Smart Paper Technology
Data Quality Evaluation in Afghanistan
Executive summary

The Smart Paper Technology (SPT) Solution is an innovative paper-based solution with a digital component that allows for beneficiaries’ health information to be captured on SPT forms by health workers, and subsequently scanned and digitised into usable data. The SPT solution was fully implemented in all health facilities in Laghman Province as of March 2020, to capture and report routine immunization data. The aim of this study is to evaluate the quality of immunization data after the adoption of SPT solution work processes by health workers, and more specifically for July 2020 to December 2020 time frame. Based on our review of health records, registers and reports, findings indicated that after the adoption of the SPT Solution’s work processes by health facilities, the overall data quality, e.g. timeliness, consistency and accuracy met standards defined by the World Health Organisation in the Data Review Toolkit. Based on the results of this evaluation, few recommendations were made to help Health Facilities improve the overall data quality.
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List of abbreviations

BCG Bacillus Calmette and Guérin
BHC Basic Health Center
CHC Community Health Center
DQR Data Quality Review
eHMIS Electronic HMIS eHMIS
HF Health Facility
HMIS Health Management Information System
HSC Health Sub-Center
HW Health worker
MoPH Afghanistan Ministry of Public Health
Penta Pentavalent vaccine
SCA Swedish Committee for Afghanistan
SOP Standard Operating Procedure
SPT Smart Paper Technology™
WHO World Health Organization
Introduction

A resilient and robust health management information system (HMIS) is essential for evidence-based decision-making throughout the health system. HMIS data can help policymakers and stakeholders take actions that will improve the delivery of health services. However, for a majority of low and middle-income countries [1], HMIS data is collected on paper-based systems, which are time-consuming, resulting in multiple issues such as inaccuracy, inconsistency, incompleteness, and limited use of data for making improvement actions. The time spent by front-line health workers in filling these paper-based forms (registers, tally sheets, and health monitoring charts) strongly reduces the time that can be allocated to the delivery of high-quality health care [2]. Moreover, although health workers collect and analyse data, they are unable to use data as information in order to design concrete actions to improve health service provision.

Electronic HMIS (eHMIS) is thought to be an alternative to paper-based systems as they have the potential to improve the efficiency of data capture and reporting at the different levels of the health system. Nevertheless, the implementation of a fully electronic health record system in low and middle-income countries is challenging. The existence of infrastructural gaps, e.g. absence of electricity in health facilities (HFs) and limited access to the internet, and the resource limitations, e.g. lack of funds for operational cost and skilled users, limit the scalability and sustainability of eHMIS.

Shifo Foundation, a not for profit social enterprise based in Sweden, develops and implements solutions and methods to strengthen health information systems and child health service delivery. Shifo focuses on ensuring that every child is registered and followed up to receive life-saving health services. Smart Paper Technology (SPT), an innovative paper solution with a digital component, allows for beneficiaries’ health data to be captured on paper by health workers and subsequently scanned and digitised. SPT enables low and middle-income countries to benefit from eHMIS solutions despite their limited infrastructure, by facilitating health data collection on SPT Forms and minimising administration time through digitisation of the data [3].

Context

SPT implementation in the Laghman province started in October 2016 in a joint collaboration between the Ministry of Public Health MoPH of Afghanistan (MoPH), Swedish Committee for Afghanistan (SCA) and Shifo Foundation. The aim is to bring visibility of patient-level and supply chain data from HFs, improve data quality, accountability and data use processes to
increase the quality of the health services and move a step closer towards a day when no child suffers or dies from preventable diseases.

With SPT, a hybrid paper-based solution that supports HMIS, health workers in health facilities of the Laghman Province collect patient-level data and supply chain data on SPT Forms as they are accustomed. SPT Forms are designed to be simple to use and minimise data recording time of health workers (HWs). These paper forms are subsequently digitised to record and store data in databases for further analysis. The digitization of data allows automated generation of reports which are readily available for HWs, provincial officers as well as national supervisors for identifying gaps and making improvement actions.

Two external evaluations were done in 2018 to inform about the progress made in the implementation of SPT in Mehterlam District, in regards to transfer of work processes, data quality, operational cost and system efficiency [4,5]. Based on those evaluations, MoPH decided to scale-up SPT in all fixed, outreach and mobile service delivery points in the Laghman Province and evaluate the technical feasibility of different work processes to operate SPT at the health centres. Between 2018-2019, SPT has been scaled in all 688 health service delivery points, consisting of 52 fixed, 368 outreach, 269 mobile clinic sites, and 2 independent mobile teams.

Scope

In this study, we aim to evaluate the progress made after the adoption of SPT solution work processes and gather insights with regards to the quality of data collected by health workers during routine immunisation. This evaluation will inform key stakeholders on the impact of the solution on the quality of data collected.
Data Quality Assessment Methodology

For any HMIS to serve its purpose, namely to support routine health service delivery and timely decision-making by various stakeholders, high-quality data is required. A high-quality level of data collection can be achieved by health workers when the various components including data completeness, consistency, accuracy and timeliness, are rigorously and successfully reached. The World Health Organisation (WHO) Data Quality Review (DQR) toolkit [6] was developed to assess the quality of data recorded and reported from the root of health systems – the HFs. This data reported by HFs should accurately reflect the health services provided to clients. This is to ensure that clients are followed up with vital services, and information is provided to higher levels of the health system to inform decision-making.

To assess the quality of the data recorded and reported by health workers and identify quality issues that can be addressed by implementation teams, the DQR framework and toolkit developed by WHO, The Global Fund, Gavi, The Vaccine Alliance and United States Agency for International Development/MEASURE Evaluation [6], was utilised. Three dimensions of data quality outlined in the DQR: data completeness, timeliness, and internal/external consistency, supplemented by a data accuracy dimension, were used to better judge and assess the reliability of the data for its use in decision making (Table 1). While data collected over 12 months are required to derive some indicators (e.g. completeness and timeliness of reporting and presence of outliers), the data quality analysis will only include data collected for a period of 6 months, more specifically from July 2020 to December 2020, from a set of 54 HFs using the SPT solution to collect their EPI data. As the SPT solution has only been fully scaled in the whole province at the end of March 2020, data collected during the initial months merely reflect the quality during the adoption phase of the solution. Data for July to December was used in this evaluation. March 2020 - June 2020 were considered as initial months in the implementation and therefore excluded from the analysis. The following section explains how the quality of data generated through the SPT Solution was assessed against the dimensions of the DQR framework.

Dimension 1: Data completeness. The completeness of data was investigated by looking at two indicators: the completeness of HF reporting, and the data recorded during service delivery (indicator completeness).

Completeness of HF reporting: Every month, HFs are expected to submit their monthly reports. When using the conventional HMIS, most HFs prepared their monthly reports manually and delivered these to the provincial health office. With the SPT Solution, the monthly reports are generated automatically by the agreed deadline and links to the reports are shared via email. Reporting completeness for the SPT Solution was assessed by reviewing email logs that show the reports that have been shared. During 2020, insecurities and prolonged unavailability of
vaccinators have forced some HFs to close their doors to patients for a few months, e.g. Badpakh or Zerani HFs. For these HFs, despite the absence of recorded visits, Monthly reports were sent with zeroes for every indicator. These HFs were excluded from the following study and HFs which were opened during the reporting periods (SPT Forms were submitted) were considered in the study.

*Indicator completeness:* During routine immunisation visits, HWs record the ID of the patient as well as the set of vaccines administered on SPT Forms. Once these doses are recorded on SPT Forms, these are scanned and data is digitised. At reporting time, the SPT solution engine computes the different indicators to be included in the monthly report automatically. Here, we will report the proportion of HFs which have administered Penta-3 doses (with existing recording on SPTForms) and for which a value was present in their Monthly electronic reports generated by the system.

**Dimension 2: Data timeliness.** Monthly reports are expected to be submitted by HFs on the 5th of each month. The SPT Solution allows for the automatic generation and submission of HF reports. Timeliness for the SPT Solution was checked by reviewing email logs that show the date and time the email with the report links was shared.

**Dimension 3: Data and report consistency.** Two analyses were conducted for this dimension:

*Internal data consistency:*
- Pentavalent vaccines are given at least three times during infancy in a sequential order: Penta-1, Penta-2 and Penta-3 are administered after 6 weeks, 10 weeks and 14 weeks, respectively. The level of consistency was assessed between two doses of the pentavalent vaccine (Penta-1 and Penta-3) which yearly counts are expected to either be roughly equal, or the number of yearly Penta-1 vaccinations is expected to be higher than Penta-3 vaccinations. An inverted relationship, i.e. a negative drop-out rate, would suggest data inconsistency. We defined the drop-out rate as follow:

\[
\frac{(\text{number of Penta-1 doses administered} - \text{number of Penta-3 doses administered})}{\text{number of Penta-1 doses administered}} \times 100
\]

We evaluated the consistency at both HF level and provincial level.
- Presence of outliers: this analysis aims to identify data points that are distant from any other values in the series. Since the study period was limited to six months instead of 12, we investigated the presence of moderate outliers (>3.5 on modified z-score method) in the weekly counts of Penta-3 doses administered by each HF. The results are reported as the percentage of HFs with more than 2 outliers in their weekly counts of Penta-3 doses administered.

*Reporting consistency:* Information recorded in data collection tools, i.e. original SPT Forms (physical paper forms filled in at HF level) are expected to be consistent with the aggregated data reported in electronic Monthly reports. SPT Forms are initially digitised into Electronic
registers. Furthermore, data recorded on SPT Forms are aggregated to generate electronic Monthly reports at the end of each reporting period. To investigate the accuracy of digitisation and the consistency between SPT Forms and data reported in the Monthly reports, we have compared the data recorded for ~500 randomly selected visits on SPT Forms to the data available in Electronic registers. The consistency was expressed as the percentage of agreement between the collected data on SPT Forms and the data displayed in the Electronic registers. The following indicator will inform us on the consistency between original SPT Forms and reported numbers in the Monthly report. We did not include the comparison between Electronic registers (tally sheets) and reported numbers in the Monthly report, as both information originated from the same data source, i.e. the digitised data obtained from original SPT Forms. Moreover, we did not limit the consistency checks to only Penta-3 vaccinations but all vaccines.

**Dimension 4: Data accuracy**

Data accuracy refers to how accurately children’s personal information and health data are recorded during their visit. To have an idea of the accuracy of data collected by health workers, an observation checklist was used to monitor the proceedings of the immunisation sessions and estimate the accuracy of information recorded. To perform this study, a sample of HFs and a set of session dates were randomly selected and visited by a team of external data evaluators from the Governance Institute of Afghanistan (GIA). During these sessions, administration and non-administration of Penta-3, Measles 1 and BCG vaccines were monitored and photographs of the child immunisation cards as well as SPT Forms, where the vaccines were recorded, were taken. In addition, the external evaluators recorded vaccines administered to clients by the vaccinators. Using the Raosoft’s Sample Size Calculator [7] with the following parameters for a total number of 61.797 visits which occurred between March and September 2020: the margin of error 10%, the confidence level of 95% and response distribution of 99%, the sample size required 100 children. During the observations, data collectors have gathered the records for a sample of 97 children. Analysis of this data quality component was performed and reported by an external data evaluators team [8]. The following report will share and discuss their findings. Finally, to complement the GIA investigation, we compared data recorded during immunization sessions (photographs of both vaccination cards and SPT Forms collected by the external evaluators) to data available in the SPT database.

**Dimension 5: SPT internal data quality indicators**

**Unique ID recording accuracy:** The accurate recording of patient IDs by health workers is essential to any individual-level health information system. With the SPT solution, clients are given a unique ID at registration, which allows for the tracking of clients, and can be used by health workers to retrieve patient-level data to support follow-up and monitoring activities. During each visit, the client’s unique ID is recorded on SPT forms next to the services received. To evaluate the accuracy of ID recording, we gathered all visits recorded on SPT forms by
health workers between July 2020 and December 2020. In the SPT solution, unique IDs consist of a sequence of digits ending with a check digit. IDs that have not been issued by the system and do not have the correct check digit are automatically flagged as invalid IDs. The percentage of correct unique IDs in relation to the total number of IDs recorded during visits on SPT forms during the period of interest were calculated.

Children affected by data recording errors: During immunisation sessions, HWs might wrongly record the vaccine administered. Routinely, the SPT solution monitors the incidence of vaccine recording errors: when children receive multiple doses of the same antigen during the same session or distinct sessions. The following indicator will assess the percentage of children affected by vaccination recording errors with respect to the total number of children who received services during the period of interest. All vaccines were considered in this investigation including the BCG vaccine. However, because HWs tend to administer the BCG vaccine when the expected scare is not visible in children, higher multiple BCG vaccination rates can be expected although these do not indicate data quality issues.

Session completeness: Session completeness is defined as the proportion of planned and held vaccination sessions (fixed, outreach, mobile) which are reflected in the SPT system. Planned sessions are the scheduled sessions reflected in the HF immunisation schedule/plan. The frequency of the session varies depending on the size of the community to be served and the availability of staff in HF. Session completeness was analysed for all HFs in Laghman Province including fixed, outreach and mobile sites where scheduled sessions were compared to held sessions reflected in the SPT system. Data from 22nd September to 20th December 2020 (solar calendar: 01.07.1399 - 30.09.1399) was evaluated. Planned/scheduled vaccination sessions that were reported as cancelled by the HFs, including reasons for cancellation, were excluded from the analysis. Scheduled vaccination sessions that were reported as cancelled were investigated at the end of every month and the reasons for cancelling the sessions were identified and documented using a dedicated tool.

Table 1. Data quality indicators assessed during the evaluation.

<table>
<thead>
<tr>
<th>Components</th>
<th>Data quality metric</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data completeness</td>
<td>Completeness of facility reporting: Percentage of HF monthly reports that were received</td>
<td>&gt;= 95%</td>
</tr>
<tr>
<td></td>
<td>Indicator completeness: Percentage of HFs for which Penta-3 doses administered is reported in their Monthly report</td>
<td>&gt;= 95%</td>
</tr>
<tr>
<td>Data timeliness</td>
<td>Timeliness of HF reporting: Percentage of monthly reports that were received by the deadline</td>
<td>&gt;= 95%</td>
</tr>
<tr>
<td>Internal Data</td>
<td>Consistency between related indicators:</td>
<td>&gt;= 95%</td>
</tr>
<tr>
<td>Component</td>
<td>Metric</td>
<td>Implementation team set target</td>
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<td>-----------</td>
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<td>--------------------------------</td>
</tr>
</tbody>
</table>
| **consistency** | - Percentage of HFs for which the number of DTP3 immunizations is lower than DTP1 immunizations (no negative drop-out rate)  
Presence of outliers: Percentage of HFs for which moderate or extreme outliers can be identified in the weekly count of Penta-3 doses administered. Moderate: ±2–3 SD from the mean or > 3.5 on modified z-score method  
Extreme: at least 3 SD from the mean | >= 95% |
| **Reporting consistency:** | - Percentage of agreement between the vaccine doses recorded on the original SPT Forms and the Electronic registers (we have limited this analysis to ~500 randomly selected visits where a vaccine was administered) | >= 95% |
| **Additional SPT Data quality indicators set by the SPT implementation team** | | |
| Component | Metric | |
| Data accuracy | Coherence between administered vaccine doses to children and recorded vaccine doses in the Vaccination Card, SPF forms, and Electronic Register for the following indicators: Penta 3, BCG and Measles 1. | >= 99% |
| SPT internal data quality indicators | Children affected by data recording errors: Percentage of children with incorrectly recorded vaccines | <=1% |
|  | Percentage of unique IDs that are correctly recorded on the SPT forms | >=99% |
|  | Session completeness: Percentage of sessions held with data in SPT server | >=99% |
Results and Discussion

Data completeness and timeliness

1. Completeness and timeliness of facility reporting

Table 2 summarises the percentage of HF reports sent every month via the SPT system between July and December 2020. 319 monthly reports expected from the 54 HFs of the Laghman Province during the 6 months evaluation period, from which 100% (319/319) were sent on the due date, i.e. by the 5th of the following month. Among the reports sent, reports for Badpakh HF and Zerani HF were filled with zeroes for the month of October and December, respectively, as these facilities were closed down due to either security reasons or prolonged unavailability of vaccinators. For both completeness and timeliness of HF reporting, the expected targets were met by the province despite the fact that more than 24% of the HFs (HFs of the Alingar district) have only started using the SPT solution as of 22nd of March 2020, i.e. three months before the evaluation.

Table 2. HF reporting in Laghman Province from 04/1399 (July 2020) to 09/1399 (December 2020)

<table>
<thead>
<tr>
<th></th>
<th>July 04/1399</th>
<th>August 05/1399</th>
<th>September 06/1399</th>
<th>October 07/1399</th>
<th>November 08/1399</th>
<th>December 09/1399</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of HF monthly reports received</td>
<td>100% (52/52)</td>
<td>100% (52/52)</td>
<td>100% (53/53)</td>
<td>100% (54/54)</td>
<td>100% (54/54)</td>
<td>100% (54/54)</td>
<td>100% (319/319)</td>
</tr>
<tr>
<td>Percentage of monthly reports received by the deadline</td>
<td>100% (52/52)</td>
<td>100% (52/52)</td>
<td>100% (53/53)</td>
<td>100% (54/54)</td>
<td>100% (54/54)</td>
<td>100% (54/54)</td>
<td>100% (319/319)</td>
</tr>
</tbody>
</table>

2. Indicator completeness

Since the SPT solution automatically generates aggregated data based on digitised SPT Forms filled in during sessions, an aggregated value will be reported for any HF which have administered and recorded Penta-3 administration on SPT Forms. Accordingly, 100% of the reports generated during July to December 2020 included the numbers of Penta-3 administration. As mentioned above, two HFs were unable to hold immunisation services
during specific reporting periods, therefore for both HFs a 0 was reported for the number of Penta-3 doses administered.

**Internal data consistency**

The data collected by HFs is expected to display a set of features that will inform stakeholders of its reliability. Consistency in data can be analysed by looking at how data evolves over time and if any drastic changes (or outliers) occurred or in terms of how the relationship between the different indicators derived from the data.

**Consistency between related indicators**

The consistency between related indicators was investigated by looking at the number of Penta-1 and Penta-3 doses administered by each HF. Penta-1 and Penta-3 vaccines are consecutively administered to children and thus the yearly number of Penta-1 administrations is expected to be either higher or about the same as the number of Penta-3 doses administered. This relationship can be translated into a yearly drop-out rate (see Method section) which is expected to be positive. Based on the six months data analysed, 100% of the HFs (54 out of 54) had non-negative drop-out rates, ranging from 0% to 95% at HF level, highlighting that the expected relationship between Penta 1 and Penta 3 doses has been observed.

**Presence of outliers**

Outliers are values or data points that significantly differ from other data points in a data series. These values can reflect programmatic changes but also recording errors, thus detection and careful investigation of outliers are needed. Despite our study period limited to six months, we have investigated the number of outliers by looking at weekly doses of Penta-3 administered. Out of the 54 HFs, 5.6% (3 HFs) had moderate outliers (Fig. 1). The presence of moderate outliers in 5.6% of the health facilities might be explained by the closure of some health facilities during the evaluation period. However, none of the HFs had extreme outliers in their weekly series.
Figure 1. The proportion of HFs with 2 or more outliers in their weekly distribution of the number of Penta-3 doses administered.

Reporting consistency
Reporting consistency is usually assessed by looking at the agreement between tally sheets, registers and monthly reports as these different data collection tools were filled in manually by HWs. With SPT however, electronic registers and digital Monthly reports are solely based on the digitised SPT Forms, which are filled in by HWs during service delivery. Therefore the consistency of reporting will consist of assessing the accuracy of SPT Forms digitisation. From a sample of 502 randomly selected visits, 99.4% of the children had their vaccines correctly recognised during the SPT Forms digitisation. Out of the 1365 administered vaccines doses, only four doses were wrongly recognised, affecting three children. Because of this recognition error (error rate ~ 0.3%), the electronic registers and digital Monthly report did not fully match data collected by HWs during service delivery.

Data accuracy

Accuracy of electronic registers
Electronic registers must reflect what has actually been administered to children. To investigate the accuracy of data captured during service delivery and subsequently the data available in SPT database, observations of the proceedings of immunization sessions were carried out in a set of HFs from December 15th to 21st, 2020. Observations focused on what vaccines were administered to children, what has been recorded in their vaccination cards as well as SPT Forms. Based on the observations and analysis made by the external data evaluators, the accuracy of recording was 99.9% [8].
To further support these results, the accuracy of data collected and digitised in the SPT database was estimated for a sample of 97 children. Out of these 97 children, data was discarded for 8 children, as the photographs were either ambiguous or did not provide the necessary information to identify the vaccines received, resulting in a sample of 89 children. For ~99.9% of the children (88 children), the information reported in SPT Forms, the vaccination cards and the SPT electronic register matched. However, for 1 child (~1.1%) a discrepancy was observed, e.g. the vaccines recorded on the child vaccination card are different from the vaccine observed to be administered to the child. However, there was no discrepancy between observed vaccines administered and vaccines recorded in the SPT form for this child. This result is consistent with the result reported by GIA [8].

Additional SPT internal data quality indicators

Accuracy of ID recording
The conventional HMIS emphasises the accurate tally of the services provided for reporting purposes (aggregated-level data) and disregards patient-level data. In contrast, one advantage of the SPT solution is its ability to provide individualised-level data, which can for instance support health workers in the follow-up of clients. This individualised data requires high accuracy of ID recording. As recording patient IDs is not a requirement in most HMIS tools, no clear threshold is set for the recommended accuracy of ID recording in the DQR [6]. However, as a rule of thumb, this threshold is usually set to 99% by the SPT implementing teams. An assessment of the IDs recorded by health workers on SPT Forms for visits that took place between July 2020 and December 2020, showed that around 97.5% of the IDs were accurately recorded for the 155324 visits recorded by HWs of the Laghman Province. The accuracy rate is thus below the 99% threshold internally set by the Shifo implementation team.

Children affected by data recording errors
During immunisation sessions, HWs record the child ID and the vaccines administered. To assess the quality of data recorded during immunization sessions, the occurrences of data recording error were investigated. As mentioned earlier, about 2.5% of the ID records were invalid. Moreover, an investigation of the vaccines recorded showed that 4.1% (4675 out of 114030) of the children had their vaccination wrongly captured. Thus, the recording errors affected more children than the allowed threshold set to 1%. Wrongly captured vaccinations account for cases where a child has received the same vaccine multiple times during an immunisation session or when he or she has received the same vaccine dose during different sessions. However, this indicator also captures the quality of care issues, such as the actual multiple administration of the same antigen. From the children captured by this indicator, about 914 children have received the BCG vaccine more than once according to their vaccine records. Multiple BCG vaccination often highlights the fact that HWs re-administer the vaccine
when children do not have a visible scar from their previous BCG vaccination, thus its high incidence.

Completeness of sessions data

During the 3 months reviewed period, Table 3 shows that the SPT system captured 3464 of the 3473 planned vaccination sessions (fixed, outreach and mobile sessions) indicating a completeness percentage of 99.7%. The results showed that all planned outreach and mobile sessions were captured in the SPT database. The scheduled sessions that were not held and were reported by HF as cancelled due to security, staff or client unavailability, were not included in the analysis.

It is worth noting that there were 89 additional fixed sessions that were not scheduled/planned but were held during the period of the evaluation for which data is captured in the SPT database. These additional sessions are not reflected in the table below.

Table 3. HF session completeness in Laghman province 22/09/2020 – 20/12/2020.

<table>
<thead>
<tr>
<th>Session type</th>
<th>Sessions planned N (%)</th>
<th>Sessions captured in SPT system N (%)</th>
<th>Sessions not captured in SPT system N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix</td>
<td>2945</td>
<td>2936 (99.7%)</td>
<td>9 (0.3%)</td>
</tr>
<tr>
<td>Outreach</td>
<td>376</td>
<td>376 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Mobile</td>
<td>152</td>
<td>152 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>3473</td>
<td>3464 (99.7%)</td>
<td>9 (0.03%)</td>
</tr>
</tbody>
</table>

Conclusion

Few key results emerge from the data quality assessment of the immunisation data collected with the SPT solution in all HFs of the Laghman province. Despite the fact that many HFs have only started using the SPT solution after March 2020, we observed that the overall data quality was high. The targets set in the WHO DQR toolkit were met by the Laghman province in terms of data quality.
Recommendations

Based on the current results, few recommendations can be made:

- Strengthen the data use culture: based on the performance of HFs for the SPT specific indicators, HFs would need to better monitor and act upon their recording error rates as HFs receive their monthly performance and are asked to take actions on their underperforming indicators.

- Timely supportive supervision combined with on the job capacity building should be done to ensure that HWs identify and improve on their shortcomings with regards to SPT tools especially on the proper recording of IDs on SPT forms.

- Despite the overall high data quality, the following evaluation was done on data collected over a period limited to six months after the full scale-up in Laghman province, therefore the results only depict the quality of data in the premise of the post-implementation period. To better evaluate the quality of data and gather further insight, a follow-up data quality assessment should be done after the solution has been fully adopted and in use for more than a year, in all HFs, to better capture the quality of data.
References


