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**Research Paper**

# Water, sanitation, and hygiene conditions in 186 healthcare facilities of the Catholic Church

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## ABSTRACT

United Nations reports have described the alarming situation of water, sanitation, and hygiene (WASH) conditions in healthcare facilities (HCFs) in low- and middle-income countries. This article presents the findings of a survey conducted in 186 HCFs belonging to the Catholic Church mainly situated in low-income areas. This study sought to determine whether there were gaps in WASH services in a group of Catholic HCFs and to ascertain the distribution of these gaps between and within facilities. Data were collected via interview and self-assessment, using a survey based on WHO/UNICEF global monitoring indicators for WASH in HCFs, including water, sanitation, hand hygiene, environmental cleaning, and waste management. All 186 HCFs were deficient in at least one WASH service indicator, and 35% of the HCFs did not meet any of the five indicators. Moreover, this research suggests that having a maintenance plan duly implemented and including WASH in budgeting are good predictors of above average WASH conditions. Future research is needed to comprehensively determine the status of WASH in Catholic HCFs, as well as to understand how best to improve WASH in non-governmental HCFs.

**Key words:** Catholic Church, healthcare facilities, JMP, low-income, WASH

## HIGHLIGHTS

- The first study of WASH in a sample of Catholic healthcare facilities in poor areas using JMP indicators.
- Of the 5 JMP indicators, facilities most frequently met the basic service requirements for hand hygiene followed by water, and 10 facilities met 4 indicators.
- The distance of water sources is often a problem.
- A maintenance plan duly implemented and including WASH in the facility's budgeting are critical elements.

## INTRODUCTION

Proper water, sanitation, and hygiene (WASH) conditions along with waste management in healthcare facilities (HCFs) are foundational to the delivery of safe healthcare services, including childbirth. Without these basics in place, it is impossible for healthcare workers to perform infection prevention and control (IPC) procedures, including handwashing and environmental cleaning (Zaidi *et al.* 2005; Saizonou *et al.* 2014; Oza *et al.* 2015; WHO & UNICEF 2017). The impact of poor WASH services became even more evident during the COVID-19 pandemic, as facilities struggled to practice IPC (McGriff & Denny 2020; UN General Assembly 2023).

Facilities in low- and middle-income countries often lack the resources to implement and maintain high standards of cleanliness and hygiene (Gnanasekaran *et al.* 2024). Inadequate WASH conditions:

- put patients at greater risk of healthcare-associated infections (HAIs) (Watson *et al.* 2019: 1, 2);
- seriously compromise the HCFs' capacity to control an outbreak (Abu *et al.* 2021; Fanfan & Exantus 2021);
- compromise efforts to stop antimicrobial resistance (AMR) (Jinks *et al.* 2020; Musoke *et al.* 2021); and
- can deter care seeking behaviors of local populations (Bouzid *et al.* 2018).

These deficits add up to more than just health impacts. The World Bank reported that in 2022, HAIs in Eastern and Southern Africa cost at least $US6 billion and investing in comprehensive WASH and waste management could yield a cost–benefit ratio of 5.8 for all economic costs (Hutton *et al.* 2024). According to recent estimates (Chaitkin *et al.* 2022), financial needs in public HCFs situated in least developed countries (LDCs) are greatest for non-hospital facilities ($7·4 billion [94%] of $7·9 billion) and for facilities in rural areas ($5·3 billion [68%]).

Despite HCFs requiring WASH in order to operate safely, thousands of facilities globally are providing care with inadequate conditions. According to the initial baseline report from the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply, Sanitation, and Hygiene (WASH), a quarter of the world's HCFs lacked basic water services, and more than 1.5 billion people had no sanitation service at their HCF (WHO & UNICEF 2019a). The situation was especially alarming in LDCs, where 45% of HCFs lacked basic water services. These findings were recently reaffirmed in an updated JMP Progress Report from 2022, and it was discovered that 50% of HCFs globally lacked basic hygiene services (WHO & UNICEF 2022). Meanwhile, data from 14 low- and middle-income countries revealed that fewer than 50% of rural HCFs had access to basic WASH services (Kmentt *et al.* 2021). Inadequate WASH conditions in HCFs can be caused by a lack of available financial or human resources as well as a lack of prioritization (McGriff & Denny 2020; Galhotra *et al.* 2023: 208).

The existing data on WASH in HCFs from the JMP focuses predominately on public HCFs. Limited information is available on conditions in non-governmental facilities, in particular facilities that are faith-based, nor is there substantial evidence of the situation in scientific literature. Moreover, in given countries, the capacity for national monitoring of WASH in HCFs generally remains very low. Specifically, monitoring at the sub-national level and in rural settings is almost non-existent (Njung'e 2020).

With more than 5,400 hospitals, 14,200 dispensaries, and 560 leprosaria (Secretaria Status 2023), the Catholic Church can be considered the world's largest 'unified' healthcare provider (Dickson & Petito 2022, para. 37). Supplementary material contains an overview of the Catholic organization in the healthcare sector.

Some religious congregations and dioceses do not hesitate to set up HCFs in poor, underserved, and remote settings. These facilities are often the sole provider of healthcare services for poor and marginalized communities. Most of these facilities do not receive financial support from Governments (in most of the participating countries, Catholic facilities operate in a poorly regulated environment and in some cases alarming levels of instability) and over time can prove especially difficult to maintain, as they rely on constant fundraising. This said, these HCFs are not an isolated and totally independent reality: they usually belong to a network such as the Camillan sisters or a Caritas organization and each network will typically do its best – according to its available resources – to assure that a single HCF in trouble receives whenever possible financial support or in-kind support such as qualified healthcare staff. This gives to Catholic HCFs a special resilience, even in poor areas.

No comprehensive survey on the conditions of WASH in Catholic HCFs has been conducted to date. Studying a sample of Catholic HCFs in such challenging contexts would provide insights into the situation of non-governmental HCFs.

Due to these circumstances, in 2019, the Holy See's Dicastery for Promoting Integral Human Development (DIHD) encouraged Church authorities at the national level to monitor and if necessary improve the situation in HCFs about the following: drinking water (DW); sanitation; the state of infrastructure; hygiene; and maintenance procedures (DIHD 2019). Moreover, according to Pope Francis, access to DW is 'a basic and universal human right' (2015, para. 30), and promoting adequate WASH conditions is consistent with such positioning (DIHD 2020).

As such, in 2020, the DIHD initiated the WASH assessment in a sample of Catholic HCFs mainly situated in low-income settings in low-income settings (Table 1). The assessment was designed, promoted, and carried out by the DIHD in coordination with several partners including Catholic and non-Catholic NGOs and religious congregations (known henceforth as the 'Initiative'). The purpose of this study was to determine whether there were gaps in WASH services in these HCFs and to ascertain the distribution of these gaps between and within facilities.

## METHODS

To undertake this assessment, a survey instrument was developed, with questions aligned with international standards and monitoring indicators including the JMP indicators for WASH in HCFs (WHO & UNICEF 2018) and the JMP draft indicators for WASH and IPC in delivery rooms (WHO & UNICEF 2019b). A virtual training on the survey instrument was provided to the focal points for each set of HCFs. See the full survey instrument in the Supplementary material (Annex 4).

The data were collected through interviews with facility staff and through direct observation of WASH services. The assessments were conducted by facility staff, except in a few rare cases where a WASH expert was sent to provide assistance when staff did not have WASH technical capacity. In total, 176 out of the 186 assessments (Table 1) took place between September 2020 and March 2021. The remaining 10 assessments had been undertaken by a partner in 2019.

The sampling process was neither random, nor representative. Local Church authorities were asked by the DIHD to identify HCFs to participate in this assessment. The assessment was not designed to be representative of a given area or of the Catholic healthcare system in its entirety. The Initiative did however encourage Local Church authorities to recommend a diversity of HCFs (ownership, location, size, and type). Each Local Church authority was asked to select not more than 10 HCFs, though several countries (Kenya, Haiti, and Philippines) took it upon themselves to assess a larger number and those have been included in this paper. More than half of the 23 countries included are categorized by the UN as LDC; some of them were not covered by the aforementioned 2019 JMP Report (insufficient data) while others have already been targeted by WASH in HCF studies, e.g. Uganda (Mulogo *et al.* 2018), India (Tseng *et al.* 2020), and Ghana (Doku *et al.* 2022).

The data obtained were processed using R (R Core Team 2023). HCFs were analyzed overall and in different groupings (type/geography). Countries with 9+ HCFs were considered individually, while those with less than 9 were assembled as 'rest of Africa' or 'rest of the World'. The JMP criteria and indicators (WHO & UNICEF 2019a, 2022, 2023) called 'service ladders' (Supplementary material) were used as a benchmark, analyzing to see which of the five indicators (water, sanitation,

**Table 1** | Overview of the facilities

| Country | Number of HCFs assessed (total) | Hospitals | Medium size HCFs (health centers) | Small HCFs (health posts, ambulatories, and dispensaries) | Specialized clinics and similar facilities | HCFs having a delivery room |
|---|---|---|---|---|---|---|
| Albania | 3 | 0 | 1 | 1 | 1 | 0 |
| Angola | 7 | 2 | 5 | 0 | 0 | 1 |
| Burkina Faso | 1 | 0 | 1 | 0 | 0 | 1 |
| Cameroon | 3 | 0 | 2 | 0 | 1 | 2 |
| DRC | 10 | 1 | 7 | 2 | 0 | 10 |
| Ethiopia | 2 | 1 | 0 | 0 | 1 | 1 |
| Ghana | 4 | 2 | 2 | 0 | 0 | 4 |
| Haiti | 50 | 2 | 32 | 16 | 0 | 21 |
| India | 1 | 0 | 0 | 0 | 1 | 0 |
| Kenya | 29 | 3 | 12 | 14 | 0 | 26 |
| Malawi | 10 | 0 | 10 | 0 | 0 | 10 |
| Mali | 5 | 1 | 4 | 0 | 0 | 4 |
| Nigeria | 11 | 5 | 6 | 0 | 0 | 7 |
| Peru | 1 | 0 | 1 | 0 | 0 | 0 |
| Philippines | 23 | 4 | 5 | 3 | 12 | 8 |
| Senegal | 2 | 2 | 0 | 0 | 0 | 0 |
| Sierra Leone | 2 | 1 | 1 | 0 | 0 | 2 |
| S. Sudan | 5 | 3 | 2 | 0 | 0 | 5 |
| Tanzania | 4 | 1 | 3 | 0 | 0 | 4 |
| Thailand | 2 | 0 | 0 | 0 | 2 | 0 |
| Uganda | 9 | 2 | 7 | 0 | 0 | 9 |
| Zambia | 1 | 0 | 0 | 0 | 1 | 0 |
| Zimbabwe | 1 | 0 | 1 | 0 | 0 | 0 |
| Total | 186 | 30 | 102 | 36 | 19 | 115 |
| Total % | 100% | 16.12% | 54.84% | 19.35% | 10.21% | 61.83% |

hygiene, waste management, and environmental cleaning) met JMP 'basic' service levels (Figure 1). In addition, the availability of WASH services specifically in the delivery room was analyzed based on the draft JMP indicators for delivery rooms, given the importance of hygiene for maternal and child health outcomes (Campbell *et al.* 2015: 259; Schuster-Wallace *et al.* 2019). Lastly, a comparison was conducted on the availability of WASH services and the availability of an operations and maintenance (O&M) plan, as well as a budget for WASH.

## RESULTS AND DISCUSSION

### Global monitoring indicators

Of the five indicators, HCFs most frequently met the basic service requirements for hand hygiene (86 HCFs; 46%), followed by water (66 HCFs; 35%), then waste management and environmental cleaning (28 HCFs each; 15%). Meanwhile, sanitation had the least number of facilities meeting basic service (17 HCFs; 9%), but the most meeting the requirements for limited service (136 HCFs; 73%). Environmental cleaning was the highest among the no service level (105 HCFs; 56%), with water as the second indicator that facilities most often had no service (81 HCFs; 44%).

When comparing these findings to the global status of WASH in HCFs from the 2022 JMP Report, only two of the JMP indicators have global estimates: water and hand hygiene. Globally, it is estimated that 78% of HCFs have basic water service. However, only 35% of the facilities in this study met this requirement. For hand hygiene, it is estimated that globally 51% of HCFs have basic service, which coincides with the findings of this study at 46% of HCFs. Though a global JMP estimate does not exist for sanitation, the country data available from JMP demonstrate that this is the least commonly met indicator, likely due to the high number of criteria within the indicator (five in total). That sanitation was the least well-performing indicator in this study is then unsurprising. Similarly, no global estimate exists for waste management; however, JMP data indicate that the majority of facilities fall in the limited service level, as did the HCFs in this study. Because the environmental cleaning indicator is new, limited data is available from the JMP, and thus, no useful comparison can be made at this time.

Figure 2 provides a detailed analysis of the JMP service ladder, breaking down each of the indicators by their individual components based on the JMP questions. For water, the location of the water source off-premise was the most common reason for HCFs to not meet basic service, with 99 of the 186 HCFs (53%) not meeting this criteria. However, 159 of the 186 HCFs (85%) had water available from their main source on the day of the assessment. This trend matches the findings in the JMP 2022 Progress Report. For sanitation, while the majority of HCFs (88%) had usable toilets, they were often not equipped with menstrual hygiene facilities (76%) or did not have toilet accessibility for people with limited mobility

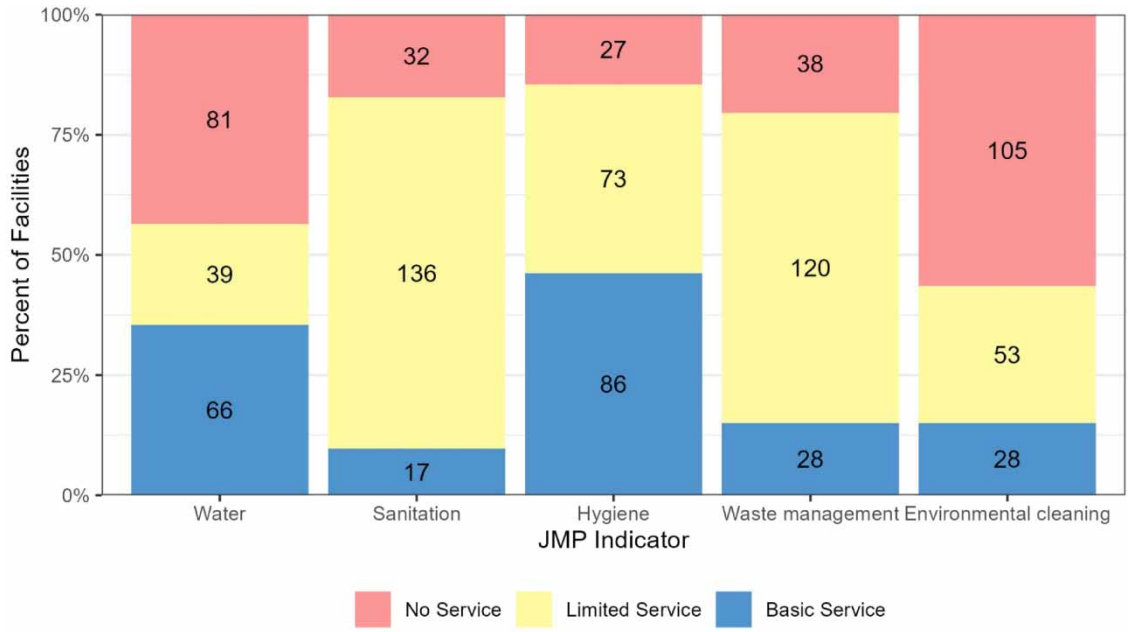


**Figure 1** | Aggregated performance of the HCFs according to JMP service levels.

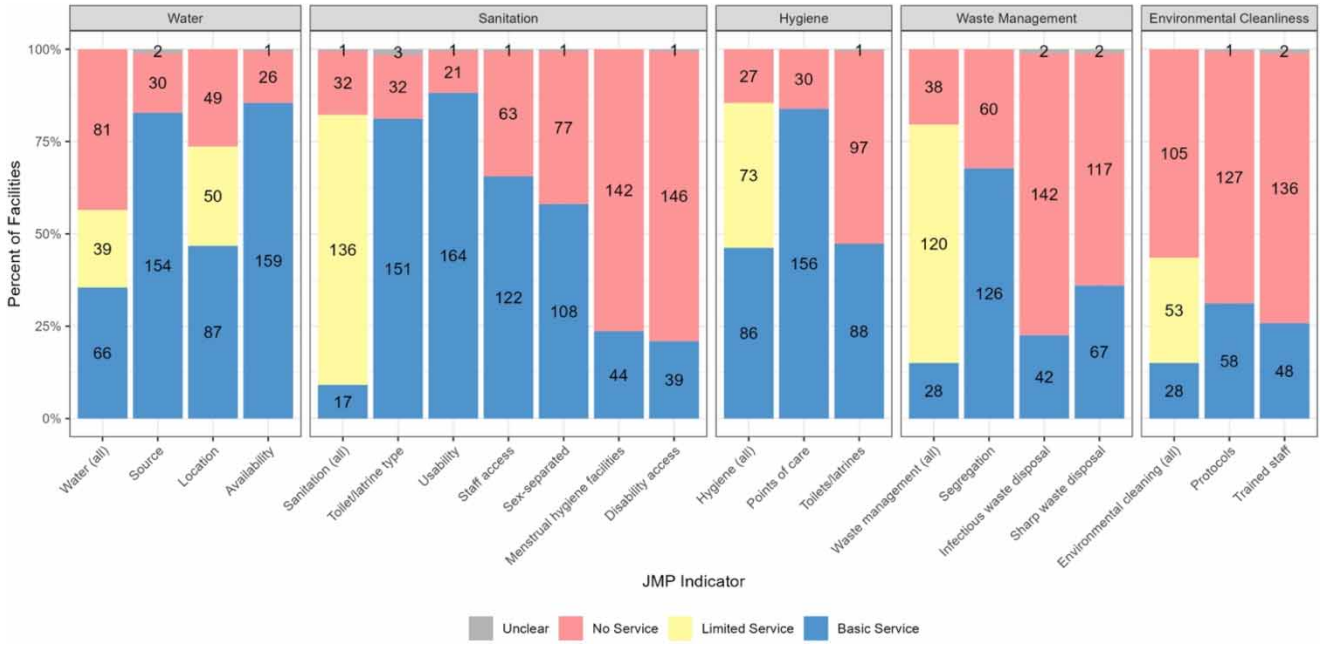


**Figure 2** | Performance according to the components of each JMP indicator.

(78%). These gaps also match those identified in the 2022 JMP Report. It has been observed that some old HCFs 'were not built with inclusive WASH issues in mind' (Derso *et al.* 2023): In other words, toilets were built without considering the situation of people with limited mobility.

For hand hygiene, most of the HCFs did have hand hygiene facilities at points of care (84%), while less than half of them (47%) had handwashing facilities within 5 m of toilets. This gap again tracks with the JMP data on hand hygiene. For waste management, the majority of facilities did have bins for waste segregation (68%), however the proper treatment and disposal of sharps and infectious waste remains a considerable problem. The JMP 2022 Report has data on waste management from LDCs, which found the gaps in waste segregation and disposal to be about the same, differing from the findings of this survey. Lastly, for environmental cleaning, the HCFs were equally lacking in the availability of protocols and trained staff, with only approximately a quarter of the HCFs meeting either requirement.

Table 2 reveals an alarming situation for the HCFs situated in the Democratic Republic of Congo (DRC). There are significant shortages in environmental cleaning in Haiti as well as in several African HCFs. In the right part of Table 2, comparisons are made between HCFs in the Initiative and the estimates of non-government HCFs in the 2022 JMP Report. This comparison is not an end in itself, that is assessing whether the Catholic facilities score better, the same or worse compared with the JMP ones: On the contrary, different assessments can be useful in both identifying consistent situations (if the data mutually reinforce themselves) and highlighting discrepancies.

There are similarities between the data from the 2022 JMP Report and the data from the Initiative: for example, in DRC (sanitation) and in Kenya (water and sanitation). In all countries, the percentage of HCFs with no service for water is higher in the Initiative than in the overall JMP assessment. Alarmingly, the basic service for sanitation scored 0% in both the Initiative and the JMP datasets for DRC, Malawi, and Uganda. In sanitation, if DRC was excluded, the bulk of HCFs falls within the limited service level. In addition, for Kenya, the differences observed in water access between the Initiative and the data from the 2022 JMP data reflect what Njung'e (2020: 28) highlighted at the mere level of a county: disparities in access are frequent and evident.

Figure 3 provides an analysis of the number of basic service level indicators each facility met, out of five. This is one of the first attempts globally to examine the JMP indicators across the same HCF, to understand in greater nuance where the gaps are. This analysis examines whether there are extreme polarities between facilities, with some facilities having adequate WASH services and others having no WASH services at all, or whether all facilities are facing some kind of deficiency. Thirty-five percent of HCFs did not meet the criteria for basic service for any of the JMP indicators; 29% of HCFs met the

**Table 2** | Aggregated performance of the HCFs according to JMP indicators and comparison between selected data from the initiative and from the 2022 JMP Report

| Water | Sanitation | Hand Hygiene | Waste Managmt. | Environ. Cleaning | Country (Dataset) (and total number of the sample in the case of the Initiative) | Water % | Sanitation % | Waste Managmt. % | Hand Hygiene (possible at points of care) % |
|---|---|---|---|---|---|---|---|---|---|
| The first number represents the *number* of HCFs meeting basic service, the next limited service, and the last no service. | | | | | | The first number represents the *percent* of HCFs meeting basic service, the next limited service, and the last no service.** | | | |
| | | | | | **DRC** (JMP) | 39, 47, 13 | 0, 0, 28 | <1, >99, <1 | 90 |
| 0, 0, 10 | 0, 1, 9 | 0, 0, 10 | 0, 0, 10 | 0, 0, 10 | **DRC** (Initiative) (10 HCFs) | 0, 0, 100 | 0, 10, 90 | 0, 0, 100 | 0 |
| | | | | | **Haiti** (JMP) | 66, 20, 14 | 0, 0, 8 | 7, 82, 12 | 63 |
| 22, 0, 28 | 2, 39, 9 | 22, 17, 11 | 4, 38, 8 | 3, 12, 35 | **Haiti** (Initiative) (50 HCFs) | 44, 0, 56 | 4, 78, 18 | 6, 24, 70 | 74 |
| | | | | | **Kenya** (JMP) | 68, 21, 10 | 6, 79, 15 | 57, 38, 5 | 89 |
| 8, 9, 12 | 4, 22, 3 | 16, 12, 1 | 9, 20, 0 | 6, 7, 16 | **Kenya** (Initiative) (29 HCFs) | 28, 31, 41 | 14, 76, 10 | 21, 24, 55 | 97 |
| | | | | | **Malawi*** (JMP) | 76, 16, 7 | 0, 0, 6 | 42, 57, 1 | 67 |
| 4, 5, 1 | 0, 10, 0 | 0, 10, 0 | 0, 10, 0 | 3, 6, 1 | **Malawi** (Initiative) (10 HCFs) | 40, 50, 10 | 0, 100, 0 | 0, 100, 0 | 100 |
| | | | | | **Nigeria** (JMP) | 64, 34, 1 | 16, 80, 4 | 26, 58, 17 | 76 |
| 0, 10, 1 | 0, 10, 1 | 0, 11, 0 | 0, 10, 1 | 0, 0, 11 | **Nigeria** (Initiative) (11 HCFs) | 0, 91, 9 | 0, 91, 9 | 0, 0, 100 | 100 |
| | | | | | **Uganda*** (JMP) | 52, 47, 1 | 0, 0, 37 | 47, ?, ? | 74 |
| 1, 7, 1 | 0, 9, 0 | 6, 3, 0 | 3, 6, 0 | 0, 9, 0 | **Uganda** (Initiative) (9 HCFs) | 11, 78, 11 | 0, 100, 0 | 33, 67, 0 | 100 |
| 8, 2, 13 | 5, 10, 8 | 16, 6, 1 | 8, 10, 5 | 9, 7, 7 | **Philippines** (Initiative) (23 HCFs) | No possible/meaningful comparison with JMP data | | | |
| 21, 4, 12 | 4, 31, 2 | 20, 13, 4 | 3, 21, 13 | 4, 10, 23 | **Rest of Africa** (Initiative) (37 HCFs) | No possible/meaningful comparison with JMP data | | | |
| 2, 2, 3 | 2, 4, 0 | 6, 1, 0 | 1, 5, 1 | 3, 2, 2 | **Rest of World** (Initiative) (7 HCFs) | No possible/meaningful comparison with JMP data | | | |

Numbers in the blue lines are taken from the 2022 JMP Report and whenever possible reflect the situation of non-government facilities. Since the Report presents major gaps in both water and sanitation in the Philippines, the JMP data for this country is not listed in this table.

*In this row, the numbers may reflect the government and non-government estimates.

**In these columns, whenever the total number of HCFs taken from the 2022 JMP Report does not reach 100% (blue cells) the missing facilities fall between no service and limited service.

criteria for one of the JMP indicators; 20% of HCFs met the criteria for two of the JMP indicators; 10% met the criteria for three of the JMP indicators; 5% of the HCFs met the criteria for four of the JMP indicators; and none of the HCFs met the criteria for all of the JMP indicators. This graph demonstrates a nearly perfect staircase from 0 to 5. For the 10 facilities that met 4 of the 5 indicators at the basic level, water was the most frequently missing indicator, followed by waste management. This analysis demonstrates that all study HCFs had some kind of WASH service need, with more than a third requiring support on all indicators.

## Delivery settings

In total, 115 of the 186 facilities offered delivery services at the time of the survey (61%) or had offered delivery services until recently. The assessment looked at specific WASH conditions in the delivery room. Figure 4 summarizes the findings. Seventy-three percent of the 115 HCFs had running water and soap in the delivery room at the time of the survey. About 65% had shower or bathing facilities available for the women to use before and after delivery. To manage waste, 59% of HCFs had systems for safe placenta waste disposal. Meanwhile, facilities were asked whether women were ever required to bring water when coming to deliver. A fifth of the HCFs providing delivery services said that women were always or sometimes asked to bring water with them when they come to deliver. There is no JMP data specifically for WASH in delivery rooms at this time; however, the literature points to significant gaps in availability of services in public HCFs in these settings (Mannava *et al.* 2019; Schuster-Wallace *et al.* 2019).

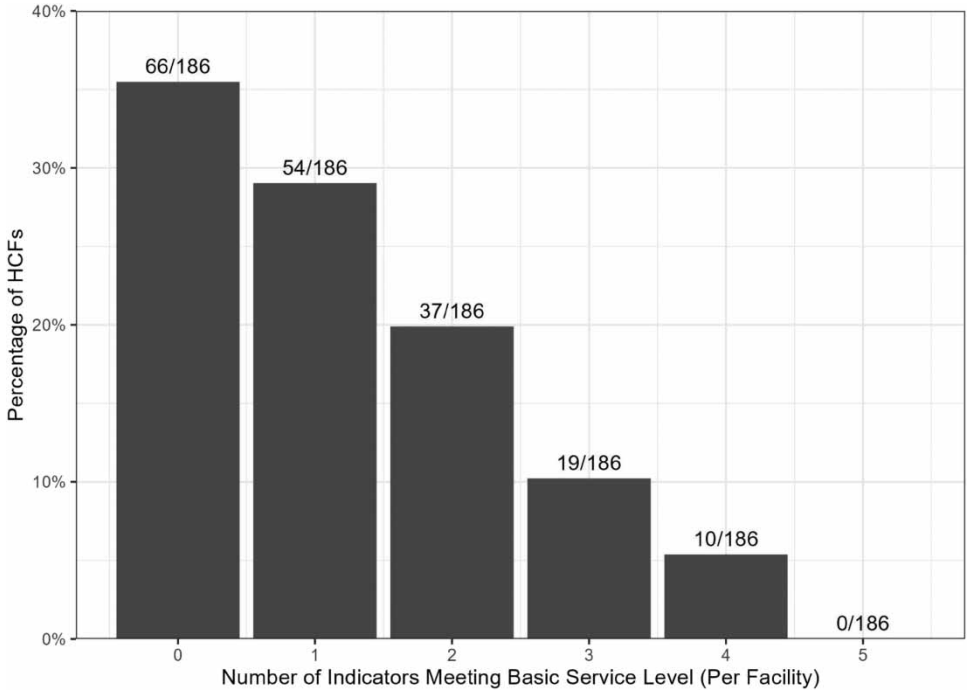


**Figure 3** | Facilities and the basic levels of service according to the JMP indicators.

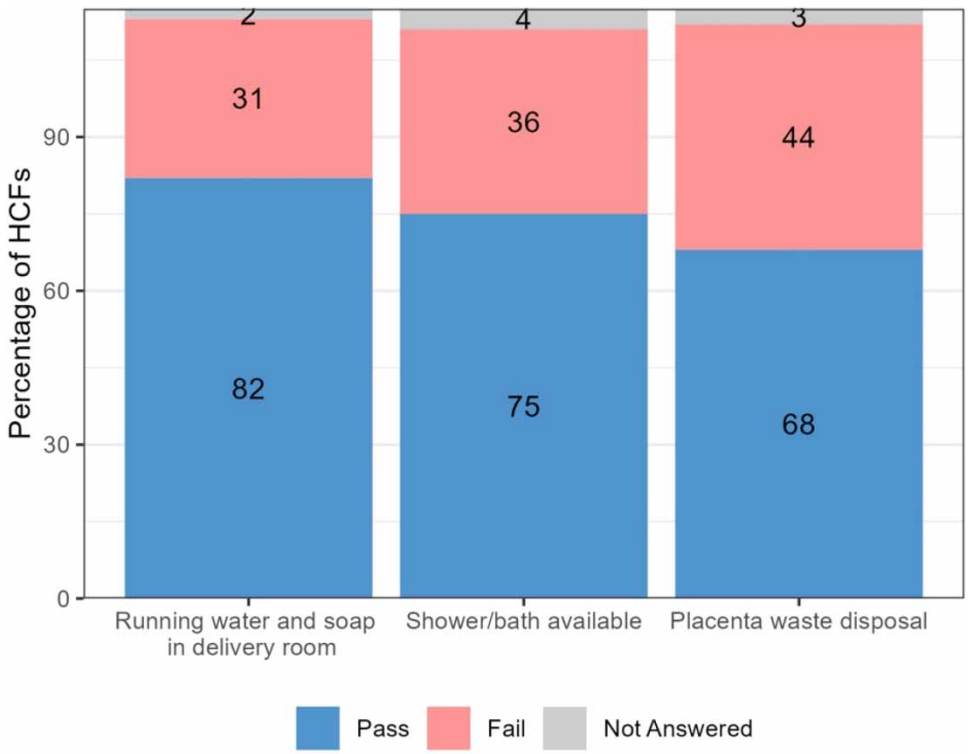


**Figure 4** | Availability of WASH services in delivery settings.

### Comparison of metrics

A final set of analyses compares the facilities that met the criteria for each JMP indicator with the availability of a maintenance plan for WASH and a budget for WASH services, to assess whether meeting the criteria would be impacted by these supportive tools. In all cases, HCFs with a maintenance plan and HCFs with a budget were more likely to meet the JMP requirements.

Further analyzing the 10 HCFs that met the basic level of service for 4 of the 5 JMP indicators (Figure 3), 8 out of those 10 HCFs had a budget for WASH, and 7 had a maintenance plan enacted. By comparison, 44% of all HCFs in the assessment had a budget for WASH and only 26% had a maintenance plan enacted. Therefore, it appears that having a maintenance plan duly implemented and including WASH in the facility's budgeting are critical elements to ensure the availability of WASH services based on the JMP indicators (Figure 5). According to our knowledge, there is limited literature on the budgeting and maintenance plans of HCFs. This said, a recent case study listed 'the availability of an assistant WASH-IPC manager' among the drivers for basic WASH services in Ghanaian HCFs (Dubik *et al.* 2024: 29) and the 'lack of separate budget to maintain WASH facilities' has already been identified as a problem (Berihun *et al.* 2022: 11). In other words, the availability of financial resources and of trained staff tasked to monitor and fix WASH shortcomings is a good predictor of above-the-average WASH conditions.

### Summary of findings and interpretation

Analyses of these data found that all 186 HCFs were deficient in at least one WASH service indicator, most commonly sanitation due to a lack of menstrual hygiene management facilities or because HCFs did not have a disability accessible toilet. HCFs were most likely to meet the indicator for basic hand hygiene service. All told, 35% of HCFs did not meet any one of the five indicators. The findings in these 186 Catholic HCFs are nearly aligned with the global status on WASH in HCF in public HCFs, indicating that it is possible that there is not a significant difference in WASH services in HCFs based on ownership.

Delivery settings also have significant gaps in the availability of WASH; however, water availability is higher in these settings that it was in the rest of the HCFs (the assessment form only seeks to understand whether or not there is water in the delivery room, regardless of whether the water comes from more than 500 m or is available on site). For water, the location of the water source off-premise was the most common reason for HCFs to not meet basic service, with 99 of the 186 HCFs (53%)

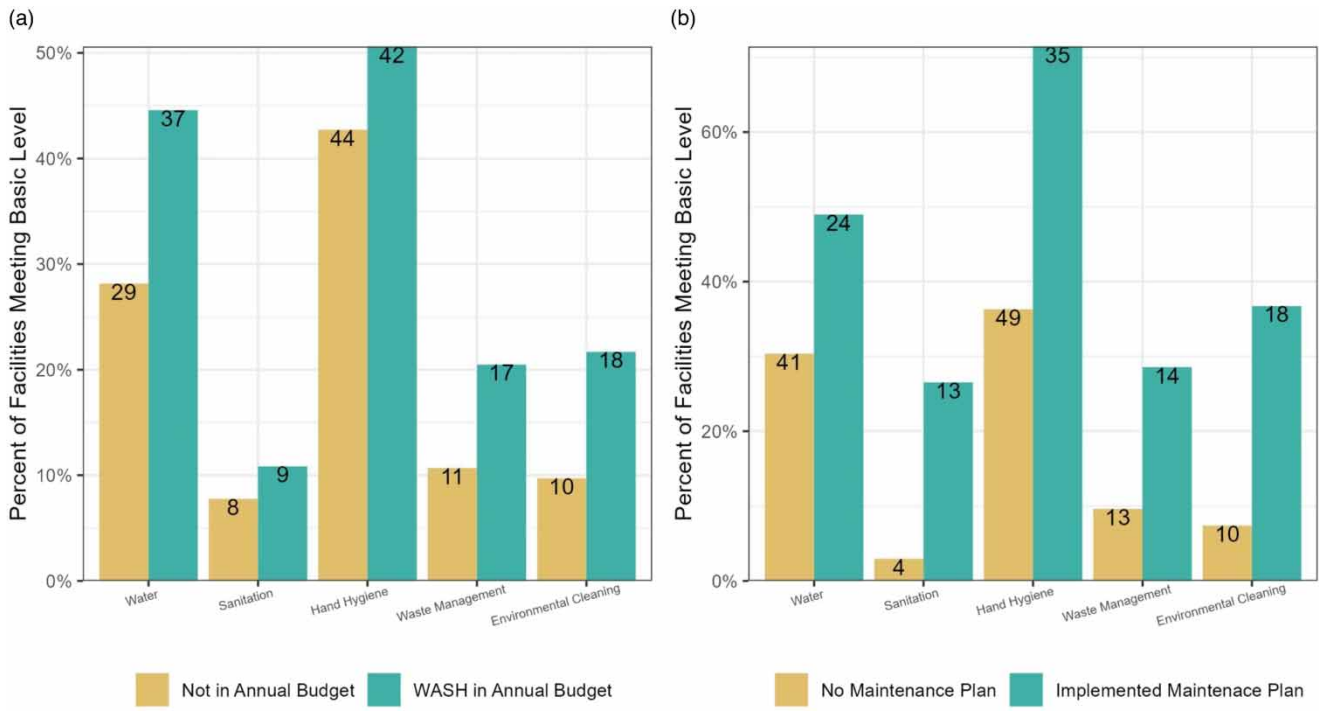


**Figure 5** | Comparison of HCFs by the availability of maintenance plan and by the availability of budget for WASH.

not meeting this criteria. However, 85% of the HCFs had water available from their main source on the day of the assessment. Further, having a maintenance plan duly implemented and including WASH in facility budgets are good predictors of above-average WASH conditions. Disparities observed among the Initiative's countries which are represented by 9+ HCFs are in line with literature.

### Limitations

This sample is not representative of the worldwide WASH situation of Catholic HCFs. We do not know what criteria factored into the decision of the local Church in nominating HCFs to be involved in the Initiative. For example, it is possible the local Church chose the facility that it would assume had the worst WASH conditions, thereby skewing the data.

Moreover, one should not believe that all the HCFs assessed are managed, and funded according to the same procedures, even if all are owned by Catholic congregations or by dioceses: A variety of factors can explain and cause significant differences.

Lastly, the majority of these assessments were collected via self-reporting. As such, there is the possibility of inaccuracies, with staff either overstating or understating the extent of WASH issues. However, given that the findings align with much of the global JMP data on WASH in HCFs, there is a strong likelihood that these assessments are reliable.

## CONCLUSIONS AND RECOMMENDATIONS

Taking advantage of the Initiative's assessment, which targeted 186 HCFs, this is the first study that has examined the extent of the problem in a sample of HCFs owned and managed by the Catholic Church. The findings, while not representative of the Catholic facilities as a whole, demonstrate that major WASH deficits exist in some Catholic HCFs. Following this survey, all facilities received feedback on their WASH conditions and recommendations on how to address identified gaps, including targeting 'low-hanging fruit', such as handwashing stations near toilets and menstrual hygiene management facilities. Moreover, the DIHD facilitated exchange of experiences among WASH-interested groups (both Catholics and non-Catholics) and facilitated the collaboration between donors, implementing partners, HCFs, and journalists in order to give more visibility to the issue.

Further research would be needed to comprehensively understand the WASH situation in Catholic HCFs. However, even without waiting for these more comprehensive and representative studies, WASH issues need to be taken seriously and receive more visibility in routine maintenance, the university curriculums, in the training of those charged with the management of Catholic HCFs, and in broader awareness-raising.

We observed similarities between HCFs of this Initiative and non-Catholic HCFs assessed by the JMP, chiefly in the field of sanitation and hand hygiene. Our analysis highlighted that having a maintenance plan duly implemented and including WASH in the facility's budgeting are critical elements. Additional research is needed to better understand the impact of budgets and O&M plans on WASH service availability.

For the 10 facilities that met 4 JMP indicators at the basic level, water was the most frequently missing indicator; still, for water, the location of the water source (farther than 500 m from the HCF) was the most common reason for HCFs to not meet the basic level. Therefore, improving and securing the water supply for HCFs which are far from their main water source as well as investing in water storage capacity seem priorities.

Awareness-raising, training, and capacity building are needed to ensure sufficient resources and personnel to operate and maintain WASH facilities and enable staff to deliver hygiene behavior change messages (Galhotra *et al.* 2023: 210). In addition, repeated assessments of the HCFs should be done to monitor whether the needs change and if the WASH improvements are sustainable.

## ACKNOWLEDGEMENTS

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## DATA AVAILABILITY STATEMENT

Data cannot be made publicly available; readers should contact the corresponding author for details.

## CONFLICT OF INTEREST

The authors declare there is no conflict.

## REFERENCES


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