Funding, service and resource gaps at primary health care centres in Iraq

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Abstract

Background: Limited resources have hampered progress towards Universal Health Coverage at the primary health care level in Iraq.

Aim: To analyse the cost of primary health care services in Iraq and identify the resource gaps.

Methods: Using the CORE Plus tool, we collected and analysed data on finance and other resources, and services provided by 15 primary health care centres across 11 governorates in Iraq. We calculated the normative utilisation and cost estimates and compared them with the actual figures.

Results: Primary health care services were underutilised: only 52% (33–67%) of the 81 listed services were utilised across the 15 centres, and there was an average of only 1.2 visits per capita per year, compared with the estimated need of 4.5 visits. The expenditure incurred for the actual number of services was 2.5 times higher than the normative cost, due to over-staffing, despite shortages of medicines and supplies. The cost of meeting the need for 4.5 visits would be 21% more than the actual expenditure, but staffing costs would have to be reduced by 39% and medicines and supplies financing increased by 640%.

Conclusion: Funding for services at the primary health centres in Iraq was insufficient although the centres were overstaffed. To improve access and quality of services and progress towards Universal Health Coverage, staffing should be aligned with service needs and adequate resources provided.

Keywords: primary health care, health care, health resource, health finance, funding gap, staffing, UHC, Iraq

Citation: Collins D, Al-Taie A, Hipgrave D, Al Gumrawi OAA, Ali AA. Funding, service and resource gaps at primary health care centres in Iraq. East Mediterr Health J. 2026;32(4):182–187. https://doi.org/10.26719/2026.32.4.182.

Received: 06/03/2025; Accepted: 30/09/2025

Background

During the 1970s, the healthcare system in Iraq was considered one of the strongest in the Middle East (*1*). However, sustained reductions in public investment following periods of political instability and successive conflicts led to a substantial decline in service availability and quality (*1*). By 2003, the health system was operating under severe constraints, including malfunctioning equipment, inadequate drug supplies and weakened infrastructure. Although efforts were made during the 2003–2011 occupation to rebuild the system, weaknesses in governance and management limited progress (*1*).

In 2009, the Ministry of Health (MoH) introduced a Basic Health Services Package (BHSP) to improve service delivery from community to district hospital levels, and the package was updated in 2020 (*2*). A national health policy for 2014–2023 reaffirmed the government's commitment to progressing towards Universal Health Coverage (UHC), understood as access to needed good-quality health services without financial hardship. The policy included a strategic emphasis on strengthening primary health care (PHC) to improve access to basic services (*3–6*). As public sector service quality declined and the availability of medicines and equipment decreased, an increasing proportion of PHC services in Iraq was sought through largely unregulated private clinics, which were perceived as providing better quality care (*7*).

Implementation of the BHSP has been challenging, partly because it has been underfunded (*4*). The BHSP had not been costed previously, which limited the ability to allocate sufficient funding. To address this gap, in 2022, the MoH, with support from UNICEF, conducted a costing study of selected PHC centres and strengthened national capacity for PHC costing (*8*).

This paper reports the costing study, which aimed to estimate the normative cost of delivering the BHSP at an acceptable standard of quality, compare these estimates with actual expenditure, and identify the funding gap in efforts to achieve appropriate service coverage.

Methods

The costing methodology and tool used for this study were originally developed by Management Sciences for Health in 1995 for costing PHC packages. The tool, known as CORE Plus, has been widely used for PHC costing studies (*9–10*). CORE Plus was also included in an international review of PHC costing tools conducted in 2008 (*11*).

Data on services, resources and finances were entered into the tool to generate a model for each facility. The tool produced a set of reports analysing the data by service area, input category and programme, enabling comparisons of cost structures and resource requirements. A separate set of spreadsheets was linked to the facility models to compare the results across health centres and to generate the tables presented in this paper.

The methodology involved estimating the number of services needed and calculating the normative cost of delivering them. These results were then compared with the actual number of services provided and the expenditures incurred to determine the gaps (*12–13*). Only recurrent costs were included to allow comparison with government recurrent budgets and because capital costs are difficult to capture and project accurately.

Data were collected from 16 primary health care centres (PHCCs) and 2 sub-PHCCs, the main government PHC facility types. Data for 2019 were used because it was the most recent full year before COVID-19 had a major impact on service provision. This study complemented an immunisation costing study of 73 PHCCs conducted in 2019, and used a subset of those facilities (*14*).

For the immunisation study, facilities were stratified by region and selected through multistage probabilistic sampling. The 16 PHCCs selected for the present study were drawn from 12 of the 13 health directorates included in the earlier study, plus one additional directorate. Selection within each directorate was based on proximity to the main city or town for reasons of access and security. One PHCC lacked complete data and was excluded. The 2 sub-PHCCs were included in the costing analysis; however, their results are not reported separately because their operational characteristics differ from those of PHCCs. The remaining 15 facilities were distributed across 13 directorates in 11 governorates; 9 were in the Central and South Region, 2 in the Kurdistan Region of Iraq and 2 in the retaken areas. Of these, 9 facilities were in urban areas and 6 in rural settings.

Data on facility operations, service volumes, resources and finances were obtained from facility managers using a structured questionnaire. Normative staffing levels and costs for service delivery were based on standard treatment protocols developed using national and regional data and reviewed by a panel of medical experts. Standard salary and allowance rates were not available; therefore, actual rates from staffing lists were used.

Normative numbers of administrative and support staff (including diagnostic technicians and pharmacists) were not available; therefore, the normative costs for these categories of staff were assumed to be 27% of the total, based on the average actual proportion across the sampled facilities. Normative figures for non-staff operating costs were treated in the same way. The normative quantities of medicines and supplies were derived from the standard treatment guidelines, and the prices were based on government figures. The total facility operating costs were allocated across the services according to the total amount of technical staff time required to provide them.

The numbers of needed services were estimated using the facility catchment populations and the expected disease incidence and prevalence rates for curative services, and government targets for preventive services. It was assumed that the PHCCs should cover all needs for preventive services (such as vaccinations, which are only provided in the public sector in Iraq). For curative services, the estimates were adjusted to reflect the proportion of services delivered in the private sector.

Ethics approval

Ethics approval, confidentiality and data safeguarding were not required for this study because no confidential data were collected and no patients were interviewed.

Results

Facility information

Two of the urban facilities were open 24 hours a day. The other urban facilities were open for an average of 310 (290–365) days per year and 6.7 (6–8) hours per day, while the rural facilities were open for an average of 319 (263–358) days per year and 6 (5–7) hours per day. The average urban catchment population was 37 414, with 34 031 (13 901–70 000) for the urban facilities and 40 773 (15 000–85 000) for the rural facilities (*14*).

Service utilisation

The package for the PHCCs was defined as 81 services grouped into 8 programmes (Table 1). The number of services utilised at the PHCCs in 2019 ranged from 14 826 to 98 177, with an average of 45 114 (Table 1). This corresponded to 1.2 (0.6–2.3) services per capita, including 0.6 (0.2–1.4) for curative services and 0.6 (0.1–1.1) for preventive services.

Only 52% (33–67%) of the 81 listed services were utilised across the 15 PHCCs. Thirteen services were not reported by any PHCC, and some others were underreported. These included family planning counselling, contraceptive provision other than oral contraceptives, treatment of measles, sexually transmitted diseases, and screening for high cholesterol, breast and cervical cancer. It was not possible to determine whether these services were unavailable, available but not utilised, or underreported.

Vaccination services represented 35% of all utilisation, followed by communicable diseases (25%), child health (17%) and noncommunicable diseases (NCDs) (17%). There was significant variation across PHCCs: vaccinations ranged from 8% to 55%, communicable diseases from 14% to 42%, and NCDs from 3% to 33%.

The overall need for services across the public and private sectors was estimated at 5.6 per capita per year. Assuming that 63% of curative services and 100% of preventive services would be sought at PHCCs, the adjusted need was 4.5 services per capita per year (Table 1). This was significantly higher than the observed 1.2

Table 1 Average actual and needed utilisation figures for the main PHCCs, 2019

	Actual	Needed	With ranges Actual	With ranges Needed
Catchment population	37 414	37 414	37 414 (13 901–85 000)	37 414 (13 901–85 000)
Preventive services market share	100%	100%	100%	100%
Curative services market share	63%	63%	63% (25–100%)	63% (25–100%)
Proportion of service types provided	52%	100%	52% (33–67%)	100%
Number of services utilised	45 114	168 718	45 114 (14 826–98 177)	168 718 (52 849–395 345)
Number of preventive services	24 324	104 351	24 324 (4 226 –60 950)	104 351 (39 019–238 589)
Number of curative services	20 784	64 366	20 784 (7 334 –51 367)	64 366 (10 288–156 756)
Number of services per capita – total population	1.2	4.5	1.2 (0.6–2.3)	4.5 (3.5–5.6)
Number of preventive services per capita – total population	0.6	2.8	0.6 (0.1–1.1)	2.8 (2.5–2.8)
Number of curative services per capita – total population	0.6	1.7	0.6 (0.2–1.4)	1.7 (0.7–2.8)
Child health	17%	10%	17% (5–31%)	10% (9–12%)
Vaccination	35%	17%	35% (8–55%)	17% (14–23%)
Women's health	5%	3%	5% (2–9%)	3% (2–3%)
Family planning	0%	8%	0% (0–1%)	8% (6–10%)
Communicable diseases	25%	8%	25% (14–42%)	8% (4–10%)
Noncommunicable diseases	17%	44%	17% (3–33%)	44% (33–51%)
Emergency medicine	0%	0%	0%	0%
Public health	2%	11%	2% (0–20%)	11% (8–15%)

Small differences are due to rounding. Figures for the sub-PHCC and FHC are not included.

services per capita in 2019, indicating a large gap between expected and reported utilisation and suggesting that individuals may have sought care outside PHCCs or not sought formal care. Some counselling and screening services, such as family planning counselling, had 100% utilisation targets set by the MoH. If these targets were reduced from 100% to 20%, the overall utilisation rate would decrease to 3.6 services per capita per year.

Actual and normative costs for the PHCCs

The actual total expenditure in 2019 for the 15 sampled PHCCs ranged from US$ 281 026 to US$ 3 157 080, with an average of US$ 1 039 904 (US$ 23.05 per service and US$ 27.29 per capita for the catchment population) (Table 2). On average, technical staff costs accounted for 59% of total costs, support and administrative staff costs for 27%, medicines and supplies for 9%, and facility operating costs for 5%.

The average normative cost of providing the actual number of services was US$ 408 036, corresponding to US$ 9.04 per service and US$ 10.91 per capita (Table 2). This represented 39% of the actual expenditure, indicating that, on average, the PHCCs spent 2.5 times the amount needed. Across the PHCCs, actual expenditure ranged from 159% to 451% of the normative cost. This level of overspending was driven primarily by technical staff salary costs, which were, on average, 569% of the amount needed, and support and administrative salaries, which were 256% of the amount needed. In contrast, spending on medicines and supplies was only 67% of the amount needed. A total of 11 PHCCs underspent on medicines and supplies (26–85%), while 4 overspent (125–146%). Managers in 11 PHCCs reported medicine stockouts. Based on the normative costs for the actual number of services, the highest cost programme would have been NCDs (27%), followed by communicable diseases (26%), and child health (20%).

The higher technical staff expenditure observed in some facilities was primarily due to staffing levels that exceeded service requirements. Remuneration rates also varied widely; for example, average physician remuneration ranged from US$ 7376–32 617 (median US$ 13 352). A comparison of staffing lists with normative requirements showed that 7 PHCCs had more doctors than required, 12 had more dentists, 13 had more nurses, and 3 had more midwives. Three facilities had particularly large surpluses of technical staff. Requirements for ancillary, support and administrative staff could not be assessed because staffing norms were unavailable. However, 4 PHCCs appeared to have more laboratory technicians and one appeared to have more pharmacists. Support and administrative staffing levels also appeared to be high in some PHCCs. Despite these surpluses, 12 PHCCs reported shortages in other categories, such as dental assistants, indicating an imbalance between staffing composition and service delivery needs.

Table 2 Actual expenditures and normative costs for the sampled PHCCs, 2019

Cost data – average for main PHCCs	Actual services and actual expenditures	Actual services and normative costs	Needed services and normative costs
Total cost	US$ 1 039 903 (US$ 281 026–3 157 080)	US$ 408 036 (US$ 132 662–1 049 016)	US$ 1 262 411 (US$ 332 618–3 492 509)
Cost per service	US$ 23.05 (US$ 10.08–40.40)	US$ 9.04 (US$ 4.95–13.52)	US$ 7.48 (US$ 5.10–9.68)
Cost per capita – total population	US$ 27.29 (US$ 8.55–48.96)	US$ 10.91 (US$ 3.95–28.36)	US$ 33.74 (US$ 19.39–49.13)
Input costs			
Technical staff costs	59% (44–71%)	26% (16–35%)	34% (18–48%)
Support and administrative staff costs	27% (14–43%)	27% (16–37%)	9% (4–16%)
Medicines and medical supplies	9% (3–17%)	33% (21–52%)	52% (41–70%)
Facility operating costs	5% (1–18%)	14% (2–49%)	4% (1–17%)
Programme costs			
Child health	NA	20% (6–31%)	9% (6–11%)
Vaccination	NA	13% (2–30%)	6% (5–10%)
Women's health	NA	13% (5–35%)	5% (4–7%)
Family planning	NA	0% (0–1%)	6% (4–8%)
Communicable diseases	NA	26% (12–44%)	11% (9–14%)
Noncommunicable diseases	NA	27% (7–41%)	48% (36–54%)
Emergency medicine	NA	0%	0%
Public health	NA	1% (0–13%)	16% (12–23%)

Note: the figures in the needed services and normative costs column are for the needed services shown in Table 1.

Based on the projected need for 168 718 services for the average PHCC as shown in Table 1, the average recurrent cost would be US$ 1 262 411 (US$ 332 618–3 492 509), with an average of US$ 7.48 per service and US$ 33.74 per capita for the catchment population. Medicines and supplies would comprise 52% of this cost, technical staff 34%, administrative and support staff 9%, and operating costs 4%. Non-communicable diseases would represent 48% of the total cost, followed by public health (screening schoolchildren) (16%) and communicable diseases (11%).

Although the number of services would be approximately 4 times the actual number provided in 2019, the total required cost of US$ 1 262 411 is only 21% higher than the amount that was spent. However, to achieve the increased number of services, staffing costs would have to be reduced by 39% and medicines and supplies costs increased by 640%. If, as mentioned above, the targets for the five counselling and screening services were reduced from 100% to 20%, the average total projected cost would decrease by 17%.

Discussion

Although the number of sampled facilities was small, the findings are likely representative of conditions in many facilities across the country. Low utilisation has been repeatedly documented in previous studies, which have attributed this pattern to poor-quality services, long travel distances to health centres, and limited availability and affordability of medicines (*15–19*). Challenges in resource allocation have also been identified in other studies (*4,16,20,21*).

The large numbers of excess staff observed in this study can be partly explained by the national law enacted in 2000, which remained in force until 2024 and required the Ministry of Health to hire all graduates of health-related disciplines. The variation in excess staffing across facilities could not be explained, but may relate to the ethnic or religious composition of the workforce and the perceived advantages of particular locations. Although some publications have described shortages of health personnel, especially outside

major cities, these assessments may have been based on data from the 2014 National Health Policy document (*3*). Shortages at population level can coexist with excess staff at individual facilities if there are too few facilities or if facilities are unevenly distributed, preventing appropriate deployment. It is also possible that some staff allocated to PHCCs spent part of their time working in the private sector or in the afternoon fee-for-service clinics, a form of public dual practice that has long been reported in Iraq (*19,22,24*). Some staffing lists may have included individuals who were not actually present in the facilities, either as ghost workers or as staff formally assigned to multiple public facilities. Such issues are not uncommon in settings where corruption affects the public healthcare system (*25*).

The only other PHC costing study carried out in Iraq in recent years that could be compared with our findings was conducted by the MoH, but it was not publicly available. A national health accounts study published in 2018 also lacked cost data at the PHC level and therefore could not be used for comparison. Similar costing studies have been undertaken in other countries, but their results are not directly comparable because of differences in cost structures, data limitations, and the levels of resource inefficiency in Iraq (*27,28*).

The implications of the problems identified in this study are significant. Poorer patients who rely on PHCCs may not have sought care, delayed seeking care, or self-treated. Alternatively, they would have spent time and/or incurred travel costs to go to public hospitals, which may also have poor-quality services and medicines shortages, or to private providers, which could result in financial hardship (*22*).

Study limitations

The results of this study are subject to several limitations. Record-keeping at the health centres was incomplete and of poor quality, with almost no electronic data. Expenditure data for management and support functions and supplies were probably not complete at some facilities, although this would not have materially affected the results. For the normative cost estimates, the main areas of uncertainty relate to the challenges of calculating catchment populations and market share, as well as incidence and prevalence rates. The analysis did not include capital costs related to equipment or buildings, and did not assess constraints to scaling up, such as providing necessary equipment and expanding building space. The number of facilities was relatively small due to funding limitations and, while the selection of directorates was representative, the selection of facilities within the directorates was not random due to access and security constraints. The results reported in the paper were from the same type of facility, and while the facilities were located in both urban and rural areas, the designated package of services was the same and variations in catchment populations between them were not significant. Data checks were limited to querying outliers and adjusting for obvious errors. Tests for relationships were not conducted, and regression analysis was not considered worthwhile because of the quality of the data.

Given the small sample and these limitations, the results of the study should be regarded as illustrative, especially in relation to scaling up needs and related costs. However, the study provides insights into some of the challenges of managing and financing PHC in Iraq and supports the development of recommendations for improvement.

Conclusions

The analysis showed that there was insufficient funding to meet service needs at the health centres. It also showed that appropriate staffing would allow the reallocation of funding to medicines and supplies, which were underfunded. It is likely that these issues are widespread across the country and may persist despite the 2024 policy change on hiring. Furhter comprehensive research is needed to determine whether these issues persist and to provide a basis for the reallocation of resources.

Funding: The study was funded by the United Nations Children's Fund.

Conflict of interests: None declared.

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