Assessing the quality of care for children attending health facilities: a systematic review of assessment tools

Alicia Quach,1,2 Shidan Tosif,1,3 Herfina Nababan,4 Trevor Duke,1,3 Stephen M Graham,1,5 Wilson M Were,6 Moise Muzigaba,6 Fiona M Russell1,2

ABSTRACT

Introduction Assessing quality of healthcare is integral in determining progress towards equitable health outcomes worldwide. Using the WHO ‘Standards for improving quality of care for children and young adolescents in health facilities’ as a reference standard, we aimed to evaluate existing tools that assess quality of care for children.

Methods We undertook a systematic literature review of publications/reports between 2008 and 2020 that reported use of quality of care assessment tools for children (<15 years) in health facilities. Identified tools were reviewed against the 40 quality statements and 510 quality measures from the WHO Standards to determine the extent each tool was consistent with the WHO Standards. The protocol was registered in PROSPERO ID: CRD42020175652.

Results Nine assessment tools met inclusion criteria. Two hospital care tools developed by WHO–Europe and WHO–South-East Asia Offices had the most consistency with the WHO Standards, assessing 291 (57-1%) and 208 (40-8%) of the 510 quality measures, respectively. Remaining tools included between 33 (6-5%) and 206 (40-4%) of the 510 quality measures. The WHO-Europe tool was the only tool to assess all 40 quality statements. The most common quality measures absent were related to experience of care, particularly provision of educational, emotional and psychosocial support to children and families, and fulfilment of children’s rights during care.

Conclusion Quality of care assessment tools for children in health facilities are missing some key elements highlighted by the WHO Standards. The WHO Standards are, however, extensive and applying all the quality measures in every setting may not be feasible. A consensus of key indicators to monitor the WHO Standards is required. Existing tools could be modified to include priority indicators to strengthen progress reporting towards delivering quality health services for children. In doing so, a balance between comprehensiveness and practical utility is needed.

PROSPERO registration number CRD42020175652.

INTRODUCTION

Ending preventable child deaths by 2030 is a major focus for the Sustainable Development Goals (SDGs).1 A crucial factor to achieving this is Universal Health Coverage (UHC) which ensures that all people, including children, have access to quality essential healthcare services without being pushed

Key questions

What is already known?

► There are no universally agreed indicators to assess quality of health care.

► Previous reviews on quality of health care for children in low-income and middle-income countries (LMICs) tend to concentrate on system input measures such as physical infrastructure, availability of essential medicines, equipment and human resources.

► There has been no systematic review of existing assessment tools for quality of health care for children in health facilities.

What are the new findings?

► This is the first systematic review to compare existing quality of care assessment tools against the WHO ‘Standards for improving the quality of care for children and young adolescents in health facilities’, and found that they do not adequately assess the WHO Standards in its current format.

► Most assessment tools were more comprehensive in assessing provision of care and available human and physical resources, but deficient in assessing experience of care.

► Most assessment tools focused more on input and process measures than outcome measures.

What do the new findings imply?

► There is no existing assessment tool that can comprehensively assess all the indicators in the ‘WHO Standards’, however, the indicators are extensive and may not be feasible for LMICs to comprehensively assess.

► Future endeavours should focus on identifying and obtaining consensus on a selection of key indicators in the assessment of quality of health care for children in health facilities. Harmonisation of key indicators embedded within existing assessment tools will enable regular monitoring and comparable data in order to report progress in the quality of health care for children at local and national levels.
into financial hardship. Quality healthcare is defined by WHO as health services which are ‘effective, efficient, accessible, patient centred, equitable and safe’. To further reduce child deaths, many countries will need to find ways to increase UHC with quality healthcare for children.

Determining progress in quality of healthcare delivery for children requires monitoring and tracking of measurable indicators. However, there are no universally agreed indicators for quality of care (QoC). To better understand the complex multidimensional nature of quality healthcare, WHO developed a framework to identify domains to assess, improve and monitor the quality of paediatric care in health facilities, an extension of the earlier framework for improving maternal and newborn care in health facilities. The framework encompasses three broad categories of QoC: (A) provision of care—evidence-based practices, effective information systems and referral pathways; (B) experience of care—effective communication, recognition of child rights and appropriate emotional and psychological support; and (C) available human and physical resources to meet the best interests of children. The broad categories are subdivided into eight domains to provide a structured approach when addressing QoC at all levels of the health system (online supplemental appendix A). These eight domains reflect the eight quality standards (QSd) in the WHO ‘Standards for improving the QoC for children and young adolescents in health facilities’ which are further detailed in 40 priority statements and 510 measurable indicators. The WHO Standards can, therefore, be used as a standard point of reference when assessing QoC for children in a healthcare facility.

Historically, various tools have been developed to assess QoC for children. We sought to understand if these tools adequately assess all aspects of QoC as outlined by the WHO Standards for children and young adolescents. A recent review identified and compared five existing assessment tools to the WHO ‘Standards for improving quality of maternal and newborn care in health facilities’. The percentage of indicators outlined in the WHO Standards that the five tools were able to assess ranged from 12% to 62%. There has been no systematic review of existing assessment tools for QoC for children <15 years. There is an urgent need to better understand the capacity of readily available tools to assess the QoC for children, in order to meet the SDG targets for child health.

The aim of this systematic literature review is to identify existing tools used to assess QoC for children and young adolescents in health facilities and assess the extent to which they represent the domains in the WHO QSd.

**METHODS**

**Search strategy and selection criteria**

A systematic review of the literature was undertaken in August 2020 using Preferred Reporting Items for Systematic Reviews and Meta-Analyses reporting guidelines, to identify assessment tools available globally that evaluate QoC for children attending health facilities. MEDLINE (Ovid) database was searched using Medical Subject Heading terms and/or keywords. PubMed was searched using keywords, to retrieve items not indexed on MEDLINE. The PubMed search strategy was adapted for use in Global Health (Commonwealth Agricultural Bureaux direct) database and the International Journal for Quality in Health Care. Additional peer-reviewed publications were identified through handsearching of reference lists of key articles. Grey literature was identified by conducting a keyword search using the World Bank and WHO library databases. The search strategies and results yielded are available from online supplemental appendix B.

The inclusion criteria for eligibility included publications/reports that: reported the use of an assessment tool to evaluate QoC in a primary, secondary or tertiary level healthcare facility. The assessment tool was deemed eligible if used by more than one country; and included at least one module/component evaluating QoC in children. A child was defined as aged 0–14 years, to align with the definition of ‘birth up to 15 years’ used in the WHO Standards. To identify tools more likely to be in current use and available globally, the search period was limited to ten years preceding the publication of the WHO Standards to present time (2008–2020), and to those published in English language. Exclusion criteria included publications/reports of assessment tools that: evaluated only newborns (<1 month old) or only adolescents (10–19 years old); were developed only for research purposes; evaluated QoC for a specific disease; or a niche component of QoC (eg, antimicrobial prescribing practice). For any assessment tools not publicly available, authors and/or the original developers of the tool were contacted.

The screening process was performed independently by two reviewers using Covidence systematic review software. Titles and abstracts were screened and excluded if inclusion/exclusion criteria were not met. Full texts of remaining publications/reports were assessed for eligibility. The assessment tools from full texts were retrieved and further assessed to ensure that they met eligibility criteria. The assessment tools that were identified in multiple reports were grouped together as one unique tool for analysis. Conflicts in determining whether an article/assessment tool met eligibility criteria were resolved by discussion between the two reviewers. If consensus was not reached, a third reviewer was consulted.

**Data analysis**

Each quality assessment tool included was compared against the WHO ‘Standards for improving QoC for children and young adolescents in health facilities’. The WHO Standards comprises of eight overarching ‘QSd’, each one correlating to one domain of the framework for improving quality of paediatric care. Each QSd is composed of priorities or ‘Quality Statements (QSt)’...
(total of 40) for improving QoC for children. The QSt further subdivided into 510 ‘Quality Measures (QM)’, comprised of 235 input, 169 process/output and 106 outcome measures (figure 1). A full list of the QSd, QSt and QM are listed in online supplemental appendix C.

For each assessment tool, we used the most updated version in English in its generic format. Each tool was composed of various modules to assess quality (eg, direct clinical observations, health worker interviews, inventory checklists). We evaluated all modules and excluded those not relevant to our review (eg, antenatal care services). For the remaining modules, we reviewed each question/statement and matched them if applicable to the relevant QM in the WHO Standards. Two paediatricians (AQ and ST) performed the matching process independently to decrease the risk of bias. Any conflicts were discussed between the two reviewers and a third reviewer was consulted for any unresolved conflicts.

We used a similar scoring system as the review of facility assessment tools on maternal and newborn QoC in health facilities performed by Brizuela et al.6 A question/statement from the tool was considered a match to a WHO QM if any component of the QM was included. If a WHO QM was matched, a score of 1 was allocated. Although multiple questions could match the same QM, each QM could only score a maximum of 1. For a QM that consisted of more than one subcomponent, a question/statement from the assessment tool only had to fulfil one subcomponent to be considered a match. For example, QM 1.1.1: ‘health facility maintains an up-to-date 24 hours staff duty roster, with a functioning contact mechanism for finding additional support, which ensures that staff responsible for paediatric triage are available at all times’; would be matched by a question asking if the health facility has a 24-hour staff roster.4 Conversely, a single question/statement could also be matched to more than one QM. For example, an assessment tool with a checklist of available antibiotics in the health facility would match the WHO QM detailing adequate supplies of antibiotics to treat pneumonia (QM 1.3.3), sepsis (QM 1.5.4), neonatal infections (QM 1.2.2); while also matching the QM detailing adequate stocks of essential medicines (QM 8.4.4).

Descriptive statistics were used to calculate the percentage of matched QM, QSt and QSd for each assessment tool. The assessment tools were ranked according to the total percentage of WHO QM assessable. Assessment tools were also categorised according to whether they were able to completely assess (100%), partially assess (1%–49%) and 50%–99%), or not assess (0%) any of the QSd and QSt.

**Patient and public involvement**

No patients or public were involved in this study.

**RESULTS**

The search strategy identified 1180 publications/reports, after duplicates were removed (figure 2). The screening process excluded 1035 publications/reports. The remaining 145 full-text manuscripts were assessed for eligibility, with 39 publications/reports being deemed eligible. These publications/reports were further evaluated to collate duplications of assessment tools, with 10 unique tools identified as eligible. One tool was not accessible from the author, leaving nine unique assessment tools for analysis (figure 2).

Table 1 summarises the nine assessment tools and the modules that were evaluated as part of our analysis. All tools were developed for use in low-income and middle-income countries (LMICs), except for the Child Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS).2 All tools were available in English, but could be adapted/translated to local context. All tools were structured questionnaires/interviews with checklist style questions, but varied in length and composition of modules. The shortest tool was the HCAHPS with 62 multichoice questions. Others such as the Service Provision Assessment (SPA) and the WHO Hospital Care assessment tools were detailed with over 100 pages, had multiple modules, with over 100 questions/checklist items per module.10–12

Table 2 summarises the percentages of WHO QM within each QSd assessable by each tool. Overall, QM related to the domains of provision of care and available human and physical resources were more widely assessable than experience of care. QSd 1: ‘Every child receives evidence-based care and management of illness according to WHO guidelines’ was most comprehensively assessable across all tools, apart from the Child HCAHPS which did not assess it at all.49 QSd 6: ‘All children and their families are provided with educational, emotional and psychosocial
support that is sensitive to their needs and strengthens their capability’ was absent from five of the nine included tools. All assessment tools were able to partially assess QSD 7 (staff availability) and QSD 8 (health facility physical infrastructure, waste management, supplies and equipment).

Overall, the tools were more comprehensive at assessing the input QM (median 32.8%, IQR 16.4%–45.3%) and process/output QM (median 21.3%, IQR 12.4%–41.7%) compared with the outcome QM (median 16.0%, IQR 3.8%–28.3%). Table 3 summarises the proportion of QSt that had at least one each of input, process and outcome QM within each QSD. No single tool was able to fulfil this for all 40 WHO QSt. The percentages of QM that was assessable within each of the 40 QSt are summarised in figure 3. The WHO (Europe regional office) ‘Hospital care for children: quality assessment and improvement tool’ was the only tool able to partially assess every QSt. Of the remaining tools, 5–27 of 40 QSt were not assessable at all. The SPA and the Health Resources Available Mapping System (HeRAMS) were the only tools able to assess 100% of any one QSt. The HeRAMS, however, failed to assess any QM of 15 other QSt.

Figure 4 shows the overall percentage of QM assessable by each tool. The WHO-Europe tool was the most comprehensive with 291 (57.1%) of the 510 WHO QM being assessable. The remaining tools varied from 6.5% to 40.8% in their capacities to assess the QM. Table 4 shows the percentage of assessable QM in each QSt. Most tools assessed less than half the QM in any single QSt. The
Table 1  Summary of assessment tools reviewed for quality of care for children in health facilities

| Tool                                      | Development/source | Type of health facility tool designed for | Population and services tool designed for | Key topics assessed by tool                                      | Countries that have used tool*                                                                 | Version assessed | Modules included in assessment                                                                 |
|-------------------------------------------|--------------------|------------------------------------------|-------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|
| Service Provision Assessment              | USAID - MEASURE Evaluation | All health facility types | All ages Family planning, maternal and child health services, communicable and non-communicable diseases, basic surgery | Availability of health services  
Services readiness of health facilities  
Extent services follow accepted standards of care  
Satisfaction levels of clients and service providers | Afghanistan, Bangladesh, Congo DR, Egypt, Ethiopia, Ghana, Guatemala, Guyana, Haiti, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Tanzania, Uganda, Zambia | 2012  
|                                            |                    |                                          |                                            |                                                              | Inventory  
Clinical observation—sick child  
Exit interview—caretaker of sick child  
Health worker interview | |
| Rapid Health Facility Assessment           | USAID-MEASURE Evaluation | Primary healthcare facilities | Women and children Maternal, neonatal and child health services | Assessment, diagnosis and treatment of common childhood illnesses  
Service readiness of health facilities  
Quality of management processes in health facilities | Nigeria, South Sudan | 2008  
|                                            |                    |                                          |                                            |                                                              | Clinical observation—sick child  
Exit interview—caretaker of sick child  
Health worker interview  
Health worker interview and record review  
Health facility checklist | |
| Service Availability and Readiness Assessment | WHO                | All health facility types | All ages Maternal and child health services, communicable and non-communicable diseases, surgical care | Service availability-infrastructure, core health personnel, service utilisation  
General service readiness-basic equipment, amenities, infection prevention, diagnostic capacity, essential medicines  
Service-specific readiness | Bangladesh, Benin, Burkina Faso, Cambodia, Congo DR, Cote D’Ivoire, Djibouti, Ghana, Haiti, India, Kenya, Lao PDR, Libya Madagascar, Mauritania, Myanmar, Namibia, Niger, Rwanda, Senegal, Sierra Leone, Somalia, South Sudan Tanzania, Togo, Uganda Vietnam, Zambia, Zimbabwe | 2015  
|                                            |                    |                                          |                                            |                                                              | Staffing  
Infrastructure  
Available services  
Diagnostics  
Medicines and commodities | Continued
| Tool                                                        | Development/source     | Type of health facility tool designed for | Population and services tool designed for | Key topics assessed by tool                                                                 | Countries that have used tool* | Version assessed | Modules included in assessment |
|-------------------------------------------------------------|------------------------|------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------|------------------|--------------------------------|
| Health Facility Survey-using Integrated Management Childhood Illness as clinical guidelines | WHO                    | Primary level outpatient health facilities | All children Outpatient care for sick children | ► Quality of case management received by sick children <br> ► Quality of counselling of caretakers <br> ► Availability of key health system supports-edicines, equipment, supervision, referral system <br> ► Barriers to effective integrated case management | Botswana, Cambodia, Guatemala, Kenya, Zambia, Afghanistan, Rwanda, China, Malawi, Mongolia, Nigeria, Papua New Guinea, Philippines, Vietnam, Kiribati, Lao PDR, Solomon Islands | 2003              | ► Clinical observation—sick child <br> ► Exit interview—caretaker of sick child <br> ► Re-examination of sick child <br> ► Equipment and supply checklist |
| Assessment Tool for Hospital Care (WHO-SE Asia Office)      | WHO-SE Asia Office     | All hospitals                            | Women and children Maternal, neonatal and child health services | ► Service availability and readiness-infrastructure, hospital support systems, staffing, essential medicines and diagnostics <br> ► Quality of medical care provided for maternal, neonatal and child health services <br> ► Satisfaction levels of clients and service providers | Indonesia, Nepal             | 2016              | ► General hospital information <br> ► Paediatric care <br> ► Caregiver interview <br> ► Health worker interview <br> ► Postal questionnaire |
| Tool                                                                 | Development/source | Type of health facility tool designed for | Population and services tool designed for | Key topics assessed by tool                                                                 | Countries that have used tool* | Version assessed | Modules included in assessment                      |
|---------------------------------------------------------------------|--------------------|------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------|------------------|------------------------------------------------------|
| Hospital care for children: quality assessment and improvement tool (WHO-Europe Office) | WHO-Europe Office   | All hospitals                            | All children, excluding newborns           | ▶ Service availability and readiness-infrastructure, hospital support systems, health management information systems, staffing, essential medicines and equipment  | Kyrgyzstan, Tajikistan, Ethiopia, Angola, Malawi, Mozambique | 2015             | ▶ Hospital support services                         |
|                                                                     |                    |                                          | Paediatric services, excluding neonatal healthcare | ▶ Quality of medical care provided for common childhood illnesses and emergency presentations |                                                              |                  | ▶ Case management                                    |
|                                                                     |                    |                                          |                                           | ▶ Hospital policies and guidelines-infection prevention, training, access, patient's rights |                                                              |                  | ▶ Policies and organisation of services              |
|                                                                     |                    |                                          |                                           | ▶ Satisfaction levels of clients and service providers |                                                              |                  | ▶ Interviews                                         |
| Health Resources Availability Mapping System WHO Humanitarian and Emergency Response settings | WHO                | Humanitarian and Emergency Response settings | All ages                                 | ▶ Availability of health facilities and services | Sudan, Uganda                  | 2017             | ▶ Hospitals assessment tool                        |
|                                                                     |                    |                                          | Essential trauma care, child health and nutrition, communicable diseases, mental health, sexual and reproductive health | ▶ Resources for service delivery-infrastructure, human resources, communications, infection control |                                                              |                  | ▶ Health centres assessment tool                    |
|                                                                     |                    |                                          |                                           | ▶ Reasons for gaps in service availability |                                                              |                  |                                                     |

Continued
| Tool                                                      | Development/source | Type of health facility tool designed for                                                                 | Population and services tool designed for                                      | Key topics assessed by tool                                                                 | Countries that have used tool* | Version assessed | Modules included in assessment |
|-----------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------|------------------|-----------------------------|
| Health Results Based Financing impact evaluation toolkit   | World Bank         | All healthcare facilities (Programme evaluating the impact of health-related results-based financing incentives) | All ages with focus on women and children Maternal, neonatal and child health, communicable diseases | ▶ Quantity of health services delivered  
▶ Quality of health services provided  
▶ Health outcomes  
▶ Resource management at health facilities  
▶ Impact on non-results based financing services delivered  
▶ Disaggregation of impact by provider and population characteristics | Tajikistan, Burkina Faso, Congo DR, Rwanda, Benin, Lesotho, Kyrgyzstan, Cameroon, Central African Republic, The Gambia, | 2012                           | ▶ Health facility assessment  
▶ Health worker individual  
▶ Exit interview-caregiver for child under 5 |
| Hospital Consumer Assessment of Healthcare Providers and Systems-Child Version | Boston Children’s Hospital | All hospitals                                                                                             | All children All paediatric inpatient health services                           | ▶ Quality of communication with caregivers and patients  
▶ Attention to safety and comfort  
▶ Hospital environment | Belgium, Canada, USA, Argentina | 2014                           | ▶ Entire survey (62 items) |

*Only includes countries with reports/data publicly available.
### Table 2: Percentage of WHO Quality Standards assessable by each quality assessment tool

| Standard | Description                                                                 | Percentage of Quality Measures assessable for each Quality Standard |
|----------|-----------------------------------------------------------------------------|---------------------------------------------------------------------|
| Standard 1: | Every child receives evidence-based care and management of illness according to WHO guidelines. (n=222) | WHO-Europe: 59% | WHO-SE Asia: 55% | SPA: 49% | HRBF: 27% | HeRAMS: 39% | r-HFA: 24% | SARA: 23% | HFS-IMCI: 18% | HCAHPS-Child: 0% |
| Standard 2: | The health information system ensures the collection, analysis and use of data to ensure early, appropriate action to improve the care of every child. (n=29) | WHO-Europe: 52% | WHO-SE Asia: 52% | SPA: 48% | HRBF: 38% | HeRAMS: 0% | r-HFA: 24% | SARA: 0% | HFS-IMCI: 10% | HCAHPS-Child: 10% |
| Standard 3: | Every child with condition(s) that cannot be treated effectively with the available resources receives appropriate, timely referral, with seamless continuity of care. (n=28) | WHO-Europe: 39% | WHO-SE Asia: 18% | SPA: 36% | HRBF: 39% | HeRAMS: 43% | r-HFA: 7% | SARA: 7% | HFS-IMCI: 18% | HCAHPS-Child: 0% |
| Standard 4: | Communication with children and their families is effective, with meaningful participation and responds to their needs and preferences. (n=45) | WHO-Europe: 53% | WHO-SE Asia: 22% | SPA: 29% | HRBF: 24% | HeRAMS: 9% | r-HFA: 7% | SARA: 0% | HFS-IMCI: 16% | HCAHPS-Child: 27% |
| Standard 5: | Every child’s rights are respected, protected and fulfilled at all times during care, without discrimination. (n=44) | WHO-Europe: 45% | WHO-SE Asia: 11% | SPA: 20% | HRBF: 14% | HeRAMS: 7% | r-HFA: 5% | SARA: 5% | HFS-IMCI: 2% | HCAHPS-Child: 9% |
| Standard 6: | All children and their families are provided with educational, emotional and psychosocial support that is sensitive to their needs and strengthens their capability. (n=32) | WHO-Europe: 66% | WHO-SE Asia: 9% | SPA: 3% | HRBF: 0% | HeRAMS: 0% | r-HFA: 0% | SARA: 0% | HFS-IMCI: 19% | HCAHPS-Child: 19% |
| Standard 7: | For every child, competent, motivated, empathic staff are consistently available to provide routine care and management of common childhood illnesses. (n=44) | WHO-Europe: 70% | WHO-SE Asia: 34% | SPA: 52% | HRBF: 59% | HeRAMS: 2% | r-HFA: 25% | SARA: 7% | HFS-IMCI: 16% | HCAHPS-Child: 7% |
| Standard 8: | The health facility has an appropriate, child friendly physical environment, with adequate water, sanitation, waste management, energy supply, medicines, medical supplies and equipment for routine care and management of common childhood illnesses. (n=66) | WHO-Europe: 56% | WHO-SE Asia: 50% | SPA: 41% | HRBF: 39% | HeRAMS: 35% | r-HFA: 20% | SARA: 32% | HFS-IMCI: 3% | HCAHPS-Child: 8% |

Red boxes indicate that the assessment tool did not assess any; orange boxes indicate less than half and yellow boxes indicate equal to or more than half of the quality measures were assessable in the associated Quality Standard.

HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems; HeRAMS, Health Resources Availability Mapping System; HFS-IMCI, Health Facility Survey—using Integrated Management of Childhood Illness clinical guidelines; HRBF, Health Results Based Financing impact evaluation toolkit; n, number of Quality Measures within the associated Quality Standard; r-HFA, rapid Health Facility Assessment; SARA, Service Availability and Readiness Assessment; SPA, Service Provision Assessment.
| Standard       | Percentage of Quality Measures assessable for each Quality Standard |
|----------------|---------------------------------------------------------------------|
| **WHO-Europe** | WHO-SE Asia | SPA | HRBF | HeRAMS | r-HFA | SARA | HFS-IMCI | HCAHPS-Child |
| Standard 1:    | 7/15        | 7/15 | 6/15 | 2/15   | 1/15   | 0/15 | 0/15     | 1/15         | 0/15         |
| Every child receives evidence-based care and management of illness according to WHO guidelines. (QSt=15) |
| Standard 2:    | 2/3         | 3/3   | 2/3   | 2/3     | 0/3    | 1/3   | 0/3       | 0/3          | 0/3          |
| The health information system ensures the collection, analysis and use of data to ensure early, appropriate action to improve the care of every child. (QSt=3) |
| Standard 3:    | 1/3         | 0/3   | 1/3   | 2/3     | 1/3    | 0/3   | 0/3       | 0/3          | 0/3          |
| Every child with condition(s) that cannot be treated effectively with the available resources receives appropriate, timely referral, with seamless continuity of care. (QSt=3) |
| Standard 4:    | 2/4         | 1/4   | 1/4   | 2/4     | 0/4    | 0/4   | 0/4       | 1/4          |
| Communication with children and their families is effective, with meaningful participation, and responds to their needs and preferences (QSt=4) |
| Standard 5:    | 2/5         | 0/5   | 1/5   | 0/5     | 0/5    | 0/5   | 0/5       | 0/5          | 0/5          |
| Every child’s rights are respected, protected and fulfilled at all times during care, without discrimination. (QSt=5) |
| Standard 6:    | 3/3         | 0/3   | 0/3   | 0/3     | 0/3    | 0/3   | 0/3       | 0/3          | 0/3          |
| All children and their families are provided with educational, emotional and psychosocial support that is sensitive to their needs and strengthens their capability. (QSt=3) |
| Standard 7:    | 3/3         | 2/3   | 2/3   | 2/3     | 0/3    | 1/3   | 0/3       | 1/3          | 0/3          |
| For every child, competent, motivated, empathic staff are consistently available to provide routine care and management of common childhood illnesses. (QSt=3) |
| Standard 8:    | 1/4         | 1/4   | 2/4   | 2/4     | 0/4    | 1/4   | 1/4       | 0/4          | 0/4          |
| The health facility has an appropriate, child friendly physical environment, with adequate water, sanitation, waste management, energy supply, medicines, medical supplies and equipment for routine care and management of common childhood illnesses. (QSt=4) |
| **Total Quality Statements=40** |
| 21/40          | 14/40       | 15/40 | 12/40 | 2/40   | 3/40   | 1/40 | 2/40      | 1/40         |

Red boxes indicate that the assessment tool did not include any; orange boxes indicate less than half; yellow boxes indicate equal to or more than half and green boxes indicate that all of the Quality Statements within the associated Quality Standard had at least one each of input, process and output Quality Measure assessable.

HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems; HeRAMS, Health Resources Availability Mapping System; HFS-IMCI, Health Facility Survey—using Integrated Management of Childhood Illness clinical guidelines; HRBF, Health Results Based Financing impact evaluation toolkit; QSt, number of Quality Statements within the associated Quality Standard; r-HFA, rapid Health Facility Assessment; SARA, Service Availability and Readiness Assessment; SPA, Service Provision Assessment.
Results Based Financing impact evaluation toolkit; HeRAMS, the quality measures in the quality statement. Completely assessable = the assessment tool assessed all of the quality measures in the quality statement. Partially assessable = the assessment tool assessed at least one of the quality measures in the quality statement. Completely assessable = the assessment tool assessed all of the quality measures in the quality statement. HRBF, Health Results Based Financing impact evaluation toolkit; HeRAMS, Health Resources Availability Mapping System; HFS–IMCI, Health Facility Survey—using Integrated Management of Childhood Illness clinical guidelines; HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems; r-HFA, rapid Health Facility Assessment; SPA, Service Provision Assessment. SARA, Service Availability and Readiness Assessment.

WHO-Europe tool and the WHO-SE Asia were the most comprehensive, able to assess more than half the QM in 23 and 13 of the 40 QSt, respectively. The HCAHPS-Child tool had the largest number of gaps, leaving 27 QSt completely unassessed, but was able to assess 9 (69%) of the 13 QM for QSt 4.1, that is, effective communication given to children and their carers, which is a key objective of the tool.

**DISCUSSION**

This is the first systematic review to compare QoC assessment tools against the current WHO Standards for children and young adolescents in health facilities. Three of the nine assessment tools included questions from all eight of the WHO Qsd, but only one (WHO-Europe Hospital Care assessment tool) was able to address all 40 QSt. Despite being the most comprehensive tool, the WHO-Europe Hospital Care assessment tool still only included about half of all QM. Qsd that included evidence-based management, staffing and physical infrastructure and resources (Qsd 1, 7 and 8) were more widely covered across the tools than those which encompassed health information systems (HIS), referral processes, communication, psychosocial support and child rights (Qsd 2–6).

Previous assessments of QoC in LMICs have often centred on input measures as these are seen to be more tangible, objective measures. Previous assessments of QoC in LMICs have often centred on input measures as these are seen to be more tangible, objective measures.6–13–15 This was reflected in this review with most tools assessing more input measures and less process or outcome measures, and no tool assessing at least one input, process and outcome measure in all 40 QSt. Mortality data were largely absent from almost all tools. The Donabedian quality framework describes the relationship between the three components on input/structure, process and outcomes. Although structural, input measures are important to healthcare delivery, the flow-on effects to processes such as appropriate care delivery and adequate communication, and outcome measures such as morbidity and mortality data, and patient satisfaction, determine how successful a health facility is. Including all three components is therefore crucial for assessing the level of QoC that is being provided for children in hospitals.

The WHO Standards for improving QoC for children and young adolescents were used in this review as a reference standard for assessing QoC for children attending health facilities. They are comprehensive and include all three components of the Donabedian quality framework, while aligning with the SDG emphasis on equity. They have been developed as a resource for healthcare professionals and managers at the health facility level through to government bodies and technical partners responsible for policy and programme development at the national level, to support quality improvement practices for children.4 How the WHO Standards are implemented in practice and what tools to use when assessing quality of healthcare for children, are to be decided within the local context. However, it is unlikely that a single tool could encompass all 510 QM and be feasible in most settings in LMICs.
| Standard 1: Every child receives evidence-based care and management of illness according to WHO guidelines | Percentage of Quality Measures assessable in each Quality Statement |
|---------------------------------------------------------------|---------------------------------------------------------------|
| **Statement 1.1** All children are triaged and promptly assessed for emergency and priority signs to determine whether they require resuscitation and receive appropriate care according to WHO guidelines. (n=19) | WHO-Europe | WHO-SE Asia | SPA | HRBF | HeRAMS | r-HFA | SARA | HFS-IMCI | HCAHPS-Child |
| 63% | 58% | 68% | 16% | 63% | 26% | 16% | 16% | 0% |
| **Statement 1.2** All sick infants, especially small newborns, are thoroughly assessed for serious bacterial infection and receive appropriate care according to WHO guidelines. (n=19) | 37% | 79% | 42% | 11% | 11% | 16% | 16% | 11% | 0% |
| **Statement 1.3** All children with cough or difficult breathing are correctly assessed, classified and investigated and receive appropriate care and/or antibiotics for pneumonia, according to WHO guidelines. (n=18) | 83% | 83% | 61% | 17% | 61% | 39% | 28% | 33% | 0% |
| **Statement 1.4** All children with diarrhoea are correctly assessed and classified and receive appropriate rehydration and care, including continued feeding, according to WHO guidelines. (n=19) | 74% | 68% | 68% | 32% | 74% | 53% | 16% | 42% | 0% |
| **Statement 1.5** All children with fever are correctly assessed, classified and investigated and receive appropriate care according to WHO guidelines. (n=19) | 58% | 68% | 58% | 37% | 47% | 42% | 32% | 26% | 0% |
| **Statement 1.6** All infants and young children are assessed for growth, breastfeeding and nutrition, and their carers receive appropriate support and counselling, according to WHO guidelines. (n=12) | 83% | 75% | 50% | 33% | 17% | 25% | 17% | 25% | 0% |
| **Statement 1.7** All children at risk for acute malnutrition and anaemia are correctly assessed and classified and receive appropriate care according to WHO guidelines. (n=16) | 75% | 88% | 44% | 38% | 56% | 25% | 31% | 25% | 0% |
| **Statement 1.8** All children at risk for TB and/or HIV infection are correctly assessed and investigated and receive appropriate management according to WHO guidelines. (n=17) | 47% | 29% | 47% | 65% | 41% | 18% | 41% | 0% | 0% |

Continued
| Table 4  Continued |
|------------------|
| **Percentage of Quality Measures assessable in each Quality Statement** |
| WHO-Europe | WHO-SE Asia | SPA | HRBF | HeRAMS | r-HFA | SARA | IMCI | HCAHPS-Child |
| Statement 1.9: All children are assessed and checked for immunisation status and receive appropriate vaccinations according to the guidelines of the WHO expanded programme on immunisation. (n=12) | 17% | 58% | 100% | 75% | 42% | 50% | 58% | 58% | 0% |
| Statement 1.10: All children with chronic conditions receive appropriate care, and they and their families are sufficiently informed about their condition(s) and are supported to optimise their health, development and quality of life. (n=12) | 42% | 0% | 33% | 8% | 17% | 0% | 25% | 0% | 0% |
| Statement 1.11: All children are screened for evidence of maltreatment, including neglect and violence, and receive appropriate care. (n=7) | 29% | 0% | 0% | 0% | 29% | 0% | 0% | 0% | 0% |
| Statement 1.12: All children with surgical conditions are screened for surgical emergencies and injuries and receive appropriate surgical care. (n=12) | 33% | 17% | 17% | 8% | 25% | 8% | 17% | 0% | 0% |
| Statement 1.13: All sick children, especially those who are most seriously ill, are adequately monitored, reassessed periodically and receive supportive care according to WHO guidelines. (n=14) | 93% | 50% | 36% | 0% | 21% | 7% | 7% | 0% | 0% |
| Statement 1.14: All children receive care with standard precautions to prevent health care-associated infections. (n=14) | 64% | 50% | 50% | 57% | 43% | 21% | 36% | 7% | 0% |
| Statement 1.15: All children are protected from unnecessary or harmful practices during their care. (n=12) | 67% | 33% | 17% | 0% | 0% | 0% | 0% | 8% | 0% |
| **Standard 2: The health information system ensures the collection, analysis and use of data to ensure early, appropriate action to improve the care of every child** |
| Statement 2.1: Every child has a complete, accurate, standardised, up-to-date medical record, which is accessible throughout their care, on discharge and on follow-up. (n=13) | 62% | 38% | 23% | 15% | 0% | 23% | 0% | 8% | 0% |
| Statement 2.2: Every health facility has a functional mechanism for data collection, analysis and use as part of its activities for monitoring performance and quality improvement. (n=9) | 44% | 67% | 78% | 56% | 0% | 44% | 0% | 0% | 0% |
| Statement 2.3: Every health facility has a mechanism for collecting, analysing and providing feedback on the services provided and the perception of children and their families of the care received. (n=7) | 43% | 57% | 57% | 57% | 0% | 0% | 0% | 29% | 43% |
Table 4  Continued

| Percentage of Quality Measures assessable in each Quality Statement | WHO-Europe | WHO-SE Asia | SPA | HRBF | HeRAMS | r-HFA | SARA | IMCI | HCAHPS-Child |
|---------------------------------------------------------------|------------|------------|-----|------|--------|------|------|------|-------------|
| **Standard 3:** Every child with condition(s) that cannot be treated effectively with the available resources receives appropriate, timely referral, with seamless continuity of care |
| **Statement 3.1:** Every child who requires referral receives appropriate prereferral care, and the decision to refer is made without delay. (n=10) | 30% | 30% | 30% | 50% | 40% | 0% | 0% | 20% | 0% |
| **Statement 3.2:** Every child who requires referral receives seamless, coordinated care and referral according to a plan that ensures timeliness. (n=12) | 33% | 0% | 17% | 42% | 17% | 8% | 8% | 25% | 0% |
| **Statement 3.3:** For every child referred or counter-referred within or among health facilities, there is appropriate information exchange and feedback to relevant healthcare staff. (n=6) | 67% | 33% | 83% | 17% | 100% | 17% | 17% | 0% | 0% |
| **Standard 4:** Communication with children and their families is effective, with meaningful participation and responds to their needs and preferences |
| **Statement 4.1** All children and their carers are given information about the child’s illness and care effectively, so that they understand and cope with the condition and the necessary treatment. (n=13) | 85% | 23% | 38% | 31% | 0% | 15% | 0% | 23% | 69% |
| **Statement 4.2** All children and their carers experience coordinated care, with clear, accurate information exchange among relevant health and social care professionals and other staff. (n=9) | 22% | 11% | 11% | 11% | 0% | 0% | 0% | 0% | 0% |
| **Statement 4.3** All children and their carers are enabled to participate actively in the child’s care, in decision making, in exercising the right to informed consent and in making choices, in accordance with their evolving capacity. (n=10) | 80% | 10% | 10% | 20% | 0% | 0% | 0% | 0% | 20% |
| **Statement 4.4** All children and their carers receive appropriate counselling and health education, according to their capacity, about the current illness and promotion of the child’s health and well-being. (n=13) | 23% | 38% | 46% | 31% | 31% | 8% | 0% | 31% | 8% |
| **Standard 5:** Every child’s rights are respected, protected and fulfilled at all times during care, without discrimination |
| **Statement 5.1** All children have the right to access healthcare and services, with no discrimination of any kind. (n=9) | 78% | 11% | 44% | 22% | 11% | 0% | 0% | 11% | 0% |
Table 4  Continued

| Percentage of Quality Measures assessable in each Quality Statement |
|---------------------------------------------------------------|
| WHO-Europe  | WHO-SE Asia  | SPA  | HRBF  | HeRAMS  | r-HFA  | SARA  | HFS-IMCI  | HCAHPS-Child |
| Statement 5.2 All children and their carers are made aware of and given information about children’s rights to health and healthcare. (n=9) | 44% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Statement 5.3 All children and their carers are treated with respect and dignity, and their right to privacy and confidentiality is respected. (n=7) | 57% | 14% | 43% | 43% | 0% | 14% | 14% | 0% | 57% |
| Statement 5.4 All children are protected from any violation of their human rights, physical or mental violence, injury, abuse, neglect or any other form of maltreatment. (n=9) | 11% | 0% | 0% | 0% | 22% | 0% | 0% | 0% | 0% |
| Statement 5.5 All children have access to safe, adequate nutrition that is appropriate for both their age and their health condition during their care in a facility. (n=10) | 40% | 30% | 20% | 10% | 0% | 10% | 10% | 0% | 0% |

Standard 6: All children and their families are provided with educational, emotional and psychosocial support that is sensitive to their needs and strengthens their capability

Statement 6.1 All children are allowed to be with their carers, and the role of carers is recognised and supported at all times during care, including rooming-in during the child’s hospitalisation. (n=9) | 78% | 22% | 0% | 0% | 0% | 0% | 0% | 0% | 11% |
| Statement 6.2 All children and their families are given emotional support that is sensitive to their needs, with opportunities for play and learning that stimulate and strengthen their capability. (n=10) | 60% | 10% | 0% | 0% | 0% | 0% | 0% | 0% | 20% |
| Statement 6.3 Every child is assessed routinely for pain or symptoms of distress and receives appropriate management according to WHO guidelines. (n=13) | 62% | 0% | 8% | 0% | 0% | 0% | 0% | 0% | 23% |

Standard 7: For every child, competent, motivated, empathic staff are consistently available to provide routine care and management of common childhood illnesses

Statement 7.1 All children and their families have access at all times to sufficient health professionals and support staff for routine care and management of childhood illnesses. (n=15) | 67% | 27% | 40% | 53% | 0% | 13% | 0% | 13% | 7% |
| Statement 7.2 Health professionals and support staff have the appropriate skills to fulfil the health, psychological, developmental, communication and cultural needs of children. (n=17) | 76% | 47% | 65% | 71% | 6% | 35% | 18% | 24% | 6% |
| Quality Statement | WHO-Europe | WHO-SE Asia | SPA | HRBF | HeRAMS | r-HFA | SARA | HFS-IMCI | HCAHPS-Child |
|------------------|------------|-------------|-----|------|--------|-------|------|----------|-------------|
| Statement 7.3    | 67%        | 25%         | 50% | 50%  | 0%     | 17%   | 0%   | 8%       | 8%          |
| Standard 8: The health facility has an appropriate, child-friendly physical environment, with adequate water, sanitation, waste management, energy supply, medicines, medical supplies and equipment for routine care and management of common childhood illnesses. |
| Statement 8.1    | 40%        | 47%         | 40% | 33%  | 20%    | 13%   | 33%  | 0%       | 20%         |
| Statement 8.2    | 68%        | 59%         | 41% | 45%  | 41%    | 18%   | 18%  | 0%       | 0%          |
| Statement 8.3    | 40%        | 27%         | 27% | 27%  | 33%    | 7%    | 33%  | 0%       | 13%         |
| Statement 8.4    | 71%        | 64%         | 57% | 50%  | 43%    | 43%   | 50%  | 14%      | 0%          |

Red boxes indicate that the assessment tool did not assess any; orange boxes indicate less than half; yellow boxes indicate equal to or more than half and green boxes indicate all of the quality measures were assessable in the associated quality statement.

HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems; HeRAMS, Health Resources Availability Mapping System; HFS-IMCI, Health Facility Survey—using Integrated Management of Childhood Illness clinical guidelines; HRBF, Health Results Based Financing impact evaluation toolkit; n, number of Quality Measures within the associated Quality Statement; r-HFA, rapid Health Facility Assessment; SARA, Service Availability and Readiness Assessment; SPA, Service Provision Assessment.
The purpose and context of the assessment tools needs to be considered when examining how comprehensive they are in comparison to the WHO Standards. The WHO Hospital Care assessment tools were found to be more comprehensive in their ability to capture the WHO Standards. These tools were first developed in 2001 to provide government and stakeholders guidance in performing evaluation of quality of healthcare practices in order to identify key areas to improve on.\(^{17}\) They have since been revised multiple times and adapted to multiple settings with the most recent European version including indicators for child rights, communication and alignment with evidence-based practice as outlined in the WHO Pocket Book of Hospital Care for Children.\(^{19}\) The WHO Standards for improving QoC have been modelled on similar frameworks, which may explain the overlap of indicators between the WHO Hospital Care assessment tools and the WHO Standards.

Of the three broad arms of QoC in the WHO Standards: provision of care (QSd 1–3) and available human and physical resources (QSd 7–8), were more widely covered by the tools than experience of care (QSd 4–6). This may be because provision of care and system inputs have more definitive QMs, which make them amenable to be assessed through checklist style questionnaires. The SPA and Service Availability and Readiness Assessment were developed to provide nationwide data on the capacities of health facilities to provide quality services and have been used in over 30 countries.\(^{18}\) These surveys are designed to be repeated at periodic intervals, every 1–5 years, to monitor progress and inform development of national health policies and programmes. It is therefore not surprising that their strengths lie in assessing availability of concrete measures such as physical infrastructure and human resources, with less emphasis on subjective components such as communication and emotional support. The HeRAMS similarly was developed to collect information on availability of health resources and services. Designed to be implemented in humanitarian and emergency response settings, rapid reporting is essential to its purpose in order to obtain supplies and resources required for basic healthcare needs.

The child-specific assessment tools such as the WHO hospital tools, HFS-IMCI and Child-HCAHPS, had relative strengths in assessing experience of care when compared with the remaining tools. This may be in recognition that communicating with parents/carers is a large component of paediatric healthcare. The Child-HCAHPS survey was developed for the sole purpose of obtaining parent/guardian feedback on their experience of care of their child in hospital. Health service delivery has traditionally revolved around disease diagnosis and treatment. However, there has been a gradual global shift towards integrated people-centred health services, where people and communities are seen as active participants as well as beneficiaries of their responsive health systems. In 2016, the WHO adopted the ‘Framework on integrated people-centred health services’ to help drive change in national policies on health services delivery to include cross-sectoral collaboration and community involvement and empowerment in decision-making processes.\(^{20}\) Involving people in their own care, especially marginalised subpopulations, is considered essential to achieving equitable access and QoC towards UHC. So, although tools such as the Child-HCAHPS may not be a suitable tool to assess all aspects of QoC for children, it can be a useful adjunctive tool to assess communication skills and patient experiences of care, which may otherwise be lacking in existing quality assessment frameworks.

Feasibility was not formally assessed as part of this review. The more comprehensive WHO Hospital Care Assessment tools are extensive and labour intensive and yet only cover about half the QM in the WHO Standards. Our search only identified two original peer-reviewed publications that used the WHO Hospital Care Assessment Tools.\(^{21}\) It is possible that the tools are used for auditing and quality improvement practices with information only being disseminated within country. However, there is little anecdotal evidence of this occurring. Without clear quality frameworks in place and limited resources, health facilities would likely find it challenging to implement these assessment tools effectively. In order for LMICs to effectively implement quality improvement practices and to sustainably assess and monitor them, key indicators need to be clear and manageable. We recommend that the QM in the WHO Standards be simplified and that key indicators to monitor in each QSd be highlighted. Key indicators should obtain global consensus and adhere to a measurement framework to ensure that they are relevant, acceptable, achievable and robust. Existing core assessment tools could then be combined and simplified, to incorporate the key indicators, with flexibility for other QM to be included as prioritised by individual health facilities. This will be more achievable and constructive at the local level, while assisting in reporting of national progress of uniform child health indicators in LMICs.

An alternative to using explicit QoC assessment tools to evaluate and monitor quality improvement practices, would be to have key indicators embedded in other routine data collection systems. In the USA, there are existing monitoring systems of QMs embedded in HIS. Data are collated from multiple databases by such agencies as the Agency for Healthcare Research and Quality to produce annual National Healthcare Quality and Disparities Reports which include indicators overlapping with many of the WHO Standards.\(^{22}\) In LMICs, paper-based surveys and medical records have traditionally been the main way to collect health data. Routine HIS which could potentially monitor key indicators for QoC can be variable in levels of data recording and quality, and are seldom used to evaluate programme interventions and policy changes often due to lack of capacity.\(^{24}\) The introduction of electronic health records and platforms are emerging as more reliable sources of data management and analyses
CONCLUSION

This review found that although the WHO Standards are comprehensive, no single tool can adequately assess all the QM in its current format. Furthermore, operational use of extensive assessment tools is seldom seen due to lack of resources and organisational frameworks. Existing tools tend to emphasise input measures and few tools adequately assess experience of care. Consensus and harmonisation of select key indicators from the WHO Standards, integrated into simplified assessment tools would make them more achievable in LMICs. Comparable data on key indicators for monitoring within and between countries will also assist in national and global reporting on progress of child health outcomes. Further research into the feasibility of modified tools with key indicators to assess QoC and the impact on health outcomes, is, therefore, an important next step in establishing equitable access to quality healthcare.

REFERENCES

1. Sustainable development goals knowledge platform New York: United nations, 2015. Available: https://sustainabledevelopment.un.org/sdgs [Accessed 30 Mar 2020].
2. World Health Organization. Quality of care: a process for making strategic choices in health systems. Geneva: World Health Organization, 2006.
 systems: service availability and readiness assessment (SARA).

20 World Health Organization. Framework on integrated people-centred health services. Geneva: World Health Organization, 2016. https://www.who.int/servicedeliverysafety/areas/people-centred-care/framework/en/

21 Sidik NA, Izyapornpanish K, Jarpronncharoen W, et al. Using routine health information systems for well-designed health evaluations in low- and middle-income countries. Health Policy Plan 2016;31:129–35.

22 Lazzarini M, Shukurova V, Davletbaeva M, et al. Improving the quality of hospital care for children by supportive supervision: a cluster randomized trial, Kyrgyzstan. Bull World Health Organ 2017;95:397–407.

23 U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. National healthcare quality and disparities report. Rockville, MD, 2018.

24 Wagenaar BH, Nijen, Fernandez Q, et al. Using routine health information systems for well-designed health evaluations in low- and middle-income countries. Health Policy Plan 2016;31:129–35.

25 Hung YW, Hoxha K, Irwin BR, et al. Using routine health information data for research in low- and middle-income countries: a systematic review. BMC Health Serv Res 2020;20:790.

26 Khubone T, Mlou B, Mashamba-Thompson TP. Electronic health information systems to improve disease diagnosis and management at point-of-care in low and middle income countries: a narrative review. Diagnostics 2020;10:327.

27 Kiberu VM, Matovu JKB, Makumbi F, et al. Strengthening district-based health reporting through the district health management information software system: the Ugandan experience. BMC Med Inform Decis Mak 2014;14:40.

28 MacLennan C, Were WM, Tunçalp O, Were WM, MacLennan C, et al. Quality of care for pregnant women and newborns-the who vision. BJOG 2015;122:1045–9.

29 Nolan T, Angos P, Cunha AJ, et al. Quality of hospital care for seriously ill children in less-developed countries. Lancet 2001;357:106–10.

30 World Health Organization. Pocket book of hospital care for children: guidelines for the management of common childhood illnesses. 2nd edition. Geneva: World Health Organization, 2013.

31 World Health Organization. Health statistics and information systems: service availability and readiness assessment (SARA). Available: https://www.who.int/healthinfo/systems/sara_introduction/en/ [Accessed 02 Feb 2020].

32 World Health Organization. Framework on integrated people-centred health services. Geneva: World Health Organization, 2016. https://www.who.int/servicedeliverysafety/areas/people-centred-care/framework/en/
Supplementary Appendix

Appendix A: WHO framework for improving the quality of paediatric care

Reproduced from WHO Standards for improving quality of care for children and young adolescents in health facilities4
Appendix B – Search strategies for systematic review on assessment tools for quality of care for children attending health facilities

MEDLINE Search strategy

| # | Search Term |
|---|-------------|
| #1 | *“quality of health care”/ or *Quality Indicators, Health Care/ |
| #2 | (quality and health*).hw. and (mt or st or td or sn).fs. |
| #3 | *“Delivery of Health Care”/ |
| #4 | 1 and 3 |
| #5 | epidemiologic methods/ or data collection/ or datasets as topic/ or “surveys and questionnaires”/ or health care surveys/ or health surveys/ or exp population surveillance/ |
| #6 | Psychometrics/ or Interviews as Topic/ or reliability.tw. |
| #7 | (tool or tools or observation*1).tw,kf. |
| #8 | (evaluat* or measur* or assess* or data or monitor*).tw,kf. |
| #9 | epidemiologic measurements/ or censuses/ |
| #10 | (1 or 2) and (5 or 6 or 7) and (8 or 9) |
| #11 | *“quality of health care”/ or *“standard of care”/ or *culturally competent care/ or *health resources/ or exp *health services accessibility/ or *comparative effectiveness research/ or *“global burden of disease”/ |
| #12 | 11 and (2 or 6) and (10 or 9) |
| #13 | 4 or 10 or 12 |
| #14 | *“quality of health care”/ |
| #15 | health facilities/ or hospital units/ or hospitals/ |
| #16 | (health-facilit* or (health* adj2 centre*) or (health* adj2 center*) or medical-center* or medical-centre*).tw,kf. |
| #17 | (13 or 14) and (15 or 16) |
| #18 | limit 17 to “all child (0 to 18 years)” |
| #19 | limit 18 to (english language and yr=“2008 -Current”)

PubMed keyword search strategy

| # | Search Term |
|---|-------------|
| #1 | Title/Abstract (*“quality of health care” OR *“quality of health-care” OR *quality of healthcare OR health-care-quality OR healthcare-quality OR “standard of health care” OR “standards of health care” OR “standards of health-care” OR “standards of healthcare” OR health-care-standard* OR healthcare-standard*) AND Title/Abstract (survey* OR questionnaire* OR psychometric* OR tool or tools OR evaluat* OR measur* OR assess* OR monitor*) AND Title/Abstract (Health-facilit* OR medical-facilit* OR hospital OR hospitals* OR health-centre* OR health-center* OR medical-center* OR medical-centre*) AND #2 | All fields (newborn* OR new-born* OR baby OR babies OR neonat* OR neo-nat* OR infant* OR toddler* OR preschooler* OR preschooler* OR child OR children OR pediatric* OR paediatric*) AND (NOTNLM OR publisher[db] OR inprocess[db] OR pubmednotmedline[db] OR indatareview[db] OR pubstatusaheadofprint) |
| #3 | #1 AND #2 Filters: Publication date from 01/01/2008 to 31/12/2020 Filters: English |

Search results yielded for each database/ search site

| Database/ Search Site | 21/08/2020 | 2021-08-21 |
|-----------------------|------------|------------|
| MEDLINE               | 658        | 658        |
| Global Health database| 163        | 163        |
| PubMed                | 255        | 255        |
| International Journal for Quality in Healthcare | 42 | 42 |
| WHO Bulletin          | 62         | 62         |
| WHO IRIS              | 27         | 27         |
| World Bank            | 7          | 7          |
| Hand-picked publications | 9         | 9          |
| Total                 | 1223       | 1223       |
### Appendix C – Quality standards, quality statements and quality measures detailed in the WHO “Standards for improving quality of care for children and young adolescents in health facilities”

#### STANDARD 1: Every child receives evidence-based care and management of illness according to WHO guidelines.

| Quality Statement | Input | Process/Output | Outcome |
|-------------------|-------|----------------|---------|
| 1. All children are triaged and promptly assessed for emergency and priority signs to determine whether they require resuscitation and receive appropriate care according to WHO guidelines. | 1. The health facility has written, up-to-date clinical protocols and procedures for emergency triage, assessment and management of common paediatric emergencies and trauma consistent with evidence-based and/or WHO guidelines. | 9. Proportion of all children with general danger or emergency signs or injuries who were assessed within 15 min of arrival at the facility. | 16. Proportion of all cases of children who died within 24 h of admission whose cases were audited and reviewed as part of performance improvement. |
| 2. The health facility has the essential equipment and supplies for assessing and monitoring paediatric emergencies (e.g. weighing scales, thermometer, blood pressure measuring device, blood glucose and oxygen saturation tests). | 2. The health facility has the essential equipment and supplies for assessing and monitoring paediatric emergencies (e.g. weighing scales, thermometer, blood pressure measuring device, blood glucose and oxygen saturation tests). | 10. Proportion of all children with general danger or emergency signs who required referral who received correct emergency and/or prereferral treatment. | 17. Proportion of sick children who attended the health facility who were triaged before seeing a doctor for treatment in either the outpatient department or the emergency unit. |
| 3. The health facility has a 24-h triage system for every sick child to ensure a rapid visual inspection within a few minutes of arrival that is not delayed by administrative or payment procedures. | 3. The health facility has a 24-h triage system for every sick child to ensure a rapid visual inspection within a few minutes of arrival that is not delayed by administrative or payment procedures. | 11. Proportion of all children under 5 years of age who did not require urgent referral or admission who were properly assessed according to WHO Integrated management of childhood and neonatal illnesses (IMNCI) guidelines. | 18. The age-disaggregated child mortality rate in the health facility: number of child deaths in the total number of children who presented to the health facility. |
| 4. The health facility receiving a referred paediatric patient with danger or emergency signs or injuries has a system for immediate emergency care, and a full initial assessment is made by suitably trained staff within 15 min of arrival. | 4. The health facility receiving a referred paediatric patient with danger or emergency signs or injuries has a system for immediate emergency care, and a full initial assessment is made by suitably trained staff within 15 min of arrival. | 12. Proportion of all professional health staff who care for children in a health facility who received training or refresher courses in emergency triage, assessment and treatment or paediatric emergency care during the past 12 months. | 19. Proportion of all children with emergency signs who were resuscitated and received emergency care consistent with WHO emergency care protocols and guidelines. |
| 5. The health facility has a designated emergency care area, room or trolley in the outpatient area and wards equipped with appropriate paediatric equipment, supplies and essential medicines for emergency resuscitation and initial treatment. | 5. The health facility has a designated emergency care area, room or trolley in the outpatient area and wards equipped with appropriate paediatric equipment, supplies and essential medicines for emergency resuscitation and initial treatment. | 13. Proportion of all professional health staff who care for children in a health facility who received training and/or refresher sessions in the management of common paediatric conditions during the past 12 months. | |
| 6. The designated emergency care area, room or trolley in the outpatient area and wards has visible emergency care aids (e.g. standardized algorithms or protocols, medicines, fluids and treatment dosage wall charts). | 6. The designated emergency care area, room or trolley in the outpatient area and wards has visible emergency care aids (e.g. standardized algorithms or protocols, medicines, fluids and treatment dosage wall charts). | 14. Proportion of all sick children who attended the health facility who were immediately triaged on arrival, before receiving definitive care or a full assessment by a health professional. | |
| 7. The health facility professional staff organize emergency care drills at least once every 12 months for all staff working in paediatric emergency areas and on wards to which severely ill children are admitted. | 7. The health facility professional staff organize emergency care drills at least once every 12 months for all staff working in paediatric emergency areas and on wards to which severely ill children are admitted. | 15. Proportion of all children in shock who were adequately assessed for signs of shock and were appropriately resuscitated according to WHO guidelines. | |
### 1.2 All sick infants, especially small newborns, are thoroughly assessed for serious bacterial infection and receive appropriate care according to WHO guidelines

|   |   |
|---|---|
| 1. | The health facility has written, up-to-date clinical protocols for assessing, identifying and appropriately managing newborns and young infants with PSBI, local infections or jaundice, consistent with WHO guidelines. |
| 2. | The health facility has supplies of antibiotics (first- and second-line) for postnatal treatment and/or full treatment of neonatal sepsis and meningitis that are adequate for the expected case load without stockouts. |
| 3. | The health facility clinical staff who care for newborns and young infants receive training or regular refresher sessions in recognizing and managing sick young infants at least once every 12 months. |
| 4. | The referral receiving facility for high-risk and severely ill newborn and young infants has appropriate diagnostic tests and medical devices for appropriate investigation and management. |
| 5. | The referral receiving facility has adequate material to provide optimal thermal care to preterm and small infants, including facilities for Kangaroo mother care. |
| 6. | The referral receiving facility for newborns with severe jaundice has procedures in place to assess severity, check bilirubin and provide effective phototherapy. |
| 7. | The referral facility has a separate area or room in which sick newborns and young infants are admitted and managed. |
| 8. | The referral receiving health facility has facilities for Kangaroo mother care and practices rooming-in of parents with their sick infants. |

### 1.3 All children with cough or difficult breathing are correctly assessed, classified and investigated and receive appropriate care and/or antibiotics for pneumonia, according to WHO guidelines.

|   |   |
|---|---|
| 1. | The health facility has a written, up-to-date, evidence-based clinical protocol for identifying and managing children with cough or difficult breathing, consistent with IMCI and paediatric care guidelines. |
| 2. | The referral receiving health facility has basic laboratory and diagnostic tests (e.g. pulse oximetry, full blood count, culture, ultrason sound and chest X-ray) available for appropriate investigation of children with severe pneumonia. |
| 3. | The health facility has adequate supplies of antibiotics (first- and second-line) for pneumonia, according to WHO guidelines. |
| 4. | Proportion of all sick young infants admitted to the health facility with any signs of PSBI who were appropriately classified and managed for PSBI or sepsis. |
| 5. | Proportion of all sick young infants classified as having PSBI or sepsis who were prescribed appropriate antibiotics (correct choice, dose, frequency, route of administration and duration) according to WHO guidelines. |
| 6. | Proportion of all sick young infants admitted to the facility with PSBI or fast breathing who were appropriately assessed for oxygen requirements with a pulse oximeter and received the documented appropriate amount of oxygen. |
| 7. | Proportion of all sick young infants who were appropriately investigated and treated. |
| 8. | Proportion of all sick young infants with severe jaundice whose bilirubin level was checked and who were appropriately managed. |
| 9. | Proportion of all sick young infants weighing < 2000 g who received Kangaroo mother care as part of clinical management in the health facility. |
| 10. | Proportion of pre-term and/or small infants who were appropriately investigated and treated. |
| 11. | Proportion of pre-term and/or small infants who were appropriately classified and investigated. |
| 12. | Proportion of all sick young infants admitted to the facility with convulsions whose blood glucose was checked and who were appropriately managed. |
| 13. | Proportion of all sick young infants treated for pneumonia within the initial 24 h of discharge. |
| 14. | Proportion of all sick young infants with severe jaundice whose bilirubin level was checked and who were appropriately managed. |
| 15. | Proportion of all sick young infants treated for pneumonia or asthma in the health facility. |
| 16. | Proportion of all sick young infants treated for PSBI or sepsis who died in the health facility (case fatality rate). |
| 17. | Proportion of all sick young infants who were readmitted within 48 h of discharge. |
| 18. | Proportion of all newborns (0–28 days) who were appropriately classified and investigated. |
| 19. | Proportion of all sick young infants admitted to the facility with PSBI or sepsis who died in the health facility. |
| 20. | Proportion of all sick young infants treated for pneumonia in the health facility who died of pneumonia. |
| 21. | Proportion of all children who died of pneumonia among all children admitted to the health facility. |
| 22. | Proportion of all children who died of pneumonia in the health facility who died of pneumonia within the initial 24 h of admission. |
| 23. | Proportion of all children who died of pneumonia in the health facility. |

---

Quach A, et al. *BMJ Global Health* 2021; 6:e006804. doi: 10.1136/bmjgh-2021-006804
### 1.4 All children with diarrhoea are correctly assessed and classified and receive appropriate rehydration and care, including continued feeding, according to WHO guidelines.

| 1. | The health facility has a written, up-to-date clinical protocol for identifying and managing children with diarrhoea, consistent with WHO guidelines. |
| 2. | The health facility staff use standard guidelines to assess, document and appropriately manage children with diarrhoea and dehydration or dysentery, based on WHO guidelines. |
| 3. | The health facility paediatric outpatient areas and inpatient wards have rehydration algorithms and plan A, B and C charts available and visibly displayed on the walls for use by health care workers and carers. |
| 4. | The health facility has adequate supplies for diarrhoea management (IV fluids, oral rehydration salts [ORS], zinc, antibiotics) for the expected case load without stock outs in the past 3 months. |
| 5. | The health facility has an appropriate designated space with safe, clean water and adequate supplies for preparing ORS for children with diarrhoea and dehydration. |
| 6. | The health facility clinical staff who care for children receive IMCI training and regular refresher sessions in assessing and managing children with diarrhoea who are dehydrated or have dysentery at least once every 12 months. |
| 7. | Proportion of all children with appropriately classified diarrhoea who were documented as having received an appropriate rehydration treatment plan (A, B or C) according to WHO guidelines. |
| 8. | Proportion of all children with dysentery who were correctly prescribed an appropriate course of antibiotics. |
| 9. | Proportion of all children with diarrhoea and severe dehydration who were correctly administered IV fluids according to rehydration plan C. |
| 10. | Proportion of all children managed for diarrhoea and some or no dehydration who were not prescribed medicines to reduce stool frequency (anti-motility agents). |
| 11. | Proportion of all children with diarrhoea who were correctly prescribed ORS and zinc supplementation. |
| 12. | Proportion all children treated for diarrhoea and dehydration who were not prescribed medicines to reduce stool frequency (anti-motility agents). |
| 13. | Proportion of all children admitted with diarrhoea who were correctly monitored for their intake of fluids and foods. |
| 14. | Proportion of all children admitted with diarrhoea and dehydration whose fluid intake and feeding were appropriately monitored and documented. |
| 15. | Proportion of all children with diarrhoea and severe dehydration who could not be managed in the facility who were correctly referred. |
| 16. | Proportion of all children with asthma who were appropriately administered inhalation bronchodilator treatment. |
| 17. | Proportion of all children with asthma who were correctly prescribed an appropriate course of bronchodilator treatment. |
| 18. | Proportion of all children with pneumonia to whom oxygen was appropriately administered for the clinical indication (signs of hypoxaemia or oxygen saturation < 90%). |
| 19. | Proportion of all children admitted with severe pneumonia whose respiratory rate and oxygen saturation were appropriately monitored. |
| 20. | Proportion of all children with cough for ≥ 14 days who were referred or further assessed and investigated for TB or other causes of chronic infection. |
| 21. | Proportion of all children with only cough and cold (with no signs of pneumonia or severe pneumonia) who received antibiotics. |

| 10. | Proportion of all children with asthma who were correctly prescribed an appropriate course of bronchodilator treatment. |
| 11. | Proportion of all children with pneumonia to whom oxygen was appropriately administered for the clinical indication (signs of hypoxaemia or oxygen saturation < 90%). |
| 12. | Proportion of all children admitted with severe pneumonia whose respiratory rate and oxygen saturation were appropriately monitored. |
| 13. | Proportion of all children with asthma who were correctly prescribed an appropriate course of bronchodilator treatment. |
| 14. | Proportion of all children with cough for ≥ 14 days who were referred or further assessed and investigated for TB or other causes of chronic infection. |
| 15. | Proportion of all children with only cough and cold (with no signs of pneumonia or severe pneumonia) who received antibiotics. |

| 17. | Proportion of all children with some dehydration who were successfully rehydrated in the outpatient department and discharged for home treatment. |
| 18. | Proportion of all children managed for diarrhoea with severe dehydration in the health facility who died of diarrhoea. |
| 19. | Proportion of children who were treated for diarrhoea and who returned to the same health facility with diarrhoea within 7 days of the initial discharge. |
1. The health facility has a written, up-to-date, evidence-based clinical protocol for identifying and managing children with fever that is consistent with WHO guidelines.
2. The health facility has basic laboratory and diagnostic tests and supplies (e.g. otoscopes, blood glucose tests, malaria smear and/or rapid diagnostic tests, urine tests) available for appropriate assessment of children with fever.
3. The referral receiving health facility for children with severe febrile illness has appropriate laboratory and diagnostic tests available for further investigation and management.
4. The health facility has adequate supplies of first- and second-line antibiotics for treatment of bacterial infections and antimalarial agents for treatment of malaria in sufficient quantities for the expected case load with no stock outs.
5. The health facility training and regular refresher sessions in the assessment and management of children with fever at least once every 12 months.
6. Proportion of all children seen in the health facility for whom a raised temperature was documented in their medical record.
7. Proportion of all children admitted to the health facility for whom a documented differential diagnosis was appropriately investigated.
8. Proportion of all children treated for malaria for whom there is documented evidence of a positive malaria rapid diagnostic test or positive microscopy.
9. Proportion of all children treated for severe malaria who had documented confirmed malaria and evidence of severe disease.
10. Proportion of all children with severe malaria who received the correct treatment (drug, dose, frequency, route of administration and duration) and supportive care according to WHO guidelines.
11. Proportion of all children with severe febrile illness and suspected meningitis for whom there was documented evidence of lumbar puncture in the medical records.
12. Proportion of all children with meningitis who received correct antibiotic treatment (choice of drug, dose frequency, route of administration and duration) and supportive care according to WHO guidelines.
13. Proportion of all children with severe febrile illness (e.g. malaria, meningitis, sepsis, dengue) who were monitored regularly for vital signs and level of consciousness until resolution of severe signs of illness.
14. Proportion of all children with severe febrile illness with suspected sepsis who were appropriately investigated (e.g. full blood
15. Proportion of all children with persistent diarrhoea who were correctly assessed for dehydration and nutritional status and correctly treated.
16. Number of days on which the health facilities did not have medicines or supplies to treat diarrhoea (ORS, zinc, IV fluids and supplies, antibiotics) in the past 3 months.
17. Severe malaria case fatality rate disaggregated by age.
18. Meningitis case fatality rate disaggregated by age.
19. Proportion of all children treated for sepsis who died (sepsis case fatality rate).
### 1.6 All infants and young children are assessed for growth, breastfeeding and nutrition, and their carers receive appropriate support and counselling, according to WHO guidelines.

1. The health facility has a written, up-to-date policy for exclusive breastfeeding and appropriate feeding, according to WHO guidelines.
2. The health facility maintains a baby-friendly status that supports breastfeeding according to WHO guidelines.
3. The health facility fully complies with the International Code of marketing of breast-milk substitutes and has systems in place to monitor compliance with the Code.
4. The health facility has the necessary supplies and materials to support breastfeeding and, when appropriate, alternative feeding (feeding cups and spoons, infant formula, nasogastric tubes, syringe drivers, IV fluids and tubing).
5. The professional staff of the health facility who care for children receive training and regular refresher sessions in counselling on breastfeeding and optimal feeding and nutrition of infants and young children at least once every 12 months.
6. The health facility can regularly assess the competence of staff for supporting carers in sustaining optimal infant and young child feeding and nutrition at least once every 12 months.

### 1.7 All children at risk for acute malnutrition and anaemia are correctly assessed and classified and receive appropriate care according to WHO guidelines.

1. The health facility has written, up-to-date clinical protocols for assessment, identification and management of children with acute malnutrition and anaemia consistent with WHO guidelines.
2. The health facility has adequate, functioning equipment (e.g. weighing scales, length and height boards, mid-upper arm circumference tapes) and other supplies for assessing and managing acute malnutrition for the expected case load without stock outs.
3. The health facility has or is linked to an outpatient or community therapeutic feeding programme.

### Definitions
- Proportion of all children treated for septic shock who received the correct antibiotic treatment (choice of drug, dose, frequency, route of administration and duration) and supportive care according to WHO guidelines.
- Proportion of all children aged < 6 months in the health facility who are exclusively breastfed or given only expressed breast milk.
- Proportion of all children < 5 years in the health facility who have been assessed for routine growth and delayed development, as documented on their child health card or booklet.
- Proportion of children aged 6-23 months in the health facility who receive appropriate complementary foods according to WHO guidelines.
- Proportion of preterm or small sick infants who receive assisted feeding for whom a correctly prescribed feed volume appropriate for their weight and gestation age is documented.
- Proportion of all newborn infants in the health facility who receive fully established breastfeeding at the time of discharge.
- Proportion of carers in the health facility who have received counselling on breastfeeding and nutrition to ensure continued, appropriate feeding of the children in their care.
1. The health facility has written, up-to-date guidance on assessing and managing children with suspected TB infection.
2. The health facility offers routine screening for TB symptoms among children at risk (e.g. history of contact with a case of active TB, malnourished or with HIV/AIDS).
3. Health facilities in areas with a high prevalence of HIV infection routinely offer HIV counselling and testing to all children.
4. The health facility has child-friendly single or fixed-dose formulations of anti-TB medicines available at all times in adequate quantities without stock outs.
5. The health facility has adequate supplies of antiretroviral therapy and preventive therapy (co-trimoxazole) available at all times for infants and children exposed to and/or infected with HIV.
6. The professional staff at the health facility receive training and regular refresher sessions on TB prevention, case-finding and management at least once every 12 months.

8. Proportion of all children with a household contact with active TB who received TB preventive treatment.
9. Proportion of all children with diagnosed TB who received correct, appropriate treatment (i.e. formulation, combination, dose and duration of treatment).
10. Proportion of all children started on TB treatment in the health facility who successfully completed the full course.
11. Proportion of all children who attend health facilities in settings with a high HIV prevalence whose HIV status is known and documented in their medical records.
12. Proportion of all HIV-positive women who delivered in the health facility who receive appropriate prophylaxis to prevent mother-to-

13. Proportion of all children admitted to the health facility with complicated severe acute malnutrition whose temperature was measured and recorded on admission.
14. Proportion of all children admitted to the health facility with complicated severe acute malnutrition whose vital signs, feed intake and weight were regularly and adequately monitored during hospitalization.
15. Proportion of all children admitted with complicated severe acute malnutrition who received appropriate feeding at a correct frequency both day and night according to WHO guidelines.
16. Proportion of all children classified or diagnosed with anaemia who are appropriately investigated and prescribed treatment correctly according to WHO guidelines.
17. Proportion of all children with diagnosed TB who received correct, appropriate treatment.

1.8 All children at risk for TB and/or HIV infection are correctly assessed and investigated and receive appropriate management according to WHO guidelines.

12. Proportion of all children admitted to the health facility with complicated severe acute malnutrition whose temperature was measured and recorded on admission.
15. Proportion of all children admitted with complicated severe acute malnutrition who received appropriate feeding at a correct frequency both day and night according to WHO guidelines.
18. Proportion of all children classified or diagnosed with anaemia who are appropriately investigated and prescribed treatment correctly according to WHO guidelines.

7. The professional staff at the health facility who care for children receive training and regular refresher sessions in assessment, identification, appropriate management and follow-up of children with acute malnutrition at least once every 12 months.
8. The health facility has basic laboratory and diagnostic tests (e.g. blood glucose, full blood count, blood culture, urinalysis, serum electrolytes, chest X-ray) for appropriate investigation and management of children with complicated severe acute malnutrition.

| 1. | The health facility has written, up-to-date protocols and guidelines for providing routine child immunization services that are consistent with WHO guidelines. |
| 2. | The health facility has a functioning refrigerator with a temperature monitoring device and sufficient storage capacity to accommodate all the vaccines required for the expected case load. |
| 3. | The health facility has adequate supplies of immunization cards, tally sheets, ice packs and other supplies to provide daily immunization services at all times with no stock outs. |
| 4. | The health facility has adequate supplies of all age-appropriate primary vaccines and human papillomavirus available to provide daily immunization services with no stock outs. |
| 5. | The health facility has adequate supplies of puncture-resistant, rigid, leak resistant containers designed to hold used sharps safely during collection, disposal and destruction. |
| 6. | The health facility has at least one health professional trained in immunization service delivery, who receives regular refresher sessions at least once every 24 months. |

| 11. | Proportion of all children under 5 years of age who attended the health facility and left without receiving age-appropriate, up-to-date vaccination according to the guidelines of the WHO expanded programme on immunization. |

| 1.9 | All children are assessed and checked for immunization status and receive appropriate vaccinations according to the guidelines of the WHO expanded programme on immunization. |

| 14. | Proportion of all children born to HIV-infected mothers who were tested for HIV infection within 8 weeks of birth and received appropriate antiretroviral therapy according to WHO guidelines. |
| 15. | Proportion of all children with confirmed HIV infection who have started antiretroviral therapy. |

| 17. | Proportion of all children with asthma who are followed at the health facility who were admitted with a severe acute asthmatic attack in the past 3 months. |
| 18. | Proportion of children who require palliative care, whose physical and emotional care, |

| 10. | Proportion of all children with asthma who are followed at the health facility who were admitted with a severe acute asthmatic attack in the past 3 months. |

| 11. | Proportion of all children admitted to the health facility for more than 24 h who were not fully vaccinated for their age. |

| 1.10 | All children with chronic conditions receive appropriate care, and they and their families are sufficiently informed about their condition(s) and are supported to optimize their health, development and quality of life. |

| 6. | Proportion of all children with chronic conditions (e.g. asthma, sickle-cell anaemia, diabetes, epilepsy, cardiac disease) who are regularly followed up as per scheduled plan. |
| 7. | Proportion of children with a chronic condition and/or their carers who understand and are able to describe their condition and the treatment being received correctly. (78.31) |
| 8. | Proportion of children with a chronic condition who know and can correctly describe their condition and the treatment being received correctly. (78.31) |

| 10. | Proportion of all children with asthma who are followed at the health facility who were admitted with a severe acute asthmatic attack in the past 3 months. |

| 12. | Proportion of children with a chronic condition who know and can correctly describe their condition and the treatment being received correctly. (78.31) |
|   |   |   |
|---|---|---|
|   | 3. The health facility has the facilities, supplies and materials necessary to provide optimal care during both acute episodes and routine follow-up of children with chronic conditions. | including pain, side-effects and other symptoms, is assessed and documented. |
|   | 4. Health professionals receive in-service training or refresher sessions in the appropriate care of common chronic childhood conditions (e.g. asthma, sickle cell disease, diabetes, epilepsy and cardiac disease) at least once every 12 months. | Proportion of health professionals who care for children in the health facility who have received in-service training or refresher sessions in appropriate care of common chronic childhood conditions at least once every 12 months. |
|   | 5. The health facility has an established system for age-appropriate education and counselling for children about their condition, self-management and prevention of complications. | describe the signs and symptoms that alert them to seek care for their condition. |
| L.11 | All children are screened for evidence of maltreatment, including neglect and violence, and receive appropriate care. |   |
|   | 1. The health facility has a comprehensive written protocol for identifying, assessing and managing children with suspected maltreatment. | Proportion of all children with suspected maltreatment who were managed according to established health facility procedures and protocols. |
|   | 2. The health facility staff receive training and refresher sessions on screening, preventing, protecting and managing children with evidence of maltreatment, including neglect and violence. | Proportion of all children attending the health facility with suspected maltreatment who received psychological services. |
|   | 3. The health facility has the facilities, supplies and materials to provide optimal, coordinated care to children with suspected maltreatment. |   |
| L.12: All children with surgical conditions are screened for surgical emergencies and injuries and receive appropriate surgical care. |   |
|   | 1. The health facility has written, up-to-date clinical protocols for emergency triage and assessment and appropriate case management of paediatric trauma and surgical conditions, consistent with WHO guidelines. | Proportion of children undergoing major surgery who received appropriate perioperative antibiotic prophylaxis within 30 min of incision, when indicated. |
|   | 2. The health facility that provides surgical care for children has a system to ensure a coordinated multidisciplinary team that includes a health professional with competence and skills in child surgery. | Proportion of all children undergoing surgery who were admitted to a designated paediatric area staffed by health professionals trained in child care. |
|   | 3. Health professionals receive in-service training and refresher sessions in appropriate care of child injuries, trauma and other common paediatric surgical conditions at least once every 12 months. | Proportion of all children with trauma or injuries who were assessed within 15 min of arrival at the health facility. |
|   | 4. The health facility has a designated area for the management of children with surgical problems by health professionals who are trained or who have knowledge and skills in child care. | Proportion all children with moderate or severe pain whose pain was relieved (where indicated) within 30 min of arrival at the health facility. |
|   | 6. Proportion of children with maltreatment for whom a legal opinion was requested. |   |
|   | 7. Proportion of maltreatment events in which coordination was sought with other agencies or organizations (e.g. social services, police, judiciary) according to national laws and policies. |   |
|   | 10. Health facility complication rates for patients who underwent surgery. |   |
|   | 11. Health facility mortality rate for all children who underwent surgery. |   |
|   | 12. Case fatality rate of children with trauma and/or injuries. |   |
| 1.13: All sick children, especially those who are most seriously ill, are adequately monitored, reassessed periodically and receive supportive care according to WHO guidelines. | 1. The health facility has written, up-to-date protocols for monitoring and providing supportive care for various conditions for all children admitted to the wards. | 5. Proportion of all unconscious children admitted to the wards who received a nasogastric tube for feeding. | 14. Proportion of all severely ill children who died in the health facility whose death was attributed to aspiration. |
| --- | --- | --- | --- |
|  | 2. The health facility has age-appropriate patient monitoring charts that include a provision for recording details of clinical progress and vital signs and of the treatment and supportive care provided. | 6. Proportion of all severely ill children who cannot feed orally for whom blood glucose monitoring is documented on their observation chart. |  | |
|  | 3. The health facility has a designated area for managing seriously sick children that is close and easily visible to the nursing staff on the ward. | 7. Proportion of all children who received oxygen for which the prescribed method and rate of delivery are documented. |  | |
|  | 4. Health professionals receive in-service training and regular refresher sessions on patient monitoring and supportive care at least once every 12 months. | 8. Proportion of all children admitted to the health facility who were appropriately monitored and for whom observations were recorded by a nurse according to the guidelines. |  | |
|  |  | 9. Proportion of all children admitted to the health facility who are reassessed every working day by a clinician trained in child health care. |  | |
|  | 10. Proportion of all children with convulsions who were appropriately investigated and correctly prescribed anticonvulsant treatment (appropriate choice, dose and frequency). | 10. Proportion of all children with convulsions who were appropriately investigated and correctly prescribed anticonvulsant treatment (appropriate choice, dose and frequency). |  | |
|  | 11. Proportion of all children who required antipyretics who were prescribed the correct treatment (appropriate choice, dose and frequency) to reduce their temperature. | 11. Proportion of all children who required antipyretics who were prescribed the correct treatment (appropriate choice, dose and frequency) to reduce their temperature. |  | |
|  | 12. Proportion of all children in pain for whom analgesic treatment was correctly prescribed (appropriate choice, dose and frequency). | 12. Proportion of all children in pain for whom analgesic treatment was correctly prescribed (appropriate choice, dose and frequency). |  | |
|  | 13. Proportion of all children who required a blood transfusion for severe anaemia who received the transfusion. | 13. Proportion of all children who required a blood transfusion for severe anaemia who received the transfusion. |  | |
|  | 14. Proportion of all children admitted to the health facility who had proven hospital acquired infections. | 14. Proportion of all children admitted to the health facility who had proven hospital acquired infections. |  | |

| 1.14: All children receive care with standard precautions to prevent health care-associated infections. | 1. The health facility has written, up-to-date guidelines, protocols and standard operating procedures for the prevention and control of infection in the facility. | 10. Proportion of health professionals in the health facility who have been trained in use of the WHO “5 moments for hand hygiene” audit tool. |  | |
| --- | --- | --- | --- |
|  | 2. The health facility has specific guidelines and protocols on hand hygiene and aseptic technique and device management for clinical procedures (e.g. injection safety, use of | 11. Evidence that the facility staff member or team responsible for infection prevention and control regularly collects data on episodes of hospital-acquired infection and has conducted |  | |
|  |  |  |  | |
|  |  |  |  | |
1. The health facility has written, up-to-date guidance on unnecessary procedures, harmful practices and unnecessary interventions for children.
2. The health facility does not promote infant formula on the wards, and samples are not distributed to mothers or staff.
3. The health facility does not display infant formula or bottles and teats, including on posters or placards.
4. Health care staff in the facility receive in-service training and regular refresher sessions on harmful practices and unnecessary interventions at least once every 12 months.
5. Proportion of young infants on formula when this is not indicated for the health of the mother or the infant.
6. Proportion of children admitted to wards with no indication for hospital admission.
7. Proportion of children admitted to the health facility who receive IV fluids with no clear indication.
8. Proportion of children admitted to the health facility who receive blood when not indicated.
9. Proportion of children up to 5 years seen at the health facility with cough who receive harmful cough remedies for respiratory tract infections.
10. Proportion of children admitted to the health facility for whom there were proven

| 1.15: All children are protected from unnecessary or harmful practices during their care. | 1. The health facility has written, up-to-date guidance on unnecessary procedures, harmful practices and unnecessary interventions for children. | 5. Proportion of young infants on formula when this is not indicated for the health of the mother or the infant. |
|---|---|---|
| 2. The health facility does not promote infant formula on the wards, and samples are not distributed to mothers or staff. | 2. The health facility does not promote infant formula on the wards, and samples are not distributed to mothers or staff. | 6. Proportion of children admitted to wards with no indication for hospital admission. |
| 3. The health facility does not display infant formula or bottles and teats, including on posters or placards. | 3. The health facility does not display infant formula or bottles and teats, including on posters or placards. | 7. Proportion of children admitted to the health facility who receive IV fluids with no clear indication. |
| 4. Health care staff in the facility receive in-service training and regular refresher sessions on harmful practices and unnecessary interventions at least once every 12 months. | 4. Health care staff in the facility receive in-service training and regular refresher sessions on harmful practices and unnecessary interventions at least once every 12 months. | 8. Proportion of children admitted to the health facility who receive blood when not indicated. |
| 5. Proportion of children up to 5 years seen at the health facility with cough who receive harmful cough remedies for respiratory tract infections. | 5. Proportion of children up to 5 years seen at the health facility with cough who receive harmful cough remedies for respiratory tract infections. | 9. Proportion of children admitted to the health facility for whom there were proven |
| 6. Proportion of children admitted to the health facility for whom there were proven | 6. Proportion of children admitted to the health facility for whom there were proven | 10. Proportion of children admitted to the health facility for whom there were proven |
STANDARD 2: The health information system ensures the collection, analysis and use of data to ensure early, appropriate action to improve the care of every child.

| Quality Statement | Input | Process/Output | Outcome |
|-------------------|-------|----------------|---------|
| 2.1: Every child has a complete, accurate, standardized, up-to-date medical record, which is accessible throughout their care, on discharge and on follow-up. | 1. The health facility has standardized, age-appropriate child care registers, clinical records, observation charts and patient cards in place at all times for recording and monitoring all care processes and outcomes. 2. The health facility has an established storage system for medical records that ensures confidentiality and safety and allows rapid retrieval, access and distribution of patients' medical records. 3. The health facility has a registration system for admissions, discharges, births and deaths that is linked to the national vital registration system at all times. 4. The health facility has a standardized system for classifying clinical conditions, diseases and health outcomes, including births and deaths, which is aligned with the ICD. 5. The health facility has a system for creating unique identifiers for new patients and locating pre-existing unique identifiers for returning patients. 6. The health facility staff receive training and refresher sessions at least once every 12 months on the use of standardized medical records, including birth and death registration, and classification of conditions and diseases in accordance with the ICD. 7. The health facility has sufficient supplies of the necessary registers, patient medical forms, charts and patient cards (e.g. immunization cards) in stock at all times. | 8. Proportion of all children currently in the health facility who have a patient identifier and individual clinical medical record. 9. Proportion of medical records in which every entry is dated, timed (24-h clock), legible and signed by the person making the entry. 10. Proportion of all children discharged from the health facility within the past 24 h who had an accurately completed discharge summary of the care provided, outcomes and diagnoses (with ICD codes). 11. Proportion of all births and deaths occurring in the health facility that were appropriately registered in the national vital registration system. | 12. Proportion of all medical records that include legible documentation of relevant demographic and clinical information on the child and the process and outcomes of the care provided. 13. Proportion of all deaths that occurred in the health facility in the past 3 months that were appropriately recorded, with a correct, complete death notification and the cause of death consistent with the ICD classification. |
| 2.2: Every health facility has a functional mechanism for data collection, analysis and use as part of its activities for monitoring performance and quality improvement. | 1. The health facility has a system with standard operating procedures and protocols for data collection and for checking, validating and analysing relevant indicators to make timely reports and visual charts. | 6. Number of meetings between health facility management and community representatives in the past 6 months. 7. Proportion of all paediatric deaths that occurred in the health facility in the past 3 years. | 8. Proportion of all recommendations from paediatric death reviews conducted at the health facility in the past 6 months that were fully implemented. |
2. Managers, health professionals and support staff in the health facility meet regularly (at least once a month) to review patient care and outcomes for decision-making and monitoring performance.
3. The health facility managers and community representatives meet regularly (at least every 3 months) to review the health facility statistics and performance and use the recommendations for decision-making.
4. The health facility regularly (at least once a month) reviews paediatric deaths and has mechanisms in place to implement the recommendations of the reviews.
5. Evidence that the health facility analyses and produces monthly visual charts and reports for monitoring performance.

| 2.3: Every health facility has a mechanism for collecting, analysing and providing feedback on the services provided and the perception of children and their families of the care received. |
|---|---|---|
| 1. The health facility has a functioning, age-appropriate system and procedures in place for collecting information and responding to the perceptions of children and their carers of the services provided. |
| 2. The health facility has visual materials to inform children and their carers on how to make a complaint (e.g. a suggestion box) and provide feedback to the health facility. |
| 3. Health facility staff (clinical and nonclinical) receive training or orientation in customer service and provision of child- and family-centred care at least once every 12 months. |

| Quality Statements | Input | Process/Output | Outcome |
|---|---|---|---|
| STANDARD 3: Every child with condition(s) that cannot be treated effectively with the available resources receives appropriate, timely referral, with seamless continuity of care. |
| 3.1: Every child who requires referral receives appropriate prereferral care, and the decision to refer is made without delay. |
| 1. The health facility has written, up-to-date clinical protocols and guidelines for prereferral management of all infants, children who require referral. |
| 2. The health facility is equipped with age-appropriate medicines and other supplies for stabilization and prereferral treatment of critically ill children who require referral. |
| 3. The health facility has at least one health professional on duty at all times who is trained and competent in first aid, emergency triage, assessment and treatment or basic paediatric life support. |
| 5. Proportion of all children who require referral who are given appropriate prereferral treatment and transferred within 2 h of arrival at the referring health facility. |
| 6. Proportion of all children with surgical emergencies that require referral to a facility with surgical capacity who were transferred within 2 h of arrival at the referring health facility. |
| 7. Proportion of all children who require referral who received appropriate prereferral treatment when indicated. |
| 8. Proportion of children seen in the health facility within the past 3 months who fulfilled the facility’s criteria for referral and who were actually transferred to a referral facility. |
| 9. Proportion of all children with an indication that requires referral who died at the health facility. |
| 10. Number of children who died as a result of delayed referral. |
| 3.2: Every child who requires referral receives seamless, coordinated care and referral according to a plan that ensures timeliness. |
|---|
| 1. The health facility is part of a referral network of facilities in the same geographical area with agreed arrangements. |
| 2. The health facility has local financial arrangements to ensure that children who cannot be managed at the health facility are referred and transferred with their parent or caregiver without delay, 24 h a day, 7 days a week. |
| 3. The health facility has a functioning vehicle with fuel or proximate access to a vehicle that is routinely available for emergency transport to referral facilities. |
| 4. The health facility vehicle is regularly maintained, clean and carries basic consumables, medications and equipment suitable for resuscitation and supportive care of children of all ages. |
| 5. Proportion of children who were referred without appropriate emergency transport. |
| 6. Proportion of children referred from the health facility whose families or carers contributed financially to their referral transport. |
| 7. Proportion of all severely ill children who required referral who were transferred to a receiving facility accompanied by a health care professional. |
| 8. Proportion of children referred to a referral health facility or their carers who reported receiving immediate attention (within 15 min) on arrival at the referral health facility. |
| 9. Proportion of children who died before or during transfer to a higher-level facility for further management. |
| 10. Proportion of newborns referred from the facility who reached the referral facility. |
| 11. Proportion of all children referred from the health facility who completed their referral. |
| 12. Proportion of all children referred from the health facility whose families refused referral |

| 3.3: For every child referred or counter-referred within or among health facilities, there is appropriate information exchange and feedback to relevant health care staff. |
|---|
| 1. The health facility has a standardized referral form to document relevant demographic and clinical information (summary of history, clinical findings, investigations, diagnosis and treatment given) and the reason for referral. |
| 2. The health facility has reliable methods of communication (mobile phone, landline or radio) that are functioning at all times for facilitating referrals. |
| 3. The health facility has formal agreements, communication arrangements and a feedback system with the network referral facilities. |
| 4. Proportion of all children referred by a health facility for whom written counter-referral feedback information was provided by the receiving facility. |
| 5. Proportion of all children referred for whom there were documented prereferral communications (verbal, written) with the receiving facility. |
| 6. Proportion of all children referred who had an appropriate referral note. |

---

Quach A, et al. *BMJ Global Health* 2021; 6:e006804. doi: 10.1136/bmjgh-2021-006804
| Quality Statement                                                                 | Input                                                                 | Process/Output                                                                 | Outcome                                                                 |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 4.1 All children and their carers are given information about the child’s illness and care effectively, so that they understand and cope with the condition and the necessary treatment. | 1. The health facility has an up-to-date, written policy and provisions to ensure that all staff are identifiable, with name badges, and that they always introduce themselves to children and their carers, state their name and role and use the name of the child or carer when communicating with them. 2. Health facility policy provides that children and their families are entitled to receive appropriate information about the child’s care and other relevant aspects during their stay in the facility. 3. The health facility provides information materials to children and their families to help them understand the opportunities for engagement, how to participate in their care and the roles of the different members of the health care team. 4. The health facility makes available child-friendly, age-appropriate health information materials that are accessible, in the language(s) relevant to the population and in appropriate formats (e.g. audiovisual or visual material, diagrams, illustrations) to facilitate understanding by children and carers. 5. The health facility has a system for providing information to patients about their medical conditions and their treatment care plan in a way that is understandable to them and allays their doubts and fears. 6. Health care staff receive training and regular mentoring or refresher training at least every 12 months in fully explaining a condition to children and their carers, giving “bad news” and supporting children and parents in coping with the information given. | 7. Proportion of health care staff in the health facility wearing identification badges. 8. Proportion of health care staff, by cadre and social professionals who received proper continuous training in communication and counselling. 9. Proportion of health care staff in the health facility who demonstrate good communication skills: asking and listening to children and carers, enabling them to ask questions, explaining with examples to ensure understanding and verifying their understanding. 10. Proportion of children and their carers who consider that they were given the information they required in a timely, respectful manner. | 11. Proportion of children and/or carers seen in the outpatient department of the health facility who can correctly state the reason that a particular treatment was given, when to return and how to take the treatment at home. 12. Proportion of children discharged from the health facility or their carers who were given written instructions about treatment and care at home and can describe correctly how to take or give the discharge treatment at home. 13. Proportion of children and/or their carers who reported that they were satisfied with the quality of the health information and support they received from health care staff during their care. |
| 4.2 All children and their carers experience coordinated care, with clear, accurate information exchange among relevant health and social care professionals and other staff. | 1. The health facility has a written, up-to-date, structured, standard form to facilitate written hand-over of patients among caring teams at shift changes or during transfer among facilities. 2. The health facility has a functioning communication system for exchanging information among relevant service providers. | 4. Proportion of clinical records that demonstrate that all correspondence about investigations and clinical interventions received were reviewed by health care staff, signed and acted upon in a timely manner. 5. Proportion of children admitted to the health facility for whom there is an up-to-date, appropriately completed monitoring chart that | 7. Proportion of children or their carers who express satisfaction with the information shared and the continuity of care received from different health care providers. 8. Proportion of health care staff, by cadre, who are satisfied that the information in daily patient notes ensures understanding of current diagnoses, the treatment plan and planned or pending investigations. |
| 4.3 All children and their carers are enabled to participate actively in the child’s care, in decision making, in exercising the right to informed consent and in making choices, in accordance with their evolving capacity. | 3. Staff who care for children receive orientation or refresher sessions in clinical hand-over policy and communication at least once every 12 months. indicates that vital signs were monitored regularly. | 9. Proportion of paediatric transfers within the facility for which there is a complete transfer form with clinical notes, including timely reception of diagnostic test results for transferred patients. |
| --- | --- | --- |
| 1. The health facility has up-to-date protocols, guidelines and job aides for providing information to children and their carers about the purpose, importance, benefits, risks and possible costs of proposed investigations, referrals or treatments. | 5. The health facility has information materials for distribution to children and carers about common conditions, promoting and supporting appropriate feeding and nutrition and promoting disease prevention, including hygiene and sanitation practices. | 10. Proportion of all children whose vaccination card or history indicates that their vaccination is not complete who leave the health facility with all the necessary vaccinations. |
| 2. The health facility has an up-to-date “clients’ charter” that states the policies for child- and family-centred care, guidance on confidentiality and the practice and culture of family presence during clinical examinations, procedures and treatment of children. | 6. The health facility provides a booklet for the health facility or their carers who know their primary health care provider by name. | 11. Proportion of children under 5 years whose carers are advised to give them extra fluid and to continue feeding. |
| 3. The health facility has appropriate forms for patients, parents or carers to sign in order to give their consent to procedures, investigations and treatment. When consent is given orally, this is registered on the patient’s chart. | 7. The health facility has information materials for distribution to children and carers about common conditions, promoting and supporting appropriate feeding and nutrition and promoting disease prevention, including hygiene and sanitation practices. | 12. Proportion of children and/or their carers who received targeted health information or counselling for the condition of their child, including... |
| 4. The health facility has various visual resources (e.g. models, charts, posters, videos, electronic material) in the consulting room for use by clinical staff and other health professionals to provide explanations to children and their carers. | 8. The health facility has up-to-date protocols, guidelines and job aides for providing information to children and their carers about the purpose, importance, benefits, risks and possible costs of proposed investigations, referrals or treatments. | |
| 5. Staff who care for children receive orientation or training in patient-centred care and legal and medical ethical principles of autonomy, informed consent, confidentiality and privacy at least once every 12 months. | 9. The health facility has information materials for distribution to children and carers about common conditions, promoting and supporting appropriate feeding and nutrition and promoting disease prevention, including hygiene and sanitation practices. | |
| 6. The health facility has an up-to-date “clients’ charter” that states the policies for child- and family-centred care, guidance on confidentiality and the practice and culture of family presence during clinical examinations, procedures and treatment of children. | 6. The health facility has information materials for distribution to children and carers about common conditions, promoting and supporting appropriate feeding and nutrition and promoting disease prevention, including hygiene and sanitation practices. | |
| 7. The health facility provides a booklet for the health facility or their carers who know their primary health care provider by name. | 7. The health facility has information materials for distribution to children and carers about common conditions, promoting and supporting appropriate feeding and nutrition and promoting disease prevention, including hygiene and sanitation practices. | |
3. The health facility holds regular “well-being clinics” (e.g. well-child and immunization clinics, counselling services, growth and development monitoring clinics, adolescent clinics), which are used as opportunities for health promotion and preventive care.
4. The health facility has a system for detecting whether a child has missed a vaccination and offers “catch-up” vaccination within the national immunization programme, according to WHO guidelines.
5. The health facility has an effective system for implementing community-based activities to promote children’s health and well-being.

| STANDARD 5: Every child’s rights are respected, protected and fulfilled at all times during care, without discrimination. |
|--------------------------------------------------|
| Quality Statement | Input | Process/Output | Outcome |
| 5.1 All children have the right to access health care and services, with no discrimination of any kind. | 1. The health facility has adopted and implements a policy that guarantees free or affordable health care for all children, in accordance with and as defined by national legal or regulatory frameworks. 2. The health facility has adopted and implements a policy that guarantees non-discrimination of any kind against children or their carers in the provision of care, including poor, vulnerable and disabled children. 3. The health facility has measures and facilities in place to ensure that children with disabilities or developmental delay have full physical access to all the facilities and services they require, including sanitation and recreation facilities. 4. The health facility staff receive training and periodic refresher courses on non-discrimination practices, promoting equity and cultural competence. | 5. Proportion of children and their parents or carers who were exempted from out-of-pocket payment for treatment, medicines, interventions and other health care-related costs. 6. Proportion of children with a disability or their carers who report no physical barriers to accessing services and facilities in the health facility. | 7. Proportion of children and their carers who report any form of discrimination or refusal of care because of their economic, social, religious, linguistic or other status. 8. Proportion of children in a minority, migrant or other vulnerable group who were satisfied with the services provided. 9. Proportion of children who receive care in the health facility whose financial access is mitigated or covered by health insurance. |
| 5.2 All children and their carers are made aware of and given information about children’s rights to health and health care. | 1. The health facility has an up-to-date charter of children’s rights, in line with the United Nations Convention on the Rights of the Child. 2. The health facility visibly displays and makes available information about the charter in leaflets and posters, including child-friendly formats, in all areas in which children are cared for (wards, waiting rooms and play areas). | 6. Proportion of staff in the health facility who care for children who understand the charter on children’s rights and how to apply it in practice. 7. Proportion of children or their carers who are told about the charter on children’s rights as it pertains to the right to care in an appropriate local language at admission. | 8. Proportion of children and their parents or caregivers who consider that they were adequately informed about their rights to care. 9. Proportion of children in the health facility who were admitted appropriately on the basis of clinical findings, diagnosis or the severity of the condition. |
3. The health facility promotes awareness-raising events about children’s rights, such as celebrating a children’s day.
4. The charter on children’s rights is integrated into the system for improving the quality of care in the health facility.
5. The health facility has a team or focal person responsible for overseeing observance of the charter on children’s rights in the health facility.

5.3 All children and their carers are treated with respect and dignity, and their right to privacy and confidentiality is respected.

1. The health facility has written, up-to-date policies, guidelines and mechanisms to ensure written and verbal confidentiality.
2. The health facility has a policy on children’s right to confidential advice and counselling services without the presence of a parent or carer.
3. The health facility has facilities in which children can be examined with both visual and auditory privacy when required.
4. Health facility staff are trained in providing care with respect for dignity and for maintaining confidentiality during the care of children and have received refresher training at least once in the past 12 months.
5. Proportion of health facility health care providers who have attended training or received orientation in respecting and protecting the dignity of children and their carers.

6. Proportion of older children cared for in the health facility who were satisfied with the privacy they enjoyed during care.
7. Proportion of children and their carers in the health facility who perceived that they were treated with compassion and respect and their dignity was preserved.

5.4 All children are protected from any violation of their human rights, physical or mental violence, injury, abuse, neglect or any other form of maltreatment.

1. The health facility has clear mechanisms, procedures and up-to-date national protocols that comply and are consistent with the Convention on the Rights of the Child and legal requirements for protecting children subject to suspected maltreatment.
2. The health facility has protocols, job aides or checklists that provide guidance for staff on detecting, documenting (taking forensic samples, photographs when allowed and forensic examination) and caring for child victims of maltreatment.
3. The health facility has a system for registering and/or monitoring children who have been or are victims of any kind of suspected maltreatment.
4. The health facility has clear mechanisms and protocols for sharing appropriate information and concerns with relevant agencies.
5. The health facility has an effective multidisciplinary team and/or responsible person to investigate, care for and provide the

7. Number of cases of suspected child maltreatment identified in the health facility in the past 12 months.
8. Proportion of staff who care for children at the health facility who are trained in child protection, care and support.
9. Proportion of children identified as victims of maltreatment who received protection, psychological support and appropriate referral.
necessary appropriate support to children with suspected maltreatment.

6. The health facility staff receive training and orientation in identifying, assessing, communicating with and providing care and support for child victims of any form of maltreatment and on child protection procedures.

5.5 All children have access to safe, adequate nutrition that is appropriate for both their age and their health condition during their care in a facility.

1. The health facility has a food and nutrition policy and guidelines to meet children’s nutritional needs, including special needs, consistent with dietary requirements.
2. The health facility has an up-to-date, written policy on breastfeeding that adheres to the International Code of Marketing of Breast-milk Substitutes and is routinely communicated to all health care staff.
3. The health facility has an adequately equipped, designated kitchen (area or room) with facilities for food preparation.
4. The health facility has a dedicated staff (or nutrition specialist) responsible for preparing children’s menus.
5. The health facility provides regular, safe, nutritious, appetizing, high-quality meals of sufficient variety to meet the needs of paediatric patients.

6. Proportion of health facility staff who received training or orientation on child nutrition, including counselling on breastfeeding, at least once in the past 12 months.
7. Proportion of breastfeeding mothers who report that they were shown how to express breast milk or who were given written information about expressing breast milk.
8. Proportion of children and their carers in the health facility who are satisfied with the facility meal service in terms of choice, quantity and number of servings per day.
9. Proportion of children admitted to the health facility who were given food appropriate to their dietary requirements.
10. Proportion of young infants under 6 months of age who are exclusively breastfed at discharge from the health facility.

STANDARD 6: All children and their families are provided with educational, emotional and psychosocial support that is sensitive to their needs and strengthens their capability.

| Quality Statement | Input | Process/Output | Outcome |
|-------------------|-------|----------------|---------|
| 6.1 All children are allowed to be with their carers, and the role of carers is recognized and supported at all times during care, including rooming-in during the child’s hospitalization. | 1. The health facility has an up-to-date, family-centred policy on parents’ and carers’ right to stay with their children at all times, including during medical procedures. | 5. Proportion of parents and/or carers who were given the opportunity to room-in with their children. | 7. Proportion of children in the health facility whose parents or carers stayed with them during medical procedures. |
| | 2. The health facility has a rooming-in policy so that parents or carers can stay with their children and provides accommodation close to the child’s bed. | 6. Proportion of infants under 6 months of age admitted to the facility who are exclusively breastfeeding or given only expressed breast milk by cup and spoon. | 8. Proportion of children admitted to the health facility whose parents or carers were allowed to room-in or were provided with nearby accommodation at night. |
| | 3. The health facility has areas where parents or carers can breastfeed, prepare special meals for their children or for themselves and meet family and friends. | 7. Proportion of children in the health facility whose parents or carers stayed with them during medical procedures. | 9. Proportion of children admitted to the health facility whose parents or carers were provided with food or had access to facilities to prepare food. |
| | 4. The health facility staff receive training and regular mentoring or refresher training in children’s rights, including the right not be separated from their parents, and also in parents’ rights and responsibilities. | | |
### 6.2 All children and their families are given emotional support that is sensitive to their needs, with opportunities for play and learning that stimulate and strengthen their capability.

1. The health facility has a written, up-to-date policy to protect children’s right to play and learn while at the facility.
2. The health facility has a system for meeting the educational and learning needs of school-aged children.
3. The health facility has dedicated spaces for age-appropriate play, which are accessible to all children, including those with a disability.
4. The health facility staff are trained in using various forms of play, including sensory stimulation for young infants.

### 6.3 Every child is assessed routinely for pain or symptoms of distress and receives appropriate management according to WHO guidelines.

1. The health facility has an up-to-date policy and protocols for the assessment, recognition, prevention and management of pain in infants, children and young adolescents.
2. The health facility has guidelines and tools used by clinical staff in assessing and managing pain in infants, children and young adolescents.
3. The health facility uses individual plans for pain treatment or nonpharmacological strategies to reduce pain and relieve distressing symptoms, with the active involvement of children.
4. The health facility has facilities for providing psychological and spiritual support to children who require palliative care and to their families.
5. The health staff receive training and regular refresher courses in assessing, preventing and controlling children’s pain at least once every 12 months.
6. The health facility has protocols and procedures in place to support the safe storage and use of pain-control medicines and conducts regular audits of pain management.

### STANDARD 7: For every child, competent, motivated, empathic staff are consistently available to provide routine care and management of common childhood illnesses

| Quality Statement | Input | Process/Output | Outcome |
|-------------------|-------|----------------|---------|
| 7.1 All children and their families have access at all times to sufficient health professionals and support staff for routine care and management of childhood illnesses. | 1. The health facility has a written, up-to-date staffing policy that defines the staffing criteria and standards, lists the numbers, types and competence (job description) of each staff member and is reviewed regularly according to the work load. | 8. Proportion of available posts in the health facility that were filled by staff with the necessary competence for the job description to ensure that the facility can provide 24-h service. | 12. Proportion of children in the health facility who were attended by health professionals specifically trained in child health care. |
| 7.2 Quality Statement | | | 13. Proportion of children and their families who attended the health facility who reported... |
7.2 Health professionals and support staff have the appropriate skills to fulfil the health, psychological, developmental, communication and cultural needs of children.

|   |   |
|---|---|
| 1. | The health facility has a programme for continuing professional education and attitude and skills development for all child health care professionals and support staff. |
| 2. | The health facility periodically appraises all staff, has a mechanism for recognizing good performance and has protocols for staff feedback. |
| 3. | The health facility has sufficient numbers of competent, licensed, motivated, regulated child health professionals, with an appropriate skills mix, working in multidisciplinary teams. |
| 4. | Health professionals and staff who care for children in the health facility receive in-service training and supportive supervision with regard to the legal entitlements and rights of children in relation to health care. |
| 5. | The health facility provides an enabling, supportive environment for professional staff development, with regular supervision and mentoring. |
| 6. | The health facility facilitates interprofessional collaborative practice, with clear roles and responsibilities for quality improvement. |
| 7. | Proportion of clinical and nonclinical health care staff at the health facility who received a written job description on deployment to the facility. |
| 8. | Evidence that the health facility has a mechanism in place for soliciting feedback from staff on issues that might affect or improve staff performance. |
| 9. | Proportion of health professionals who care for children who received in-service training and/or refresher sessions within the past 12 months. |
| 10. | Number of supervisory visits to the health facility to improve clinical competence and performance in the past 12 months. |
| 11. | Proportion of staff at the health facility who had a performance assessment with feedback at least once in the past 12 months. |
| 12. | Proportion of staff who had interactions with professional mentors to ensure clinical competence and improve performance in the past 3 months. |
| 13. | Proportion of all staff at the health facility who could identify and report on at least one activity for improving clinical quality in which they were personally involved in the past 6 months. |
| 14. | Proportion of health professionals and support staff who care for children at the health facility whose preceding performance appraisal was satisfactory. |
| 15. | Proportion of all children and their carers at the health facility who were satisfied with the care and support they received from facility staff. |
| 16. | Proportion of all staff at the health facility who reported that they were “highly satisfied” with their job. |
| 17. | Number of improvement projects completed in the past 6 months. |
7.3 Every health facility has managerial leadership that collectively develops, implements and monitors appropriate policies and legal entitlements that foster an environment for continuous quality improvement.

| Quality Statement | Input                                                                 | Process/Output                                                                                           | Outcome                                                                                      |
|-------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 8.1 Children are cared for in a well-maintained, safe, secure physical environment with an adequate energy supply and which is appropriately designed, furnished and decorated to meet their needs, preferences and developmental age. | 1. The health facility is designed to provide child-friendly, seamless access to dedicated areas for the care of children (neonates, children and young adolescents), which are separate from reception, emergency care, outpatient and inpatient areas or wards. | 12. Number of power failures lasting > 2 h during the past month. | 13. Proportion of all children and their families who attended the health facility who were satisfied with its cleanliness. |
|                   |                                                                       | 2. The health facility areas dedicated for children (outpatients and inpatients) are furnished and       | 14. Proportion of all children and their families who attended the health facility who were satisfied with the availability of child-friendly amenities for education and play. |
|                   |                                                                       | monitored and maintained for the comfort and safety of children.                                        | 15. Proportion of children and their families who attended the health facility who would       |
|                   |                                                                       | 8. Proportion of health facility leaders trained in quality improvement leadership and management, data use and leading change (use of information, enabling behaviour, continuous learning). | have a child-friendly physical environment, with adequate water, sanitation, waste management, energy supply, medicines, medical supplies and equipment for routine care and management of common childhood illnesses. |
|                   |                                                                       | 9. Evidence that the health facility regularly tracks and monitors performance to improve the quality of care from up-to-date dashboards or performance charts. | 10. Proportion of all children and their families who were satisfied with the care and support received from facility staff. |
|                   |                                                                       | 10. Proportion of all children and their families who actively participated in a quality improvement activity (meeting, audit, project) in the health facility in the past 12 months | 11. Proportion of staff members who gave positive feedback about internal policies and activities for continuous quality improvement, including on-the-job training and personal mentoring. |
|   |   |   |
|---|---|---|
| 1. | The health facility has written, up-to-date protocols and awareness-raising materials (e.g. posters) on cleaning, disinfection, hand | 16. Proportion of days in the past 3 months when water from an improved source was not available on the premises. |
| 2. |   |   |
| 3. | The health facility has a room or a screened-off area in the outpatient department and on wards that is sufficient to ensure normal conversation without being overheard and for examination of children unobserved by other patients. |   |
| 4. | The surgical services of the health facility have dedicated recovery and hospitalization areas for children located close to the children’s ward. |   |
| 5. | The health facility practises and has facilities for rooming-in for mothers or carers with their children 24 h a day. |   |
| 6. | The health facility is adequately maintained, safe, clean, appropriately lit and well ventilated and ensures privacy for children and their families when required. |   |
| 7. | The health facility has a power source (e.g. solar, generator, grid) that can meet all the demands of the facility and associated infrastructure for electricity at all times, with a back-up power source. |   |
| 8. | The health facility has an energy management plan supported by an adequate budget, maintained by appropriately trained staff and regulated by a competent authority. |   |
| 9. | The health facility has a fuel management plan and a local buffer stock, supported by an adequate budget for all the fuel needs for vehicles, cooking and heating, as relevant and as required, at all times. |   |
| 10. | The health facility has sufficient funds and staff for rehabilitation, improvement and continuous operation and maintenance of the facility infrastructure. |   |
| 11. | The health facility has sufficient safety measures, including safe windows and doors, operational fire extinguishers for each area and floor, a clearly designed plan of evacuation in case of emergency and sufficient external barriers. |   |
| 12. | Child-friendly water, sanitation, hand hygiene and waste disposal facilities are easily accessible, functional, reliable, safe and sufficient to meet the needs of children, their carers and staff. |   |
| 13. |   |   |
| 14. |   |   |
| 15. |   |   |

8.2 Child-friendly water, sanitation, hand hygiene and waste disposal facilities are easily accessible, functional, reliable, safe and sufficient to meet the needs of children, their carers and staff.
|   |   |
|---|---|
| 1. | Hygiene, maintenance of water, sanitation and hygiene facilities and safe waste management. |
| 2. | The health facility has a functioning source of safe water located on the premises that is adequate to meet all demands (according to WHO standards), for drinking, personal hygiene, medical interventions (formula, ORS, nutritional supplements and medicines), cleaning, laundry and cooking for use by staff, children and their families. |
| 3. | The health facility has drinking-water stations that are either low or have a stool for easy reach, and small cups are available for children. |
| 4. | The health facility has leak-proof, covered, labelled waste bins and impermeable sharps containers in every treatment area to allow segregation of waste into three categories: sharps, non-sharps infectious waste and general non-infectious waste. |
| 5. | The health facility has at least one functioning hand hygiene station per 10 beds, with soap and water or alcohol-based hand rubs, in all wards, at least one of which is accessible to children (i.e. lower or with a stool to reach taps). |
| 6. | The health facility has baths and other hygiene facilities on the premises that are appropriately lit, accessible to people with limited mobility, adapted for use by young children and segregated by sex for older children and carers. |
| 7. | The health facility has sanitation facilities (e.g. pans, toilets, latrines) on the premises for infants, children and young adolescents that are adapted for their use (with, e.g. smaller seats or latrines, child-sized bed pans), segregated by sex for older children, appropriately lit and accessible to people with limited mobility. |
| 8. | The health facility that offers surgery has a designated station for preoperative hand scrubbing and adequate supplies of appropriate surgical scrub materials. |
| 9. | The health facility has a dedicated nappy-changing station, with appropriate waste disposal and hand-washing facilities nearby. |
| 10. | Proportion of days in the past 3 months when soap or hand disinfectant were not available. |
| 11. | Proportion of days per calendar year on which wastes were not safely segregated into at least three bins in the consultation area and sharps and infectious wastes were not treated and disposed of safely. |
| 12. | Proportion of health facility healthcare professionals and support staff who received training or mentoring in sanitation, hand hygiene and infection prevention and control in the past 6 months. |
| 13. | Proportion of all health care staff at the health facility who are satisfied with the water, sanitation and waste management services. |
| 14. | Proportion of children and their families who attended the health facility who observed that the health providers washed their hands or used an alcohol rub before examining them. |
10. The health facility has sufficient trained, competent staff for cleaning, operating and maintaining water, sanitation, hygiene and health care waste facilities, on site when needed, and clear descriptions of their responsibilities.
11. The health facility has sufficient funds for rehabilitation, improvement and continuous operation and maintenance of water, sanitation, hygiene and waste management infrastructure.
12. The health facility has adequate laundry facilities, including water, detergent and space for drying.
13. Health facility professionals and support staff and carers are educated and trained in good hygiene, including regular hand-washing after changing nappies, before feeding and after using toilets.
14. The health facility has an environmental health management risk plan, with an adequate budget, for managing and improving water, sanitation, hygiene and waste management services, including infection prevention and control.
15. Health facility staff promote safe hygiene practices in caring for infants, children and young adolescents, including safe disposal and management of children’s faeces.

**8.3 Child-friendly, age-appropriate equipment designed to meet children’s needs in medical care, learning, recreation and play are available at all times.**

|   |   |
|---|---|
| 1. | The health facility has functioning, clean, age-appropriate essential equipment and supplies for routine care and management of complications at all times in all areas for child care. |
| 2. | Equipment user manuals and instructions are available, with laminated job aids on how to operate and use the equipment. |
| 3. | The health facility has a functioning, well-equipped resuscitation trolley for paediatric emergency resuscitation and care with readily accessible and identifiable age-appropriate medicines, resuscitation equipment and supplies (e.g. suction device, pulse oximeter, laryngoscope, endotracheal tubes, bag valve masks, infusion sets) available at all times in areas designated for emergency care in outpatient areas and inpatient wards. |

|   |   |
|---|---|
| 11. | Proportion of all children admitted to the health facility who received age appropriate play and entertainment materials during the last 3 days of their stay. |
| 12. | Proportion of days per calendar year during which one or more essential item of equipment was not available. |
| 13. | Proportion of days per calendar year during which an oxygen source and delivery were not available. |
| 14. | Proportion of patients who did not receive essential care to the normal standard because one or more items of essential equipment was unavailable. |
| 15. | Proportion of reviewed child deaths in which the child did not receive appropriate care because of lack of essential age-appropriate equipment. |
4. The health facility has a safe, uninterrupted source of oxygen and equipment for delivery (age-appropriate nasal prongs, catheters and face masks) available at all times in children’s wards and emergency areas.
5. The health facility has basic equipment (X-ray, ultrasound and basic laboratory equipment) for diagnosis and management of common childhood illnesses and conditions.
6. The health facility has culturally and age-appropriate toys, games, books and facilities for play and entertainment of children on wards and in play and recreational areas.
7. The health facility has a dedicated budget for essential equipment and its maintenance.
8. The health facility has the minimum requirements for an adequate cold chain, with a functioning refrigerator and a temperature monitoring device, and the temperature has been maintained between 2 and 8 ºC for the past 30 days.
9. The health facility has an updated inventory of medical equipment, with documentation of breakage or malfunction and dates of repair or replacement.
10. The health facility has functioning age- and size-appropriate beds and furnishings (chairs, tables) on paediatric wards or areas designated for child care.

8.4 Adequate stocks of child-friendly medicines and medical supplies are available for the routine care and management of acute and chronic childhood illnesses and conditions.

1. The health facility has up-to-date, written protocols and guidance for safe storage of medicines in designated pharmacy cupboards or stores and for safe administration.
2. The health facility has an on-site pharmacy with trained pharmacists or dispensers available during all facility operating hours, who maintain an essential list of child-appropriate medicines and supplies, adequate stocks and an efficient stock management system.
3. The health facility has supplies of emergency and prereferral medicines that are readily accessible for severely ill children.
4. The health facility has supplies of first- and second-line injectable antibiotics, antimalarial agents and other essential medicines available at all times for the management of children.

10. Proportion of health professionals who provide child health services who have received training in appropriate child medication.
11. Proportion of days in the past 3 months when there were stock outs of one or more essential medicines.
12. Proportion of days in the past 3 months when there was a stock out of blood.
13. Proportion of days in the past 3 months when oxygen was not available in the health facility in areas in which children are cared for.
14. Proportion of reviewed child deaths in which the child did not receive appropriate care due to lack of essential medicines or supplies.
|   |   |
|---|---|
| 5. | The health facility has supplies of essential vaccines available at all times for vaccination of children and young adolescents. |
| 6. | The health facility has supplies of thermometers, age-appropriate weighing scales, and wooden boards or metal beams with a mounted rule that permit measurement of crown-to-heel length (infants < 2 years lying down) or height (older children standing up) in centimetres. |
| 7. | The health facility has adequate essential child-friendly equipment and medical supplies, including an oxygen source, to support routine and emergency management of children. |
| 8. | The health facility has essential laboratory supplies (e.g. needles, reagents, specimen bottles) to support routine and emergency management of children. |
| 9. | The facility has a system for the storage and distribution of all vaccines and their diluents in a cold-chain system maintained in the WHO-recommended temperature ranges at all times. |