the HH. Each variable was given a value of one when done and zero if not accomplished. The mean sum of the variables was calculated to obtain the score.

The statistical Package for the Social Sciences (SPSS) software, version 26, (IBM, Armonk, New York, USA), was used for data entry and analysis. The frequencies of the different basic features of the HHs were calculated. Central tendency and dispersion were calculated to measure the HHs' score on the availability of basic requirements and the WHO building blocks.

## Results

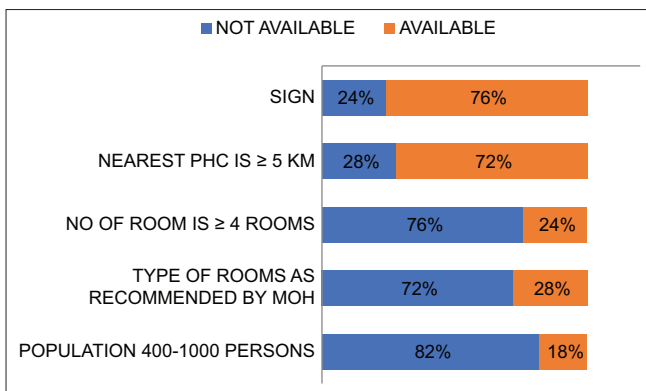
Fifty HHs in five governorates out of 497 HHs in Iraq were enrolled in this study. The study covered about 10%

of all HHs in Iraq. The response and completion rates were 100%. The response rate is the number of completed questionnaires (50)/number of questionnaires to be filled out (50) = 100%. While the completion rate is the number of completed questionnaires (50)/number of HCWs who started the questionnaire (50) = 100%.

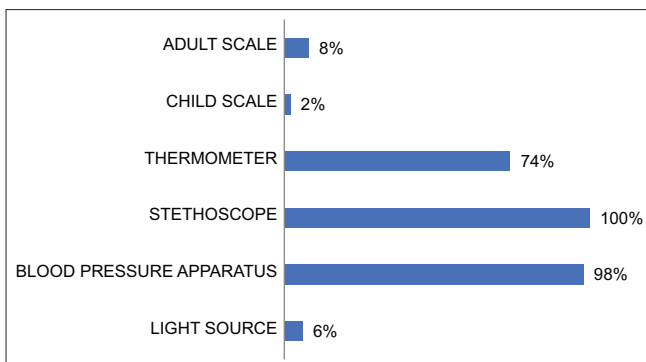
The premises of 41HHs (82%) were in caravans, 8 (16%) were in buildings, and 1 (2%) was in both. The availability score of the total basic feature of HHs was 43.6%. The most available requirement was the signpost, at 76%. In comparison, the catchment population of 400–1000 persons had the lowest availability score of 18%, as shown in Figure 1.

The general service delivery readiness score of the HH was 55.1% while the total basic amenity score was 47.7%, the total basic equipment score 48.0%, and the total standard precautions for infection control score at 69.6%.

As regards basic amenities, Figure 2 shows that 50 HHs (100%) had power. In contrast, 0.0% of the HHs had



**Figure 1:** Availability score (%) of tracer items of basic features of the health houses in Iraq 2021–2022. Items are as suggested by the Iraq MOH. Central tendency was calculated for a sample size of  $n = 50$ . MOH: Ministry of Health

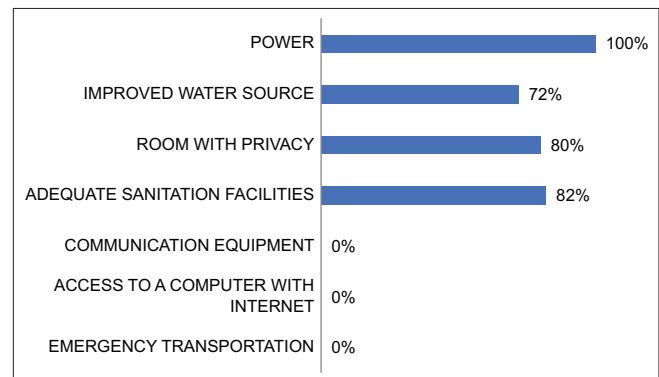


**Figure 3:** Availability score (%) of tracer items of the basic equipment of the health houses in Iraq 2021–2022. Basic equipment is a core component of the health system's general service readiness building block, according to the WHO. The central tendency was calculated for each item for a sample size of  $n = 50$ . WHO: World Health Organization

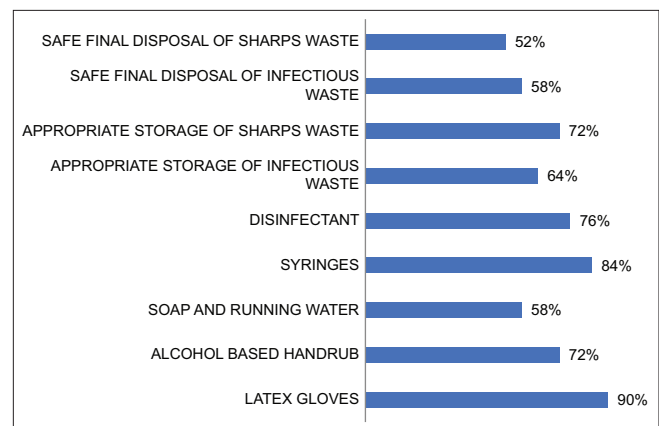
communication equipment, access to a computer with the Internet, or emergency transportation. The basic equipment items' score shown in Figure 3 indicates that only one HH (2%) had a child weighing scale, but 50 (100%) had a stethoscope. The standard precautions for infection control item scores, shown in Figure 4, revealed that only 26 HHs (52%) had safe final disposal of sharps, and 45 HHs (90%) had gloves.

The service-specific readiness score was 23.3%, the total FP score was 0.0%, the total ANC score was 12.4%, the whole child health-care score was 32.2%, and the daily monitoring of the level of chlorine in water score was 2.0%. The health education score was 70.0%.

Regarding ANC, none of the HHs had guidelines and training on ANC. However, 13 HHs (26%) had iron tablets, 17 (34%) had folic acid tablets, and only one (2%) had tetanus toxoid. On child health care, Figure 5 shows that 0.0% of the HHs had guidelines and training in child



**Figure 2:** Availability score (%) of tracer items of basic amenities of the health houses in Iraq 2021–2022. Basic amenities are core components of the health system's general service readiness building block, according to the WHO. The central tendency was calculated for each item for a sample size of  $n = 50$ . WHO: World Health Organization



**Figure 4:** Availability score (%) of tracer items of standard precautions for infection control of the health houses in Iraq 2021–2022. Standard precautions for infection control are core components of the health system's general service readiness building block, according to the WHO. The central tendency was calculated for each item for a sample size of  $n = 50$ . WHO: World health organization

health care, but 42 HHs (84%) had amoxicillin syrup and Me-/albendazole syrup.

The health workforce readiness score was 29.6%. Job positions of HCWs showed that 33 HHs (66%) had a medical assistant, 16 HHs (32%) had a service worker, 15 HHs (30%) had a conductor/registrar, and only 5 HHs (10%) had a pharmacist assistant and a guard.

The health information system readiness' score was 79.5%. Thirty-one HHs (62%) reported diseases, events, and outbreaks, 50 (100%) had a monthly report of the total number of patients, 33 (66%) had annual report of medicines, and 45 (90%) received a feedback.

The mean availability score of the 12 essential medicines in Iraq was 21.2%. Figure 6 shows that 49 HHs (98%) had amoxicillin capsules, but none (0.0%) had either captopril, simvastatin, amitriptyline, or ceftriaxone.

Regarding the financing system, 20 HHs (40%) were established by the government, 18 (36%) by a benefactor, and 12 (24%) by both. The financing system readiness score was 0.0%. No (0.0%) additional wages were given for transportation or overtime work to HCWs in the HHs, and there was 0.0% financial allocation to the HHs.

The leadership and governance readiness scores were 66.7%. Fifty HHs (100%) had monthly and quarterly supervision at a higher level, and weekly visits by the PHC, while 0.0% had an evaluation of performance.

### Discussion

The results showed that despite the Iraqi MOH decision to suspend the use of caravans as premises in which

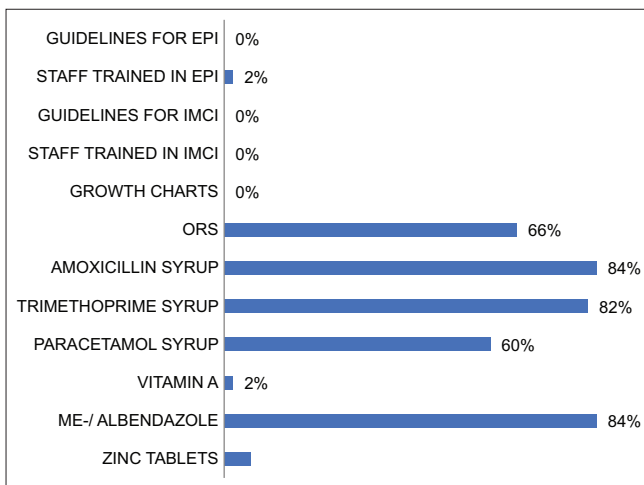
patients are seen on account of safety, about 82% of HHs were still housed in caravans donated to the MOH by benefactors or established by the MOH itself.<sup>[13]</sup>

Less than half (44%) of the basic prerequisites of HHs were available. This means that the HHs were not fully committed to assuring the basic requirements of the MOH were fulfilled, a situation that was likely to lead to a waste of human and financial resources. For instance, 82% of the HHs provide services for a catchment population of more than 1000 persons and should, therefore, be upgraded to health subcenters as recommended by the Iraq MOH. Besides, 28% of HHs were <5 km from the nearest PHC, which contravenes the directives for the establishment of an HH.<sup>[6]</sup>

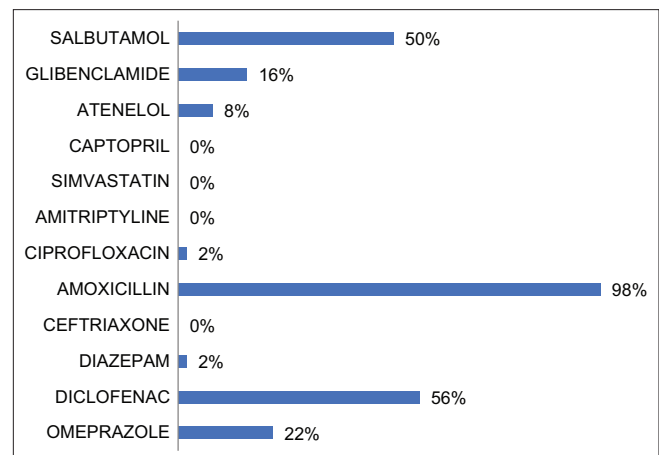
The general service readiness score was 55%, and service-specific readiness was 23%; this was expected since there was zero financial allocation to the HHs. No effort was being made toward the arrangement of education and training programs for HCWs. The lack of refresher training programs meant that the HCWs were unable to update their knowledge. This consequently had a negative impact on the quality of the provided services. Again, there needs to be more commitment to the instructions of the Iraq MOH.<sup>[6,8]</sup>

Daily monitoring of the level of chlorine in the water was done in only one HH. This basic qualitative test quickly determines the safety of the water for consumption and may, therefore, lead to the inability to assess the safety of the potable water. The most basic need for human beings is the ability to have access to safe and adequate drinking water.<sup>[14]</sup>

Health education, an essential responsibility of the HHs to educate people in order to improve their cooperation



**Figure 5:** Availability score (%) of tracer items of child healthcare of the health houses in Iraq 2021–2022. Child healthcare is a core component of the health system's service-specific readiness building block, according to the WHO. The central tendency was calculated for each item for a sample size of n = 50. WHO: World Health Organization



**Figure 6:** Availability score (%) of access to 12 essential medicines in the health houses in Iraq 2021–2022. Access to essential medicines is one of the WHO. Health system's building blocks. The central tendency was calculated for each item for a sample size of n = 50. WHO: World health organization

in different areas, was available in 35 HHs (70%). Studies have shown that education can positively affect health by improving the individual's behaviors to promote health.<sup>[15,16]</sup>

Health workforce readiness was about 30%, which indicates that most HCWs were outside the job positions recommended by the Iraq MOH. This would result in the inefficient utilization of resources in the HHs, thereby making the provision of certain essential services inadequate. These services would then have to be taken over by other HCWs who are better qualified for the job.<sup>[17]</sup>

Health information readiness was about 80%, the highest score of the other health system building blocks. The increased availability of different reports and feedback may help collect and convert data to information for health-related decision-making. Permitting analyses of health situations and trends, providing access to more complete, accurate, and structured documentation of clinical data, and access to analysis and interpretation of data can be used to study diseases and preventive measures in clinical practice.<sup>[12,18,19]</sup>

The availability of essential medicines was about 21%, which was expected since this is a general problem in all health facilities in Iraq. Data have shown that out-of-pocket spending on health in Iraq is more than 70%, while the WHO-recommended spending should not exceed 30%. Besides, the financial allocation for medications does not cover the total needs of essential medicines. This shortage of medication interferes with the duties of HH duties designed by the Iraq MOH.<sup>[7,20]</sup>

The financing system readiness' score was 0.0%, which is a direct violation of the recommendations of the Iraq MOH in all aspects. The result gives significant concern regarding the status of the WHO building blocks since, without the financial input, no medicines, amenities, or equipment can be made available, nor can any health promotion or prevention activities occur. HCWs' performance is also affected by its financial standing since WHO guidelines stress the need to strengthen the performance of HCWs with such incentives as extra wages and help with fares for transportation.<sup>[12,20,21]</sup>

The leadership and governance readiness scores were 67% because of the provision of high-level supervision, and 100% visits by PHC. This exemplifies effective oversight and receipt of health information, and ensures that rules and procedures are adhered to or enforced. Supportive supervision is a practical approach for the enhancement of the performance of health-care service delivery.<sup>[22]</sup>

The study has several limitations. First, most of the data were collected through notes, which may have had recall bias owing to imperfect and incomplete recordkeeping. Second, some of the data were self-reported, which makes for social-desirability bias. Third, there was not enough data to compare the study outcomes because of limited information. Despite these limitations, the study findings offer evidence-based recommendations for structuring upcoming programs to improve HH facilities.

## Conclusion

The findings reveal that the HHs do not follow the standard criteria determined by the Iraqi MOH to ensure their proper functioning. The HHs' basic requisites and the WHO health system building blocks, except for the health information system (considered a relatively strong point), were weak and did not comply with Iraqi MOH regulations. It is recommended that the Iraqi MOH revisits the concept of the HHs as health outlets and strictly adheres to the standards upon which the HHs were established.

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## Conflicts of interest

There are no conflicts of interest.

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