Exploring barriers to provision of intermittent preventive therapy for malaria in pregnant women in the Democratic Republic of the Congo

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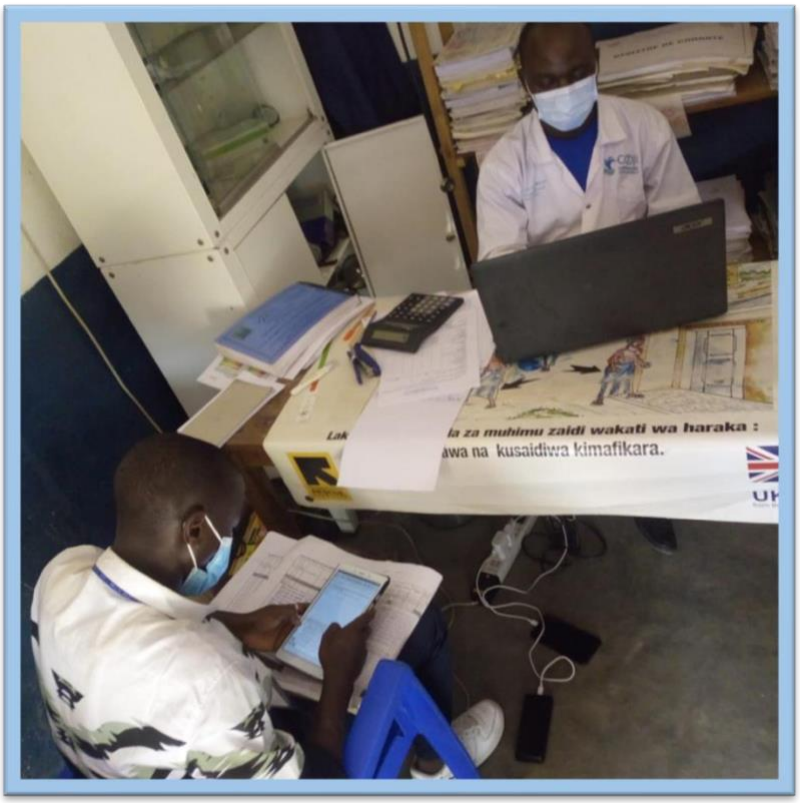

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Acronyms

ANC	Ante-natal care
CMM	Consommation Moyenne Mensuelle (monthly usage rate)
COVID-19	Coronavirus-19
DHS	Demographic and Health Survey
DOT	Directly Observed Therapy
DPS	Division Provincial de la Santé (Provincial health department)
DRC	Democratic Republic of the Congo
EPPM	Extended Parallel Processing Model
IPTp	Intermittent Preventive Treatment during Pregnancy
ITN	Insecticide Treated Net
MICS	Multiple Indicator Cluster Survey
PMI	President's Malaria Initiative
PNLP	Programme National de Lutte contre le Paludisme (National malaria control program)
SBC	Social and behavior change
SNIS	Système National d'Information Sanitaire (national health monitoring information system)
SP	Sulfadoxine-Pyrimethamine
USAID	United States Agency for International Development
WHO	World Health Organization

Executive Summary

Malaria is common in the Democratic Republic of the Congo (DRC), and pregnant women are at increased risk for malaria. Protection against malaria during pregnancy is important to ensuring the health of pregnant women, their fetuses, and newborns. Intermittent preventive treatment during pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP) is an effective form of malaria prophylaxis and ante-natal care (ANC) visits are a good opportunity for the delivery of SP. Nationally, there is a gap between the percent of pregnant women who attend any ANC and receive any SP. This mixed methods study conducted under guidance of staff from Breakthrough ACTION explored the barriers and facilitators of SP provision in DRC, sampling a total of 30 health facilities (9 urban, 21 rural) across two high-burden malaria provinces: Lualaba and Tanganyika. The study explored provision of SP, recording of these data in ANC registry records, and reporting of these data into the country's health management information system, called the Système National d'Information Sanitaire (SNIS). Factors affecting SP provision were explored at the health facility and provider levels, triangulating through collection of data from pharmacy stocking sheets, provider interviews, observations and client exit interviews. We also considered the possibility that the actual rate of SP provision may not be accurately reflected in facility records and/or the SNIS.

Data were collected in March 2021, and retrospectively covered the period from February 2020 – February 2021. Data collection methods included facility assessments (n=30) to collect characteristics associated with ANC and SP service delivery per facility, extraction of retrospective ANC registry records (n=4,749) to collect client-level data on ANC visits and SP provision, client exit interviews with health facility patients (n=453) to collect data on recall of SP being offered during ANC visits, extraction of current ANC registry records (n=465) to compare records of SP provision in ANC registries with client recall and observation of SP provision, observations of ANC visits (n=39 in a total of 8 health facilities) to document offer and directly observed ingestion of SP during ANC visits, and provider interviews (n=72) to understand provider perceptions of the facilitators and barriers to SP provision during ANC visits.

Triangulating from the various data sources listed above, the study sought to answer 10 specific questions:

1. Percent of ANC clients who received any SP (SP1+) over the course of their ANC visits;
2. Percent of ANC visits in which a client received SP;
3. Percent of ANC clients who received 3+ doses of SP out of those with 3+ ANC visits;
4. Comparison of SP delivery rates between those eligible for SP1 and those eligible for SP3;
5. Health facility factors associated with delivery of any SP (SP1+), delivery of SP at all ANC visits, and delivery of SP 3+;
6. Health provider characteristics associated with delivery of any (1+) SP, delivery of SP at all ANC visits, and delivery of SP 3+;
7. A description of the main challenges to SP delivery and record keeping from the perspective of healthcare providers;

8. Percent variation between observed SP provision and SP provision as recorded in health facility ANC registry records;
9. Percent variation between client recall of SP being offered and SP provision as recorded in health facility ANC registry records; and
10. Percent variation between health facility ANC registry records and Ministry of Health routine monitoring data (SNIS) for delivery of SP1 at ANC1.

Data analyses revealed that ANC registries were characterized by large amount of missing data. In addition, once data from ANC registries were compared to other sources (observations, client exit interviews, SNIS reports) it became apparent that ANC registry data on SP provision may often be inaccurate and incomplete. Nevertheless, these registry data were explored to define SP delivery rates and identify factors associated with SP provision. Missing data were imputed based on province means to allow analyses to be completed.

According to ANC registry records, the proportion of ANC clients receiving any SP over the course of their ANC visits was 73%, with significantly higher provision of any SP during ANC in Tanganyika compared to Lualaba. Overall, 56% of recorded ANC visits included recorded provision of SP, or in other words, there were missed opportunities for SP provision at 44% of all ANC visits. We observed a significantly higher rate of SP provision during ANC in Tanganyika compared to Lualaba. Accounting for SP eligibility from ANC1 onwards, 54% of clients with 3+ ANC visits received SP3+, with significantly higher provision of SP3+ in Lualaba compared to Tanganyika. Consequently, we found an overall 6 percentage point reduction in SP3+ compared to SP1 provision, but these findings mask diverging trends per province: while SP3+ provision rate was 15 percentage points lower than SP1 in Tanganyika, the rate of SP3+ provision in Lualaba was 19 percentage points higher than their rate of SP1 provision. Possible explanations for why Lualaba may have higher SP3+ provision rates while lower SP1 provision rates compared to Tanganyika include the higher number of days of SP stockout and longer period since SP restock in Tanganyika in the latter half of the year, coinciding with the surge in COVID-19 in DRC from September 2020 onwards.

Using ANC registry records to create outcomes of delivery of any SP (SP1+), delivery of SP at all ANC visits, and delivery of SP3+, we explored health facility factors and health provider characteristics associated with SP provision. Through a series of logistic regression analyses and development of multivariate models, we found the factors that significantly increased odds of SP1+ delivery the most were urban geography, province (Tanganyika), provision of an ITN at any ANC visit, 1 or more supervisory visits to the health facility within the past year, and providers espousing higher than average favorable attitudes informed by the Extended Parallel Processing Model (EPPM). The EPPM assesses attitudes about perceived risk of malaria in pregnancy, perceived severity, perceived efficacy of SP to prevent malaria in pregnancy, and provider self-efficacy to provide SP to ANC clients. The strongest factors reducing odds of any SP provision were client volume and never or having been trained on SP provision longer ago. The strongest predictors of SP provision at every ANC visit are having SP in stock in a pharmacy or storeroom on the day of assessment, urban geography, province (Tanganyika) and providing an ITN at any ANC visit and having one or more supervisory visit in the past year. Client volume is again the strongest factor reducing odds of SP provision at every ANC visit, along with not receiving SP stock in the past month or longer. The factors associated

most strongly with likelihood of SP3+ provision were providers having highly favorable attitudes based on the EPPM, facilities having a supervisory visit in the past year, and provision of an ITN at any ANC visit. As with other models, client volume reduced odds of SP3+ provision, as did having a month or longer since last restock of SP and having longer time since or no provider training on SP provision. Given the discussion above about concerns with inaccurate (under-recorded SP provision) and incomplete ANC registry data, the findings about factors most associated with SP provision may in fact signify factors most associated with *recording* of SP provision. This helps to explain some findings, such as the association between higher client volumes reducing odds of all three outcomes for SP provision, suggesting that facilities with higher client volumes may face pressure to get through their consultations and thus deprioritize the accuracy and completeness of recording SP provision. It is not possible to tease out where missing data about SP provision truly indicates SP was not provided vs. SP provision was not recorded, hence further analyses to compare data sources and evaluate data quality were important for triangulation of findings.

Provider interviews revealed that there may be some missed opportunities for SP provision during the ANC consultation, but that there are other areas for intervention that include improvement in management of SP stock within the health facility and addressing data quality concerns related to ANC registry data entry and synthesis for SNIS reporting. During ANC consultations, providers described challenges to SP provision that can be characterized by confusion about eligibility guidelines for SP provision and workarounds developed to manage side-effects of SP, including relinquishment of standards to directly observe SP ingestion in favor of counseling clients to take their dose of SP at home, with food. Providers also discussed facilitators to management of SP stock within the facility through coordination between pharmacy staff and ANC providers to ensure consistent SP stock in the ANC consultation area and the implementation of stock warning and requisition systems to anticipate and avoid SP stockouts. While interviews revealed some barriers to SP provision based on SP supply and provider knowledge or behaviors, a major insight from the interviews was about the large buden of data entry providers face during their ANC consultations, which is likely greater at larger volume health facilities. Providers discussed needing to complete several types of forms including the ANC registry form, the client consultation card, and sometimes the RUMER form tracking SP stock levels, often without a dedicated staff member tasked to record data. Rather, providers balance the demands of record-keeping against provision of care to the client. Though not explicitly discussed, through data quality evaluations we can surmise that this dual burden leads to inaccurate and incomplete data. Providers discussed some data entry 'shortcuts' they use where data are not entered according to the standards outlined in government manuals about how to correct complete registry forms. Furthermore, providers noted that SNIS data synthesis is usually done by a deputy nurse (*Infirmiere Titulaire* - IT), and providers do not consider SNIS reporting part of their responsibilities. Given the various forms providers complete, ITs may be required to reconcile data across forms in order to make accurate calculations to report to the SNIS. As we later concluded from data quality assessments, there seem to be few efforts to reconcile or ensure alignment of the ANC registry data with the data reported to the SNIS each month, making replicability of SNIS calculations impossible at most health facilities based on ANC registry data alone. Therefore, while some missed opportunities for SP provision may be rectifiable with training, supervision, job aids, supply-side improvements and increased

communication between areas of the health facility, the magnitude of missed opportunities for SP provision may be overstated when relying on ANC registries as opposed to SNIS data.

Finally, through data triangulation the study evaluated the quality of data in ANC registries. Comparing current ANC registry data to observations of ANC visits and to client recall of being offered SP, we observed an under-recording of SP provision in registry records. Specifically, we saw a 41-percentage point variation between observed and recorded SP provision, with under-recording of SP provision in ANC registries and greater variation in Lualaba than Tanganyika. Comparing client recall with ANC registry records, we saw a 19-percentage point variation, again with fewer clients recorded as receiving SP in registry records as compared to those who recalled being offered SP, again with greater variation in Lualaba than Tanganyika. When trying to compare ANC registry data with SNIS reports, we had to use a very limited sample of just 4 of the 30 health facilities sampled for this study, due to concerns about data accuracy and completeness. Specifically, only 4 health facilities in Lualaba had ANC1 visit date data recorded as well as any provision of SP1 recorded for a 7-month time period (April – October 2020) to allow comparisons. For this limited sample, we saw only a 2-percentage point variation between ANC registry and SNIS data on SP1 provision at ANC1, with under-recording in registries compared to SNIS reports. This comparison, however, underscored the lack of completeness of ANC registry data. Only 345 clients in those 4 health facilities were recorded as having ANC1 visits in the months of April – October 2020, whereas 1,026 ANC1 clients were reported in the SNIS for the same health facilities and time period.

The findings from this study suggest many opportunities for intervention to improve SP provision, as well as record-keeping.

- Firstly, providers require increased opportunities for formal training and supportive supervision by provincial health supervisors (DPS staff). These training and supervision opportunities should emphasize and clarify points about SP eligibility, direct observation of therapy guidelines, how to accurately and completely fill out ANC registry records per provided government manuals, and review discrepancies in ANC registry vs. SNIS data reports to underscore the need for well-aligned records that allow for replication of reported calculations about service provision.
- In addition, the study suggests that health facilities may need to explore more flexible models for SP service provision, particularly in health facilities with large client volumes, to reduce provider burden, allow for direct observation, ensure accurate and complete data recording, and expand the time available to counsel about mitigation of commonly experienced-side effects of SP.
- Job aids focused on improving providers self-confidence to counsel about common side-effects of SP and recognize problematic reactions that would contraindicate SP provision could help to address some missed opportunities for SP provision during ANC consultations and increase the practice of directly observed therapy.
- To address supply issues, health facilities can be encouraged to keep a ‘reserve’ stock of SP in a pharmacy or storeroom while also stocking SP in the ANC consultation area, and peer-to-peer learning exchanges could be used to share strategies for stock management through alert systems and routinized communication and coordination between ANC providers and pharmacy/ storeroom staff to ensure sufficient SP stock prior to consultation days.

- Through better utilization of pharmacy usage reports (*Consommation Moyenne Mensuelle* – CMM) and leveraging of partners such as Prosani/USAID, the health system could improve the SP restocking system and transport of supplies from the zonal office to each facility to avoid stockouts.
- ANC registry form refinements could also help to underscore SP delivery guidelines for starting at 13 weeks, delivering up to 8 doses per every ANC visit, one moth apart, throughout the entirety of pregnancy, and possibly tracking SP provision vs. observed ingestion.
- Finally, through the involvement of zonal supervisors and national decision-makers, more attention could be placed on supporting staffing and supervising all providers involved in ANC services to address accuracy and completeness of ANC registry data and alignment of these data with SNIS reports.

Though outside of the scope of this study, the above interventions would be complemented by community-based social and behavior change interventions to encourage early and return ANC visits for pregnant women. Data from ANC registries indicated a high rate of drop off for ANC visits. If ANC is an opportunity for SP delivery, every missed ANC visit is a missed opportunity for malaria prevention. Pairing interventions to increase early ANC and return ANC clients with interventions addressing SP stock and provision may be self-reinforcing, with clients who attend ANC and receive SP perceiving the services to be high quality because expected medications are available, they have been counseled comprehensively on their benefits and educated on the mitigation of potential side-effects.

Introduction

Malaria is common in the Democratic Republic of the Congo (DRC), and pregnant women are at increased risk for malaria (WHO, https://www.who.int/features/2003/04b/en accessed 09 Feb 2020). Protection against malaria during pregnancy is important to ensuring the health of pregnant women, their fetuses, and newborns. Intermittent preventive treatment during pregnancy (IPTp) with sulfadoxine-pyrimethamine (SP) is an effective form of malaria prophylaxis and ante-natal care (ANC) visits are a good opportunity for the delivery of SP.

The WHO recommends SP provision in all areas with moderate to high malaria transmission in Africa, and this includes most provinces in DRC. As of October 2012, WHO recommends that IPTp be "given to pregnant women starting as early as possible in the second trimester [from 13 weeks]… should receive *at least* 3 doses of SP during her pregnancy, with each dose being given at least 1 month apart" (WHO, https://www.who.int/malaria/areas/preventive_therapies/pregnancy/en accessed 23 Mar 2020). Updated 2016 WHO guidelines on ANC increased the recommended number of ANC contacts from 4 to 8, increasing the opportunity for provision of SP. DRC guidelines on SP provision mirror those of the WHO, though standard client registers only include space to record the dates of delivery for 4 doses of SP and 4 ANC visits.

Nationally, there is a gap between the percent of pregnant women who attend any ANC and receive any SP. Per the MICS 2017 data (see Table 1) there is a 26.4 percentage point gap between women attending ANC at least once and receiving at least 1 dose of IPTp, and a 29.5 percentage point gap between women who have attended 4 or more ANC visits and received 3 or more doses of IPTp. These gaps persist in high malaria burden provinces such as Tanganyika (49% malaria prevalence, DHS DRC 2013) and Lualaba (38% malaria prevalence, DHS DRC 2013).

Table 1.

PERCENT OF WOMEN AGES 15-49 WITH ANC VISITS AND IPTP DELIVERY AMONG THOSE WHO HAD A LIVE BIRTH IN THE TWO YEARS PRECEDING THE MICS DRC 2017 SURVEY (MICS 2017-2018 REPORT)							
	% ANC1	AVERAGE GESTATIONAL AGE (MONTHS) AT 1ST ANC	% IPTP1	ANC1-IPTP1 % **GAP**	% ANC4+	% IPTP3+	ANC4+-IPTP3+ % **GAP**
DRC	82.4	5	56.0	26.4	42.9	13.4	29.5
Tanganyika	44.5	5	25.3	19.2	14.1	1.3	12.8
Lualaba	66.6	5	30.7	35.9	28.1	1.8	26.3

Research from other countries suggests the large discrepancy between ANC visits and IPTp delivery could be a function of varied supply-side factors such as stock-outs, provider training and knowledge of guidelines, barriers to directly observed therapy such as lack of improved water sources, and the quality of reported data (Rassi et al. 2016; Thiam, Kimotho & Gatonga, 2013; Onoka, Hanson & Onwujekwe, 2012). The FY 2018 PMI Malaria Operational Plan noted that there is often poor storage capacity at regional drug distribution warehouses, inadequate conditions for drug storage, and a lack of staff capacity and motivation to fulfill health facility requests for malaria drugs, all of which could contribute to facility conditions that inhibit the provision of IPTp during ANC (USAID/PMI-DRC Malaria Operational Plan FY2018, https://www.pmi.gov/docs/default-source/default-document-library/malaria-operational-plans/fy-2018/fy-2018-democratic-republic-of-the-congo-malaria-operational-plan.pdf?sfvrsn=5, accessed 10 Feb 2020).

A study of interventions to prevent maternal and newborn deaths estimated that the DRC is one of four countries that would benefit the most from implementation of a package of interventions including ensured delivery of IPTp during ANC (Bhutta et al., 2014). Understanding the barriers to IPTp delivery are critical to increasing malaria prevention for pregnant women in high prevalence areas of the DRC.

The evidence outlined above makes a clear case for conducting a study to explore the barriers and facilitators of SP provision in DRC. This study was conducted under guidance of staff from Breakthrough ACTION project in DRC, a five-year project funded by the United States Agency for International Development (USAID). The project conducts formative research and designs and implements social and behavior change interventions to improve a variety of health outcomes, including malaria. The President's Malaria Initiative (PMI) works closely with USAID to support this goal.

This mixed methods study included reviews of patient ANC registry records, interviews with healthcare providers and ANC clients, observations of ANC visits and assessments of healthcare facilities to understand the circumstances that affect provision of SP during ANC visits in two provinces of DRC: Lualaba and Tanganyika. The study explored provision of SP, recording of these data in ANC registry records, and reporting of these data into the country's health management information system, called the Système National d'Information Sanitaire (SNIS). Factors affecting SP provision were explored at the health facility and provider levels. We also considered the possibility that the actual rate of SP provision may not be accurately reflected in facility records and/or the SNIS.

The study was guided by the following research aims:

1. Explore supply-side factors related to any IPTp provision, provision of IPTp at all ANC visits, and 3+ IPTp per client in Tanganyika and Lualaba, DRC;
2. Understand the barriers and facilitators to IPTp delivery from the perspective of healthcare providers;
3. Evaluate the quality of reported data on provision of IPTp during ANC visits; and

This study uniquely adds to the literature by triangulating health facility, provider, and client data to uncover facilitators and barriers to SP provision and by collecting detailed data to quantify structural barriers such as stock-outs as a factor influencing delivery of SP. The findings of this study will inform the development of provider behavior change interventions and other SBC approaches that can be used to improve SP delivery during ANC visits in the DRC in accordance with WHO guidelines, with the goal of reducing malaria incidence among pregnant women in the DRC.

Methods

Study design

This is a mixed-methods cross-sectional study that was conducted in two provinces of the DRC: Tanganyika and Lualaba. The study was conducted in a total of 30 health facilities – 15 per province.

The selection of provinces for this study was based on several factors. First, we focused on provinces in which the PMI and Breakthrough ACTION projects were active. Second, we selected provinces that had high prevalence of malaria for children under age 5 per the 2017 DRC MICS. Focusing on three provinces with the highest rates of malaria prevalence, we ensured the provinces had at least 15 health facilities with a minimum median of 30 ANC1 clients per month during the period of September 2019-February 2020 and that SNIS data was available for that period. Finally, we considered geographic variation and accessibility/security to collect data as we selected one province with a relatively higher rate of IPTp1 and IPTp3+ (Tanganyika, 90% each) and one province with a relatively lower rate (Lualaba, 86% and 85% respectively) per SNIS data from September 2019-February 2020. We note that the SNIS data for September 2019-February 2020 differ substantially from the MICS 2017 data. This may be explained by the fact that MICS is population-based data vs. SNIS data based on only those who seek facility services, so IPTp provision is much higher among the SNIS sample than all women, as sampled for the MICS.

From a list of qualifying health facilities based on the factors outlined above, 15 health facilities were randomly selected per province to comprise the sample for this study. The health facilities are predominantly rural, with 5 urban and 10 rural health facilities sampled in Lualaba, and 4 urban and 11 rural health facilities sampled in Tanganyika.

Quantitative and qualitative data were collected simultaneously to triangulate on the frequency and reasons for missed delivery of SP during ANC visits. The data from quantitative datasets was merged on health facility or on client, where applicable and possible. Findings from the quantitative and qualitative analyses have been interpreted in concert to identify potential areas for provider behavior change and SBC interventions.

Research methods

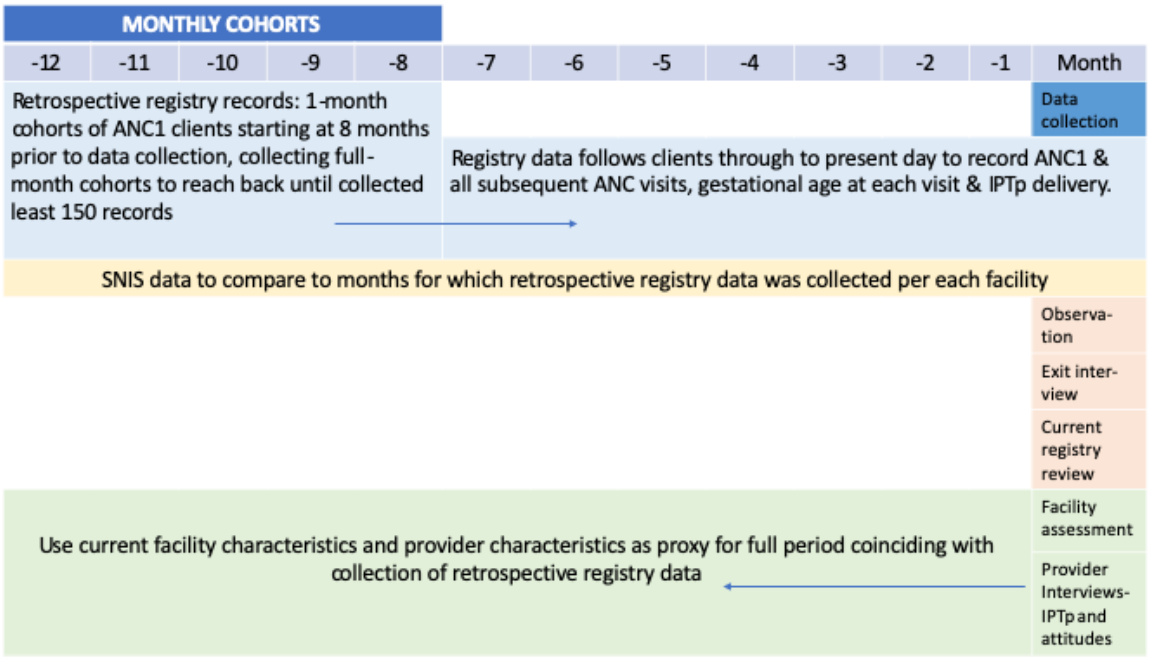
The methods used in this study were:

1. Facility assessments via structured interviews with the provider in-charge to observe supply-side characteristics that could affect IPTp provision;
2. Retrospective reviews of ANC client registry records for provision of IPTp at ANC visits;
3. Secondary analysis of facility-aggregated routine monitoring system data for provision of IPTp at ANC visits;

4. Semi-structured ANC provider interviews about provision of IPTp;
5. Semi-structured client exit interviews about provision of IPTp;
6. Reviews of current ANC client registry records for provision of IPTp; and
7. Observation of client-provider interactions during ANC visits in which there could be provision of IPTp.

The relationship between all data collection activities is presented in Figure 1.

Figure 1. Relationship between data collection activities in the study



A facility assessment was conducted in each facility in the study, with a health worker ("provider in-charge") familiar with the workings of the ANC services, pharmacy, and dispensary guiding the data collection team through the facility to collect information on facility and provider characteristics. (See Annex 2 for excerpts from the facility assessment data collection instrument.)

Retrospective ANC client registry records were collected for approximately 150 ANC clients per facility starting with the client's first ANC visit (ANC1) through all subsequent visits recorded in the registry. The standard ANC registry form from which data were extracted is included in Annex 1. We collected data by 1-month cohorts (See Annex 3 for excerpts from the retrospective registry extraction data collection instrument). Registry data was supposed to be collected starting from 12 months prior to the time of data collection in all health facilities (March 2020), however, the starting month of registry extraction varied across facilities in Lualaba. It is possible that there was confusion among data collectors on which month to start

with in collecting monthly cohorts of registry records and given remote supervision of data collection due to the COVID-19 pandemic, this deviation from the intended data collection plan was not captured until after fieldwork had concluded. In addition, ANC registries in Tanganyika did not include dates of ANC1 visits, thus it is not possible to ascertain which monthly cohorts are represented by the data that was extracted. While health facility staff may have been able to clarify the monthly cohorts of ANC registries if they had been asked during data collection, this supervision guidance was not provided to data collectors. The standard guidance for completion of the ANC registry is to record the date for each ANC visit by the client, and thus the lack of data in Tanganyika facilities also represents a deviation from expectations for data completeness of ANC registry records. Reasons for lack of completeness of registry records are explored in this study but may relate to lack of provider training on how to complete registries, and the high burden of paperwork providers must complete while also providing counseling and treatment services. The lack of data in Tanganyika for date of ANC1 visits was a major limitation for some of the aims of this study, including being able to assess proper timing of ANC1 and SP delivery, as well as compare registry record data with data from the same health facilities and months as reported into DRC's routing health monitoring system, the SNIS. SNIS data were collected for the period from January 2020-January 2021. Given the lack of ANC1 data in Tanganyika registries, it was not possible to compare SNIS and registry data per monthly cohorts. In Lualaba, given the varied starting months of collection of ANC1 cohorts, the period of overlap of collected registry data and SNIS data is from April – October 2020, and thus comparisons of these data sources in Lualaba facilities are limited to that seven-month period.

Provider interviews were conducted in each facility, using a convenience sample of those who were available on the dates of data collection. Providers included any cadre of health worker that had provided ANC services at the facility for at least two months.

Exit interviews were conducted at all facilities. Clients were sampled if they had been at the health facility seeking ANC services. Observations of ANC visits were conducted in a randomly selected subsample of 8 health facilities: 4 per province. Current ANC registry records were meant to be collected for all clients who participated in exit interviews and/or observations. However, data collectors were not always able to match data given missing client medical record numbers and/or the ID numbers listed on client-held consultation cards (referenced during client exit interviews) not matching with the client medical ID numbers used in the ANC registries.

Given some of the documentation challenges faced in this study, analyses are presented where possible with all data used as well with a sensitivity analysis using just the subset of data for which complete information is available. Generally, the sensitivity analyses present better results for SP provision, but these results may be positively skewed in that the health facilities with more complete data may also be the ones more likely to adhere to SP provision guidelines.

Study participants

A total of 30 health facilities in the provinces of Lualaba and Tanganyika, DRC were included in this study. The health facilities were predominantly rural, with a total of 9 urban and 21 rural health facilities in the sample. The health facilities are all public sector facilities that

provide ANC services and had a median of at least 30 ANC1 clients per month per routine health information system data from September 2019-February 2020.

Given the above research methods, the participants for this study included health care facility providers in-charge, healthcare workers who provide ANC services, and ANC clients. Table 2 summarizes the distribution of the sample used in this analysis across the study sites. Health facility names have been replaced with center IDs to preserve the confidentiality of participants involved in this study.

Table 2.

SAMPLE DISTRIBUTION						
FACILITY ID #	GEOGR-APHY	RETROSPECTIVE ANC REGISTRY RECORDS	EXIT INTERVIEWS – ANC CLIENTS	CURRENT ANC REGISTRY RECORDS	OBSERVATIONS OF ANC VISITS	ANC PROVIDER INTERVIEWS
LUALABA						
1	Urban	151	12	15	5	2
2	Rural	149	13	16	-	2
3	Rural	150	14	15	-	2
4	Rural	150	15	15	-	3
5	Rural	150	16	16	-	1
6	Urban	177	5	15	5	3
7	Rural	180	20	16	-	2
8	Rural	155	16	16	-	2
10	Urban	153	14	15	-	3
11	Urban	150	6	15	-	3
12	Rural	150	15	16	-	2
14	Rural	150	15	17	-	1
15	Rural	149	14	15	-	3
17	Urban	150	16	15	5	2
18	Rural	150	15	15	5	2
TANGANYIKA						
20	Urban	177	15	15	6	2
21	Urban	152	15	15	-	3
22	Rural	175	15	16	-	2
23	Urban	150	15	15	-	3
28	Rural	157	15	15	-	3
29	Rural	150	15	15	-	3
30	Rural	150	15	15	3	2
31	Rural	150	23	15	-	2
32	Rural	209	16	15	-	3
33	Rural	151	15	15	-	2
34	Rural	184	17	17	5	3

35	Urban	150	17	17	-	3
36	Rural	152	24	16	-	2
37	Rural	173	15	17	-	3
38	Rural	155	15	15	5	3
Total – Lualaba	15: 5 urban, 10 rural	2314	206	232	20	33
Total - Tanganyika	15: 4 urban, 11 rural	2435	247	233	19	39
TOTAL	**30: 9 urban, 21 rural**	**4749**	**453**	**465**	**39**	**72**

Data collection

Data collection for this study took place from March 2 – 13, 2021. All data collectors and supervisors were trained in human-subjects research. Given the ongoing COVID-19 pandemic, US-based Breakthrough ACTION staff led and participated in the training virtually, while DRC-based Breakthrough ACTION staff met in-person with the team from the local research firm: ALMA Research Services (ALMA). Breakthrough ACTION staff accompanied ALMA for a pre-test of the instruments in both study locations. Subsequent contact over the course of data collection was done remotely via phone, email and WhatsApp message groups.

ALMA programmed structured questionnaires onto tablets to collect quantitative data from facility assessments, ANC registry extraction (current and retrospective), ANC visit observations, and client exit interviews. Qualitative data from provider interviews was audio recorded and transcribed word-for-word into French for analysis. Interviews were conducted in French or Swahili, depending on the preference of the participant. A random selection of 10 transcripts were double-checked against the audio for accuracy.

There were several challenges to data collection for this study. Several of the initially selected health facilities had to be replaced with alternates due to security concerns and road inaccessibility due to floods. Several of the sites – particularly ones in Tanganyika – were in rural areas ranging from 200-over 400 km from a larger city. This posed challenges with mobile connectivity. Electronic tablets were programmed using Open Data Kit to use for data collection in this study. While this data collection method helped to control data quality, using parameters such as geolocation confirmation and data entry parameters relied upon mobile connectivity which was not steadily available in some of the health facilities. Given limited connectivity, data collectors in some sites were unable to transmit their data each day to the central office for review and further quality checks. Data collectors collected data offline in these sites and transmitted the data when they had an opportunity to travel to the nearest locale with mobile connectivity, though travel to and from remote sites was difficult given rainy season road conditions. This resulted in some sites collecting all data offline and uploading the data only at the end of the fieldwork, missing any opportunities for data quality checks and verifications during the course of data collection.

Data collection with health care workers was subject to availability and interruption, as interviews took place in their workplace and during work hours. Despite communicating with local authorities ahead of time, some providers were unavailable due to time conflicts with trainings happening outside of the health facility.

To engage with ANC clients during the dates of data collection, the study team worked with local community health workers to encourage client attendance. In some health facilities ANC services are held on specific days of the week, so arranging the data collection activities to accommodate this schedule across all selected facilities was logistically challenging.

Over the course of data collection, we found many data elements of interest were missing, particularly for extraction of information in ANC registries. Gestational age at each ANC visit was commonly missing in the ANC registries. This was of particular concern for the first ANC visit, as the data are necessary to determine eligibility to receive SP at this consultation. Sensitivity analyses have been presented to show differences in findings accounting for this missing data. Results for SP provision generally improve when using only the subset of data where gestational age is available and thus it is possible to account for SP eligibility, but this could reflect greater adherence to SP provision guidelines in sites where the staff also adhere to registry completion guidelines and have more complete data recorded in the registries.

When merging datasets, some data had to be dropped due to an inability to match on client ID numbers. For example, not all exit interviews were able to be matched to current ANC registry records because client medical ID numbers used in ANC registries did not always match with those included on client-held consultation forms that were referenced during exit interviews. Where it was possible, we used client age in both datasets to uniquely match a client when client ID numbers did not align. As a result, the merged dataset allowing comparisons of data recorded in the current ANC registry to be compared with client recall of the ANC visit has a total sample size of 301, compared to 453 exit interviews conducted and 465 current registry records extracted.

Missing and incomparable data also posed challenges to merging datasets. The date of each ANC visit was often missing in the ANC registries. Date of first ANC visit was systematically missing from registry records in all Tanganyika health facilities. This could be due to lack of provider training on standardized expectations for how to complete ANC registry records, or lack of time on the part of providers to complete these data while providing ANC services. The lack of ANC visit dates posed a challenge to merging retrospective registry results for SP delivery per facility per month with data collected from the SNIS. Specifically, the retrospective registry records extracted data starting from 12 months prior to data collection (March 2020) and collected monthly cohorts of registry records until reaching at least 150 records. Given the sampled facilities had ANC1 monthly cohorts of 30+ clients, it was anticipated that the registry extraction would generally cover the months of March 2020 through about October 2020, with the end date varying according to the facility's average ANC1 client volume. However, the retrospective registry data from Tanganyika did not include dates for ANC visits, but rather just an indication that the visit occurred. In Lualaba, registries that included dates of ANC visits varied in starting month, but all included the period from April

2020 through October 2020. Thus, although SNIS data extraction covered the period from January 2020-January 2021 for all facilities, it is only possible to compare SNIS and retrospective registry data for SP provision from April – October 2020 in the sampled facilities in Lualaba. Comparisons of monthly rates of SP delivery per the ANC registries vs. SNIS were not possible for the sampled facilities in Tanganyika. It is possible that the facilities where date data was available represent facilities more adherent to ANC and SP provision guidelines, but this may not bear any relevance on the facilities' fidelity in calculating SNIS data based on ANC registry records. There are implications of missing ANC registry and SP data for the quality verification sims of this study, including a clear need for improved supervision as discussed in the Implications section of this report.

Finally, quantitative data from provider interviews had to be constructed into a dataset post-hoc. Although tablets were used to aid data collectors in conducting provider interviews, the data collectors did not enter providers' responses to close-ended questions into the tablets to create a database for the provider data. Rather, the responses were scraped from the interview transcripts and audio files to construct a database after the completion of data collection.

Data analysis

Quantitative data were analyzed using the statistical analysis software Stata/SE, version 16.1. Numerous data checks were used to verify data used for outcomes in these analyses, and steps were taken to impute missing data for critical variables. Specifically, in facility assessments the number of days a facility was stocked out of SP was cross-referenced against the number of times the facility was recorded to have experienced a stockout per month. If the number of times in a month was greater than 0 but the data for number of days stocked out in the month had been recorded at 0, a conservative assumption was made that each time the facility had experienced a stockout it lasted for at least 1 day. Number of days of stockout per month were thus adjusted to ensure this minimum level of consistency with the number of times the facility reported stockouts. In addition, for facilities with some missing values for times or days stocked out per month, data was imputed based on the facility's mean across months where data was recorded. If a facility had no data recorded for the full time period or had no pharmacy (in which SP stockouts had been assessed based on stocking sheets), data on number days of stockout per the year was imputed based on the province mean.

These analyses were conducted without the use of sampling weights. The study used simple random sampling to select the facilities included in the study per province, however, given the small number of facilities sampled (n=30) it is not advisable to apply sampling weights. The data are thus illustrative per province, but not representative at the province level.

For analyses comparing facility and provider characteristics by province, due to the small sample sizes per province (15 facilities per province, 33 to 38 providers per province), we did not conduct any testing of significant differences by province. In general, data are presented using n sizes with percentages in parentheses, as percentage comparisons should be interpreted cautiously given the limited sample sizes.

To merge some datasets, data were further transformed. For example, data were aggregated per facility to merge provider data with retrospective ANC registry data. The merged dataset was used to identify facility and provider characteristics that are predictors of SP provision. If multiple providers from a facility were interviewed, an average of their responses to questions (e.g., average knowledge score) was calculated for each facility to merge into the retrospective registry dataset for all clients from that facility. For ease of interpretation in logistic regressions on client-level SP provision, most facility and provider data were transformed into categorical variables split at the mean (e.g., number of ANC service hours per week split into 4 or fewer, 5-6 hours, or 7-23 hours per week).

Qualitative data were analyzed in French using Atlas.ti data analysis software and a detailed codebook. An initial set of transcripts were double coded by two coders and discrepancies were resolved. Subsequently, one coder coded all transcripts for each province, with periodic discussions throughout the coding process to further clarify discrepancies about the application of codes or to discuss the need for a new, emergent code.

Results

The results of this study are organized into the following sections: 1) descriptive analyses on SP delivery during ANC, 2) health facility and provider factors related to SP delivery during ANC, 3) provider-described barriers and facilitators to SP delivery during ANC, and 4) data quality evaluations to assess differences in SP delivery, data recording in ANC registries, and reporting into the SNIS health information system. The following outcomes of interest are explored as relevant to each section:

1. Percent of ANC clients who received any SP (SP1+) over the course of their ANC visits;
2. Percent of ANC visits in which a client received SP;
3. Percent of ANC clients who received 3+ doses of SP out of those with 3+ ANC visits;
4. Comparison of SP delivery rates between those eligible for SP1 and those eligible for SP3;
5. Health facility factors associated with delivery of any SP (SP1+), delivery of SP at all ANC visits, and delivery of SP 3+;
6. Health provider characteristics associated with delivery of any (1+) SP, delivery of SP at all ANC visits, and delivery of SP 3+;
7. A description of the main challenges to SP delivery and record keeping from the perspective of healthcare providers;
8. Percent variation between observed SP provision and SP provision as recorded in health facility ANC registry records;
9. Percent variation between client recall of SP being offered and SP provision as recorded in health facility ANC registry records; and
10. Percent variation between health facility ANC registry records and Ministry of Health routine monitoring data (SNIS) for delivery of SP1 at ANC1.

1. ANC and SP delivery descriptive findings

ANC attendance data was taken from the retrospective registries (see Annex 3 for the data collection instrument). All records were considered to have ANC1 attendance if they were present in the registry, and data were recorded for subsequent ANC visits if available in the ANC registry. Overall, we saw a steep decline in the number of clients returning for multiple ANC visits, with the decline steeper in in Lualaba than Tanganyika (See Table 3). A sensitivity analysis was performed to examine only clients with ANC1 visit dates available, where it can be certain that the clients represented had been followed through the registry for enough time to have given birth (and thus completed all ANC visits for the pregnancy). Among a sample of 1,001 clients in Lualaba only, the trend of a steep decline in return ANC visits was still observed. Although outside of the focus of this study, these data suggest the importance of complementary efforts to increase return attendance of clients to ANC, using community-based channels such as mass media, opinion leaders, and healthcare outreach workers.

This study focused on provision of SP at ANC; although fewer clients attended ANC visits 2-4, each visit represents an opportunity for SP provision. Thus, we examined the percent of all recorded ANC visits in which any dose of SP was delivered. As presented in Table 3, we find overall, 56% of recorded ANC visits included recorded provision of SP, or in reverse that there were missed opportunities for SP provision at 44% of all ANC visits. The likelihood of SP

delivery is higher in Tanganyika than Lualaba (64% vs. 46%). In the qualitative portion of the study, some providers indicated that there are clients who may receive ANC services from multiple facilities, which could account for some of the steep decline in recorded ANC attendance. However, providers noted that they are supposed to update their ANC registries with the client's consultation card to incorporate data on ANC visits and receipt of SP at other facilities but were not sure how to differentiate which data in the registry pertained to a client's visit at their facility vs. at another facility. Providers also commented that when clients experience SP stockouts during their ANC visits, this can discourage them from returning for subsequent ANC visits. Thus, the decline in return ANC visits is important to consider as relevant to improving SP provision for pregnant women overall.

Table 3.

ANC ATTENDANCE & SP PROVISION			
NUMBER OF CLIENTS RECORDED HAVING…	OVERALL	LUALABA	TANGANYIKA
An ANC1 visit: (n)	4,749	2,314	2,435
An ANC2 visit: (n)	1,834	782	1,052
An ANC3 visit: (n)	719	264	455
An ANC4+ visit: (n)	241	70	168
AMONG CLIENTS WITH ANC1 DATE AVAILABLE AND ENOUGH TIME SINCE ANC1 ELAPSED TO HAVE GIVEN BIRTH, RECORDED HAVING…	OVERALL	LUALABA	TANGANYIKA
An ANC1 visit: (n)	--	1001	--
An ANC2 visit: (n)	--	366	--
An ANC3 visit: (n)	--	128	--
An ANC4+ visit: (n)	--	42	--
PERCENT OF…	n=7,543	n=3,433	n=4,110
ANC visits in which a dose of SP was delivered	55.98%	46.27%	64.09%*

*Significant difference by province: diff=-.1782, 95% CI (-.200, -.156)

Using data from the ANC registry, we can examine client-level outcomes for SP provision. For a given client, it is important to understand how many doses of SP were provided to her, particularly if she was provided at least one dose (SP1+) and if she was provided the minimum level of malaria protection during pregnancy afforded with at least 3 doses (SP3+).

The WHO guidelines state that women are eligible to receive SP at and after 13 weeks gestational age. Although ANC visits earlier than 13 weeks are not common in DRC, we used available data on gestational age at ANC1 to assess a client's eligibility to receive SP during this first consultation. However, gestational age at ANC1 data were missing or illegible for 805 of the 4,749 clients for whom registry data was extracted, and for these missing cases it was not possible to assess SP eligibility at ANC1. As a result, findings for provision of SP1+ and SP3+ are presented with sensitivity analyses limited only to clients with ANC1 gestational age data available.

As presented in Table 4, without accounting for eligibility, we found a little over half of ANC clients were provided SP1+ (57%), with significantly higher rates in Tanganyika than Lualaba (72% vs. 41%, p<.01). This indicates there is a gap in SP1 provision of 43 percentage points overall, and 28 and 59 percentage points in Tanganyika and Lualaba, respectively. When limiting our sample to only those for whom gestational age data were available for ANC1 (those for whom we could accurately assess SP eligibility over all ANC visits), we see higher rates of SP1+ delivery.

We are unable to ascertain reasons for incomplete registry data from the extraction analyses. A client's data for all ANC visits is recorded in a single line of the ANC register. For each ANC visit, the date of the client's visit was supposed to be noted in the cell, and information for each column of the ANC registry form (see Annex 1) was supposed to be recorded (see Annex 3 for excerpts of retrospective registry data extraction instrument). However, many data elements were not recorded in the ANC registries. For example, all ANC registries extracted for Tanganyika were missing gestational age at ANC1. It is possible that the availability of gestational age data may reflect a health facility's greater attention to detail with respect to data recording and adherence to SP provision guidelines. However, missing data could also represent healthcare workers lack of time to record all data fields included in the standard ANC registry form.

Examining SP provision specifically at ANC1, we performed a sensitivity analysis to assess whether SP provision results are significantly different if accounting for SP eligibility. As shown in the table below, the level of SP provision at ANC1 differs a little when accounting for eligibility, again with higher rates of SP provision once eligibility is considered. Results accounting for eligibility are more conservative estimates, but they may be biased if facilities with more complete registry data are more likely to provide SP to ANC clients.

Table 4.

SP1 PROVISION			
PERCENT OF CLIENTS...	OVERALL	LUALABA	TANGANYIKA
IRRESPECTIVE OF SP ELIGILIBILITY AT ANC1			
Provided SP1+ (n=4749, 2314, 2435)	56.81%	40.88%	71.95%*
Provided SP at ANC1 (n=4744, 2314, 2430)	53.88%	38.55%	68.89%**
ACCOUNTING FOR SP ELIGIBILITY AT ANC1			
Provided SP1+ (n=3708, 1640, 2068)	72.76%	57.68%	84.72%^
Provided SP at ANC1 (n=2387, 850, 1537)	60.52%	47.30%	71.59%^^

*Significant differences by province: diff=-.3107, 95% CI (-.338, -.284); **diff=-.3034, 95% CI (-.330, -.276); ^diff=-.2704, 95% CI (-.299, -.242) ; ^^ diff=-.2429, 95% CI (-.283, -.202)

Next, we explored SP3+ provision. Using all records in which ANC visit data was recorded, we saw that about two-thirds of clients attending 3+ ANC visits received 3+ doses of SP (see Table 5). Using only the clients for whom it is possible to assess SP eligibility at ANC1, SP3+ delivery falls to 57% in Tanganyika. Compared to 3+ ANC, the sample of clients

attending 4+ ANC was far lower (n=722 vs. 261), and among them we see SP3+ provision is also lower, particularly in Tanganyika. While more clients were reported to make 4+ ANC visits in Tanganyika than Lualaba, among them, there is lower provision of SP3+ in Tanganyika compared to Lualaba. As we see in later analyses, there were more days of SP stockouts recorded in Tanganyika than Lualaba especially as COVID-19 surged. COVID-19 may have also disrupted transport, including SP restocking from September 2020 onwards, and this lack of SP stock could account for the reduced provision of SP3+ for clients who attended ANC throughout this period and had ANC visits 2-4 during the height of the stockouts in Tanganyika.

Table 5.

SP3+ PROVISION			
PERCENT OF CLIENTS PROVIDED SP3+...	OVERALL	LUALABA	TANGANYIKA
-IRRESPECTIVE OF SP ELIGILIBILITY AT ANC1			
SP3+, If attended ANC3+ (n=722, 267, 455)	68.28%	68.16%	68.35%
SP3+, If attended ANC4+ (n=261, 93, 168)	52.49%	64.52%	45.83%*
-ACCOUNTING FOR SP ELIGIBILITY AT ANC1			
SP3+, If attended ANC3+ (n=614, 244, 370)	54.23%	66.39%	56.76%**

Significant differences by province: *diff=.1869, 95% CI (.064, .310); **diff=.0963, 95% CI (.018, .174)

Accounting for SP eligibility at ANC1, we can compare the SP1 and SP3+ delivery rates overall and by province. Using the SP delivery rates accounting for SP eligibility at ANC1, we see an overall 6 percentage point reduction in SP3+ delivery as compared to SP1 (See Table 6). However, we find in Lualaba that there is actually a 19 percentage point higher rate of SP3+ compared to SP1 delivery. Whereas, in Tanganyika the rate of SP delivery falls by 15 percentage points. As we explore in later analyses, patterns of SP stockout and SP restock by province may provide a possible explanation for this difference in the direction of SP provision rate from SP1 to SP3+. SP stockouts were more common in Tanganyika compared to Lualaba in the latter half of the year and the average time since last restock was longer in Tanganyika, suggesting that continued provision of SP at later ANC visits may have been compromised as compared to Lualaba where there was a less pronounced change in their SP stock throughout the year. However, Lualaba may less consistently provide SP at ANC1 compared to Tanganyika, and this could be related to a slightly higher sampling of urban, larger volume health facilities in Lualaba. We see in subsequent analyses that larger client volumes are associated with lower rates of SP provision.

Table 6.

DIFFERENCE IN SP DELIVERY RATES FOR SP1 & SP3+			
-ACCOUNTING FOR SP ELIGIBILITY AT ANC1	OVERALL	LUALABA	TANGANYIKA
Percentage point difference in SP1 and SP3+ delivery rates	6.29 point reduction	19.09 point increase	14.83 point reduction

2. Health facility and provider factors related to SP delivery

This study mainly focused on primary level, public health facilities. About one-third (30%) of the sampled health facilities were urban, with the rest of the health facilities located in rural areas. Data on health facility characteristics were gathered through the facility assessments (see Annex 2 for the data collection instrument). Where facility assessment data were missing, values were imputed using province means to enable these data to be used in subsequent analyses.

From the facility assessment we find ANC services are typically available on a schedule, with limited hours and days of the week dedicated to prenatal care. On average, there are 3 providers offering these services per facility, offering services 1 day per week, for a total of 6.6 hours per week, though hours of service vary widely across the sample. The facilities recorded an average of 15 ANC consultations in the week prior to data collection, with wide variability. In provider interviews, many providers noted that although there may be scheduled days for ANC visits, if a client were to arrive on a non-scheduled day she would be assessed for the health of her pregnancy. However, it remained unclear in most cases if her visit would be recorded in the ANC registry and if she would receive SP at the visit if she arrived on a non-ANC service day.

The sampled facilities generally lacked important resources for information and training support on the provision of SP during ANC. These materials included a copy of the national malaria guidelines, any training manual about malaria guidelines, gestational age estimator job aids, signage visible to clients about SP, drinking water and cups (to facilitate WHO-recommended directly observed therapy (DOT) of SP). On average facilities had 3 of these 6 basic materials or resources, with ample variation across facilities and a similar level of limited resources across provinces.

SP availability was assessed in two major locations: the ANC consultation area and the facility's pharmacy. Availability of SP in the ANC consultation area itself is low; specifically, 39% of the sampled facilities have SP available in the ANC consultation area itself. The majority (67%) have SP available in the facility pharmacy. In both locations, availability varied slightly by province and n sizes are provided in Table 7 below given the small sample sizes.

While many providers discussed stockouts as a major barrier to SP provision at ANC and perceived stockouts to be frequent, in a review of pharmacy stocking sheets we found that from February 2020 to Jan 2021 the average number of days annually that facility pharmacy stock sheets registered as out of SP stock was somewhat low (24 days in a year on average, with wide variation by facility). Stockouts were overall less common with less variation across facilities in Lualaba (*mean* 13 days, *sd* 15 days) compared to Tanganyika (*mean* 36 days, *sd* 34 days). Examining the stockout trends more closely, we see there were more days of SP stockout registered in the period from September 2020 through January 2021 compared to prior months. Across the two provinces we see the average number of stockout days increased from 7 days over February to August 2020 to 17 days over September 2020 to January 2021, with similar trends across time periods in each province. It is possible that an increase in cases of COVID-19 in DRC caused disruptions in SP supply chains and, in interviews, a few providers noted transportation delays contributing to stockouts in their health zone.

Table 7.

FACILITY CHARACTERISTICS	OVERALL N=30	LUALABA N=15	TANGANYIKA N=15
Geography of facility: n (%) -Rural -Urban	 21 (70%) 9 (30%)	 10 (67%) 5 (33%)	 11 (73%) 4 (27%)
Type of facility: n (%) -Primary -Secondary	 28 (93%) 2 (7%)	 14 (93%) 1 (7%)	 14 (93%) 1 (7%)
Health facility status: n (%) -Public -Religious/Confessional	 27 (90%) 3 (10%)	 15 (100%) 0	 12 (80%) 3 (20%)
*Average number days per week ANC services available: days (sd)	1.30 (0.60)	1.33 (0.62)	1.27 (0.59)
*Average number hours per week ANC services available: hours (sd)	6.60 (4.26)	5.00 (2.67)	8.20 (5.00)
*Average number health workers providing prenatal care per facility: n (sd)	3 (1.36)	3 (1.37)	3 (1.35)
*Average number of prenatal consultations last week per facility	15.33 (12.35)	12.73 (8.03)	17.93 (15.39)
*Average score for availability of basic materials/resources (scale: 0-6): mean score (sd)	2.53 (2.11)	2.40 (2.03)	2.67 (2.26)
*SP currently available in: n (%) - ANC consultation area - Facility pharmacy/storeroom	 11 (37%) 11 (37%)	 6 (40%) 6 (40%)	 5 (33%) 5 (33%)
*Average number of days stocked out of SP in pharmacy from Feb 2020-Jan 2021, per stock sheet: days (sd) -Feb 2020 to Aug 2020 -Sept 2020 to Jan 2021	24.40 (28.14) 6.93 (13.22) 17.47 (21.84)	13.00(14.83) 0 (0) 13.00(14.83)	35.80(33.80) 13.87(16.09) 21.93(26.93)
*Average number of days since last received stock of SP	59.5 (67.79)	52.73 (36.45)	66.27 (89.96)
*Facility receives bednets for distribution: n (%)	21 (70%)	9 (60%)	12 (80%)
*Average number of DPS supervisory visits in past year (Feb 2020-Jan 2021)	3.40 (5.40)	2.60 (6.70)	4.20 (3.76)
*Average number of months since last DPS or District supervisor visit to facility	3.80 (3.81)	2.0 (0)	5.60 (4.81)

*Variables imputed values for missing data based on province means.

Comparing SP availability in facilities' ANC consultation areas and any other areas where they may keep stock (e.g., a pharmacy or storeroom), we found two possible avenues for intervention to ensure SP is available for provision during ANC consultation. We found that although 11 facilities have SP available in the ANC area and 11 facilities have SP available in a pharmacy or storeroom, these are not the same 11 facilities. Rather, there are some health facilities in which the ANC consultation area is the only location in the facility where SP is available while other facilities may have reservoir supplies of SP that are not reaching the ANC consultation area. Specifically, we found 4 facilities where SP was available in the ANC area, but the facility lacked any back-up supply outside of the ANC; this may hinder providers from effectively using stock alerts to manage their SP supply and identify when to request additional stock. In another 4 facilities we found SP was not available in the ANC area but there was stock available in the pharmacy or a storeroom. In these cases, SP provision may be hindered due to immediate but rectifiable inaccessibility to SP, and improved communication between areas of the health facility could help to avoid ANC area stockouts and improve SP provision.

Table 8.

OVERLAPS IN AVAILABILITY OF SP BY LOCATION WITHIN THE HEALTH FACILITY		
NUMBER OF FACILITIES: N	SP AVAILABLE IN PHARMACY/STOREROOM	SP NOT AVAILABLE IN PHARMACY/STOREROOM
SP available in ANC area	7	**4**
SP NOT available in ANC area	**4**	15

The study collected quantitative data from 72 ANC providers through individual interviews (see Annex 4 for data collection instrument). Close-ended questions in the interviews were used to assess providers' demographics, experience and training, correct knowledge of WHO-recommended (and national) SP provision guidelines, favorable attitudes towards their role and their ANC clients, favorable attitudes about malaria and IPTp per the Extended Parallel Processing Model (EPPM), perceptions of facility stockout, and perceived norms about SP delivery, reporting and recording in their facility.

Table 9 presents characteristics of ANC providers sampled in this study. Overall, there was a somewhat even distribution of providers by gender (skewing more male in Lualaba), with most respondents reporting their job title as a registered nurse such as an Infirmière Titulaire (IT) in Lualaba (82%) and as a combination of registered nurse/IT (50%) and midwives (34%) in Tanganyika. Most interviewed ANC providers had 4 or fewer years of experience working in ANC services in the facility in which they were interviewed (63%), with little variation by province. Training on IPTp provision varied, with about one-third of providers in Lualaba (36%) and one-quarter in Tanganyika (24%) reporting that they had received some training in the last 2 years, and another 30% and 66%, respectively reporting they had never or do not remember receiving any such training. These results may be explained by the fact that providers often stay in their post for a limited time, and thus may miss out on formal training opportunities. Health facilities also receive trainings that do not adhere to a standard curriculum and are provided through NGOs and organizations that have private contracts with health facilities; these private contract trainings often do not cover the material the Programme National de Lutte contre le Paludisme (PNLP) prioritizes to consistently offer providers.

Providers possess good knowledge of SP provision guidelines, with an average score of 2.94/3 points, and limited variation across facilities. Knowledge was assessed for three aspects: the ability to start SP provision at 13 weeks, the total number of SP doses a woman should receive over her pregnancy, and the spacing between doses. Knowledge about when providers should start SP provision did not offer the common incorrect option of 16 weeks (options were starting at 13 weeks or starting from the 2nd trimester) and thus may overestimate the correct knowledge that providers have about specific SP provision guidelines.

Providers have very favorable attitudes about their role in SP provision and about their clients' actions in preventing malaria, with an average score of 4.63/5 points, and limited variation across facilities. Attitudes about provider role and ANC clients was assessed based on responses of somewhat agree or strongly agree for the following five statements: a) It is my responsibility to ensure that the women who seek prenatal care at this facility do not get malaria during their pregnancy, b) The pregnant women who receive ANC services at this facility are knowledgeable about how to avoid malaria during their pregnancy, c) The pregnant women who seek prenatal care at this facility do everything they can to avoid getting malaria during their pregnancy, d) The pregnant women who seek prenatal care at this facility rely on me to tell them everything they know about how to avoid malaria during their pregnancy, and e) The pregnant women who seek prenatal care at this facility appreciate my services to help them avoid getting malaria during their pregnancy. During analysis the research team concluded that this attitude scale may not be a coherent measure of provider attitudes, but rather reflects multiple constructs and does not clearly reflect a perceived positive or negative consequence of a specific behavior.

Provider attitudes based on the Extended Parallel Processing Model (EPPM) are considered favorable if they demonstrate high perceived risk of malaria, high severity of malaria, high self-efficacy to prevent malaria using SP, and high response efficacy of SP to prevent malaria in pregnancy. Overall, providers held very favorable EPPM attitudes with an average score of 4.73/5 and limited variation across facilities. Although agreement was high for all statements, there may be some room to increase the strength of agreement particularly for the statement about perceived risk of malaria for pregnant women ("Pregnant women are at risk of getting malaria during their pregnancy"). Overall, just half of providers (49%) strongly agree with the statement, with little difference by province (52% in Lualaba, 47% in Tanganyika).

While stockout of SP was assessed objectively in the facility assessment by counting the number of SP pills available in each area of the health facility, providers were also asked about their perception on whether SP stockouts are common at their facility. Interestingly, providers have high perceptions of SP stockout at their facilities: more than half (54%) of all providers said their facility is somewhat to very often stocked out, with more providers in Lualaba espousing this view compared to Tanganyika (67% and 42%, respectively). This perception could represent a perceived institutional barrier to provision of SP to ANC clients. When comparing these data against the number of days in a year that the facilities recorded SP stockout at their pharmacy, we see a major discrepancy. First, on average facilities had only 24 days of SP stockout recorded over a year (February 2020-January 2021), and secondly, the number of days of SP stockout were lower on average in Lualaba compared to Tanganyika. These comparisons may suggest internal communication gaps between areas of the health facility about the availability of SP.

Finally, providers were asked several questions to assess their perceived norms supporting SP provision, recording, and reporting of these data. Overall, perceived norms supporting provision of SP were middling with an average score of 3.66/5, though there was

higher perception of supportive norms in Lualaba compared to Tanganyika (4.12 and 3.26, respectively). There were two normative statements for which there was a sizeable difference in the percent of providers espousing strong disagreement by province: a) The other ANC providers at this facility would disapprove if I did not provide SP to pregnant women per the national guidelines, and b) My supervisor would disapprove if I did not provide SP to pregnant women per the national guidelines. It is possible that there is a low perception of injunctive norms for SP provision in Tanganyika, but this does not match well with other attitudinal data collected during provider interviews. Both injunctive norm statements used a double-negative, so it seems more likely that the questions were systematically misunderstood by providers in Tanganyika. If the latter is the case, it is possible that overall perceived norms supporting SP provision are high, with little difference by province.

Table 9.

PROVIDER CHARACTERISTICS			
	OVERALL N=71	LUALABA N=33	TANGANYIKA N=38
Provider gender -Male -Female	 55% 45%	 61% 39%	 50% 50%
Job title -Registered nurse /IT -Nursing assistant -Midwife -Other	 64% 7% 23% 5%	 82% 6% 9% 3%	 50% 8% 34% 8%
Years of experience working in ANC services in sampled facility -Up to 4 years -5+ years	 63% 37%	 64% 36%	 63% 34%
Recency of training on IPTp provision -In last 2 years -3+ years ago -Never/do not remember	 30% 21% 49%	 36% 33% 30%	 24% 11% 66%
Average score - Correct knowledge regarding SP provision guidelines (scale: 0-3): mean score (sd)	2.94 (0.29)	3.00 (0)	2.89 (0.40)
Average score – Favorable attitudes regarding provider role and ANC clients (scale: 0-5): mean score (sd)	4.63 (0.68)	4.79 (0.48)	4.50 (0.80)
Average score – Favorable attitudes based on EPPM regarding malaria, SP provision (scale: 0-5): mean score (sd) -% Strongly agree: Pregnant women are at risk of getting malaria during their pregnancy	4.73 (0.70) 49%	4.70 (0.59) 52%	4.76 (0.79) 47%
% Perceive: facility is somewhat to very often stocked out of SP	54%	67%	42%

Average score – Perceived norms regarding SP delivery, recording and reporting in facility (scale: 0-6): mean score (sd)	3.66 (0.92)	4.12 (0.93)	3.26 (0.72)
-% Strongly disagree: The other ANC providers at this facility would disapprove if I did not provide SP to pregnant women per the national guidelines.	58%	33%	79%
-% Strongly disagree: My supervisor would disapprove if I did not provide SP to pregnant women per the national guidelines.	56%	24%	84%

Data from the facility assessment and provider interviews were merged with the data extracted from retrospective ANC registries to identify facility factors and provider characteristics associated with client-level receipt of SP. All facility and provider characteristics except for days of SP stockout were transformed into categorical variables, for ease of interpretation. Three outcomes were explored using univariate and multivariate logistic regressions: 1) receipt of any SP during ANC (SP1+), 2) receipt of SP at every ANC visit, and 3) receipt of 3 doses of SP (SP3+). All retrospective registry records from a health facility were thus appended with the same set of facility-level characteristics and summary characteristics from all providers interviewed at the facility.

The results of the univariate regressions are presented first in Table 10. Given the large sample size (n=4,749), most independent variables were found to have a significant association with the three outcomes.

There are a wide range of factors significantly associated with provision of SP1+. The odds of any SP provision are significantly higher in urban sites and in Tanganyika compared to rural sites and Lualaba, respectively. Odds of SP provision increased significantly at facilities that provided a client with an insecticide treated net (ITN) during one of their ANC visits, suggesting that clients attending facilities attuned to various means of malaria prevention may be more likely to receive SP during ANC. Odds of any SP provision also increased significantly when facilities had 1 or more supervisory visits per year, compared to none. Contradictory to what one may hypothesize, odds of SP provision decrease significantly with a facility's increasing number of ANC service hours per week and with increasing client volume. This may suggest that larger health facilities are less likely to provide SP to ANC clients, possibly because providers are rushing to see all clients who come for services. Surprisingly, greater availability of basic materials and resources for SP provision reduced the odds of SP1+ provision. Given the marked increase in stockout days in the latter part of 2020, we assessed correlations between number of stockout days from February-August 2020 separately from September 2020-January 20201. Surprisingly, for every 1 additional day of stockout experienced February-August 2020, there was 6% greater odds of a client receiving any SP; odds of SP provision were not associated with stockout in the latter half of the year. As expected, odds of any SP provision decreased significantly when facilities had not received a restock of SP for one or more months, compared to those who received a restock sooner. Finally, we found unexpected results on the associations between assessed provider characteristics and SP1+ provision. Specifically, odds of SP

provision increased if providers had never been trained on IPTp provision or had been trained 3+ years ago as compared to more recently. While we found that odds of SP provision decreased where providers held favorable attitudes about their role in SP provision and the role their clients play in malaria prevention, as was discussed previously we have low confidence in this attitude scale measuring a singular concept clearly related to the behavior of consistently offering SP at the right times. When providers held attitudes espousing high perceived risk and severity of malaria and high efficacy to prevent malaria in pregnancy with SP (based on the EPPM), odds of any SP provision increased significantly, as we would expect.

The factors associated with increased odds of SP provision at every ANC visit and provision of SP3+ were largely similar to those associated with provision of any SP. Notably, every one day of stockout from February-August 2020 increased the odds of SP provision at every ANC visit by ten-fold, while every additional day of stockout during the COVID pandemic from September 2020 to January 2021 slightly decreased odds that a client received SP at every ANC visit. Odds of SP provision at every ANC visit were also 39% higher if clients attended a facility that had stock of SP in a pharmacy or storeroom on the day of our evaluation, suggesting that a 'reserve' supply of SP outside of the ANC area may improve SP provision. The strongest predictors of SP3+ provision were facilities that had a supervisory visit in the past year, a client ever receiving an ITN at ANC, and longer or lack of provider training on SP provision. Factors that most reduced the odds of SP3+ provision were higher numbers of ANC service hours per week and higher ANC client volume.

Table 10. Results of univariate logistic regressions on three SP provision outcomes

RESULTS OF UNIVARIATE LOGISTIC REGRESSIONS ON THREE SP PROVISION OUTCOMES			
UNADJUSTED OR (STD ERROR)	BINARY OUTCOMES:		
	RECEIPT OF ANY SP (SP1+)	RECEIPT OF SP AT EVERY ANC VISIT	RECEIPT OF 3 DOSES OF SP (SP3+)
Demographic factors			
Geography (RC=Rural) - Urban	3.41(0.24)***	1.83(0.12)***	0.42(0.07)***
Province (RC=Lualaba) - Tanganyika	3.71(0.23)***	3.18(0.19)***	1.56(0.19)***
Health facility factors			
ANC service hours per week (RC: 4 or fewer) - 5-6 hours per week - 7-23 hours per week	0.15(0.22)*** 0.15(0.03)***	0.28(0.03)*** 0.33(0.05)***	0.14(0.02)*** 0.50(0.10)***
ANC client volume (RC: Low, 10 or fewer ANC consultations in last week) - Mid, 11-20 consultations in last week - High, 21+ consultations in last week	0.11(0.01)*** 0.09(0.01)***	0.18(0.01)*** 0.12(0.01)***	0.18(0.03)*** 0.12(0.03)***
Availability of basic materials/resources for SP provision[1] (RC: Missing half of basic resources required for SP provision) - Have more than half of the basic resources required for SP provision	0.88(0.05)*	0.63(0.04)***	1.02(0.12)
Provided client an ITN at any ANC visit	8.15(0.78)***	4.33(0.32)***	4.46(0.53)***
Had SP in stock in Pharmacy/storeroom on day of assessment	0.97(0.06)	1.39(0.08)***	0.89(0.11)
Number of SP stockout days from Feb-Aug 2020 (pre-COVID)	1.06(0.00)***	10.05(0.00)***	1.02(0.00)***
Number of SP stockout days from Sept 2020-Jan 2021 (during COVID)	0.998(0.00)	0.996(0.00)**	0.987(0.00)***
More than 1 month since last received SP stock	0.74(0.04)***	0.67(0.04)***	0.65(0.08)***
1 or more supervisor visits in past year	9.35(0.63)***	5.62(0.37)***	9.56(1.95)***
Provider characteristics			
Recency of training on SP provision (RC: In past 2 years) - 3+ years ago - Never received training	8.07(0.90)*** 6.06(0.72)***	9.20(1.30)*** 10.09(1.48)***	3.75(1.13)*** 4.39(1.36)***
Higher than average favorable attitudes towards own role in SP provision and ANC clients	0.29(0.03)***	0.28(0.02)***	0.70(0.10)**
Higher than average favorable attitudes to malaria/SP per EPPM	1.47(.13)***	0.97(0.83)	5.67(1.93)***

Notes: *Significant at p<.05; **Significant at p<.01; ***Significant at p<.001 [1]Defined as having national malaria guidelines, any training manual about malaria guidelines, gestational age estimator job aids, signage visible to clients about SP, drinking water and cups (to facilitate WHO-recommended DOT of SP).

Multivariate models predicting SP provision were created after reflecting on which factors may be poor measures or measuring a similar phenomenon and paring down to a smaller list of variables to include in the models. ANC service hours and client volume likely both reflect larger health facilities, so for parsimony ANC service hours was dropped from the model. The availability of basic resources for SP provision and provision of an ITN both reflect facilities that have demonstrated a commitment to malaria prevention, and provision of ITNs seemed more akin to SP provision in that both are products provided to a client during their ANC consultation. Furthermore, from provider interviews, we had been told some basic resources such as reusable cups were purposely removed from facilities during the COVID-19 pandemic to reduce potential for disease transmission. For parsimony and selecting the variable that seemed to better reflect facilities able and committed to providing ANC clients with means of malaria prevention, only the variable on provision of an ITN was included in the model. The number of days of SP stockout and the recency since SP stock was replenished for a facility both seemed to measure how the level of SP stock was associated with SP provision. The data on recency since a facility received their last restock of SP were relatively more complete than the data on days of SP stockout. Days of SP stockout required cross-reference with the number of times a facility had been stocked out and used a very conservative assumption that each time a facility had been stocked out of SP the stockout lasted for one day. This conservative assumption may have underestimated the actual number of days any facility experienced SP stockout, so the variable on time since last restock seemed more reliable and was therefore included in the model. Having SP in stock in a pharmacy or storeroom on the day assessment was included only in the multiple variable model for receipt of SP at every ANC visit, given that it had not been associated with the other two outcomes in univariate analyses. Provider attitudes towards their role and perceived norms were not included in the model due to low confidence in these measures representing a singular construct and being well understood by the respondents. The elimination of these attitudinal scales did not greatly reduce the percent of variability explained by the models. Provider attitudes based on the EPPM were not significantly associated with provision of SP at every ANC in the univariate analysis, so this factor was excluded from the multiple variable regression model for that outcome.

When accounting for multiple variables, we find many of the factors included in the models still have a significant association with the outcomes of interest, though the strength of the association diminishes for some characteristics. The strongest predictors of any SP delivery (SP1+) are urban geography, province (Tanganyika) provision of an ITN at any ANC visit, 1 or more supervisory visits in the year, and providers espousing higher than average favorable attitudes based on the EPPM. The strongest factors reducing odds of any SP provision were client volume and never or having been trained on SP provision longer ago. It is interesting to note that the direction of the association between provider training and SP provision switched in the multivariate analyses compared to the univariate analyses. The multiple variables in the model for receipt of any SP explain 42% of the variation in the data, which is reasonably strong.

The strongest predictors of SP provision at every ANC visit are having SP in stock in a pharmacy or storeroom on the day of assessment, urban geography, province (Tanganyika) and providing an ITN at any ANC visit and having one or more supervisory visit in the past year.

Client volume is again the strongest factor reducing odds of SP provision at every ANC visit, along with not receiving SP stock in the past month or longer. This model explained 31% of the variation in the data, suggesting there are other unexplored factors that could predict odds of SP provision at every ANC visit.

The factors associated most strongly with likelihood of SP3+ provision are providers having highly favorable attitudes based on the EPPM, facilities having a supervisory visit in the past year, and provision of an ITN at any ANC visit. As with other models, client volume reduced odds of SP3+ provision, as did having a month or longer since last restock of SP and having longer time since or no provider training on SP provision. Being in an urban site and being in Tanganyika as opposed to Lualaba also reduced the odds of SP3+ provision by half which fits with the descriptive analyses we saw early in the results section about higher rates of SP3+ provision in Lualaba. The model for SP3+ provision explained the least variance in the data (24%), suggesting that the factors that predict any SP vs. 3 doses of SP are likely quite different.

Given the findings of these analyses, important areas for SBC intervention may include support and supervision, particularly to higher volume health facilities, and provision of formal training to providers on SP provision. An emphasis on regular supervisory visits might help to support other important factors associated with SP provision, and address bottlenecks in SP supply that hinder facilities from providing SP consistently. Increasing provider perception of malaria risk and the efficacy of SP could be beneficial communication points, particularly in supporting SP3+ provision. Ensuring regular resupply of SP stock may support SP provision at every visit as well as SP3+, and a reserve supply of SP in the health facility seems to be a very salient factor for improving SP provision at every visit.

Table 11.

RESULTS OF MULTIVARIATE LOGISTIC REGRESSIONS ON THREE SP PROVISION OUTCOMES			
ADJUSTED OR (STD ERROR)	BINARY OUTCOMES:		
	RECEIPT OF ANY SP (SP1+)	RECEIPT OF SP AT EVERY ANC VISIT	RECEIPT OF 3 DOSES OF SP (SP3+)
Demographic factors			
Geography (RC=Rural) - Urban	7.12(0.84)***	3.68(0.38)***	0.43(0.08)***
Province (RC=Lualaba) - Tanganyika	5.86(0.94)***	2.47(0.32)***	0.44(0.09)***
Health facility factors			
ANC client volume (RC: Low, 10 or fewer ANC consultations in last week) - Mid, 11-20 consultations in last week - High, 21+ consultations in last week	0.10(0.01)*** 0.02(0.00)***	0.12(0.01)*** 0.08(0.01)***	0.34(0.07)*** 0.16(0.04)***
Provided client an ITN at any ANC visit	5.23(0.62)***	2.91(0.27)***	3.01(0.40)***
Had SP in stock in Pharmacy/storeroom on day of assessment	-	6.99(1.00)***	-
More than 1 month since last received SP stock	1.94(0.19)***	0.60(0.06)***	0.65(0.09)**
1 or more supervisor visits in past year	2.85(0.36)***	2.35(0.30)***	10.20(3.09)***
Provider characteristics			
Recency of training on SP provision (RC: In past 2 years) - 3+ years ago - Never received training	0.35(0.06)*** 0.48(0.09)***	0.96(0.17) 0.87(0.17)	0.41(0.17)* 0.44(0.19)
Higher than average favorable attitudes to malaria/SP per EPPM	2.33(0.38)***	0.72(0.10)*	12.21(4.48)***
Pseudo R^2	42.03%	31.44%	24.11%
Number of observations	4,749	4,749	4,749

Notes: *Significant at p<.05; **Significant at p<.01; ***Significant at p<.001

[1]Defined as having national malaria guidelines, any training manual about malaria guidelines, gestational age estimator job aids, signage visible to clients about SP, drinking water and cups (to facilitate WHO-recommended DOT of SP).

3. Provider-described barriers and facilitators to SP delivery during ANC

A total of 72 ANC providers were interviewed (see Annex 4 for data collection instrument). From these interviews, several themes emerged that may contribute to the gaps in SP provision at ANC, if the facility is not in an SP stock-out. These include: 1) SP provision during the ANC consultation, 2) management of SP stock within the facility, and 3) ANC registry data entry and synthesis for SNIS reporting. Where data from other research activities helped to triangulate on the qualitative insights, those results have been incorporated into this section.

SP provision during ANC consultation

During ANC consultations, providers described challenges to SP provision that can be characterized by confusion about eligibility guidelines for SP provision and workarounds developed to manage side-effects of SP.

While when asked directly, providers generally think the guidelines for SP delivery are clear (93% say they are clear to very clear), and most (92%) say they never feel unsure about whether or not SP should be offered to an ANC client, but by the end of the interview the majority of providers (90%) still highlighted a need for more training on the provision of IPTp. Provider comments reveal some possible areas where training may be necessary and could address potential gaps in SP provision during ANC.

Eligibility. In conversation, providers commonly said that clients were eligible for SP only after 16 weeks, however when asked when is the earliest that SP can be given in pregnancy 10% said at 13 weeks and another 87% from the 2nd trimester (n=71, 94% in Lualaba, 82% in Tanganyika); 16 weeks was not offered as a response option. Providers who mentioned 16 weeks in conversation may be taking cues about SP eligibility from the ANC registry form, which asks providers to indicate whether a client is visiting before 16 weeks gestational age. Although providers did not perceive SP as dangerous, a few noted that provision of SP too early in pregnancy can cause harm to the fetus. So, there may be hesitation to provide SP starting in the second trimester/at 13 weeks given the potential confusion about SP eligibility starting at 16 weeks.

> *"They tell us…when the pregnancy is at three months, two months, or the person comes with complaints, you should not give them SP. You must wait until the pregnancy reaches 4 months, then you can give SP. That's what I do as well."* – Urban provider, Tanganyika

> *"What I know is…for SP, we give it to the pregnant woman at the 16th week, but under 16 weeks it's contraindicated."* – Rural provider, Lualaba

Most providers reported that women should not receive more than 4 doses of SP during her pregnancy, and some noted that near delivery or at a certain cut-off in advanced gestational age women are no longer eligible to receive SP. In several cases, providers cited the layout of the ANC registry form as evidence of the guideline that women should receive no more than 4 doses. To corroborate this point, we found that when providers were asked how many doses of

SP a pregnant woman should receive in total during her pregnancy, 72% of all providers interviewed (n=71) reported 4 doses exactly (79% in Lualaba and 66% in Tanganyika).

> *"Beyond the fourth dose, there is no space [to write] because the norms [rules] say not to go above four doses."* – Rural provider, Tanganyika

> *"When the woman is almost at term, she should not be given any [SP]."* – Rural provider, Tanganyika

Managing side effects. Providers overwhelmingly believe that SP is safe for clients, however many espoused the belief that it must be taken with food to avoid side effects such as nausea and vomiting. A few also noted that SP and other medications given to the pregnant woman during her ANC visit should be spaced apart, also supporting their practice of encouraging the woman to take the medication at home, with a meal. This is further supported by client responses from exit interviews. Among those who were verified to have been offered SP but said they did not ingest it during their consultation (28 clients), 14 said the reason was either because they did not want to take SP on an empty stomach, or because the provider told her to take the medication at home.

> *"It can cause lightheadedness, if you haven't eaten, it can cause heart palpitations…"* – Rural provider, Tanganyika

While providers did not describe SP side-effects as "safety" concerns, they play a role in whether the provider will directly observe SP ingestion or allow/suggest the client take the medication at home. In rare cases, providers said they offer the client some food to ensure that the client takes SP in front of them, but not on an empty stomach.

> *"Normally the woman should take it in front of a provider, but a lot of women come having left their house very early, they haven't yet eaten and it's difficult to ask them to take it there and to observe how the woman is taking the SP…we always ask the question - if she has already eaten, she can take it directly in front of a provider, but if she hasn't eaten she will do it at home."* – Urban provider, Lualaba

Providers were not directly asked, but a few discussed counseling that they gave clients about normal side-effects of SP and how to manage them. Rather, when providers discussed their role in educating clients, their focus was on the benefits of SP for malaria prevention.

> *"It's the medication, that can cause vomiting, just continue, it's preventative medication that will protect you."* – Rural provider, Tanganyika

Some providers noted that they have had clients refuse SP during a consultation – particularly beyond SP1. Most providers who experienced client refusal said they try to counsel the client about the necessity of SP during pregnancy. However, many providers said that if a client says that SP makes them sick it is important to heed this information as clients may have allergies and other negative reactions that preclude them from taking the medication. This suggests that providers may harbor some hesitancy because they do not want to risk causing

harm, particularly if a client notes that SP makes them sick. This could be related to a lack of provider self-efficacy to counsel clients about the normal side-effects of the medication, and difficulty ensuring clients arrive to ANC prepared to ingest the medication on-site (e.g., having eaten prior to the appointment). In fact, most providers interviewed agreed somewhat or strongly that when a pregnant woman asks about SP side effects and if a pregnant woman says she has had a negative reaction to SP in the past it affects whether or not they administer SP (63% agreed with each statement).

> *"There are other pregnant women who take the first dose of SP, it's OK but when they receive the second SP and take it, that gives them stomach pain or something…in the ANC3 visit…she refused to take [SP] because she had bad effects…She refused because of the effects she experienced when she took her second dose."* – Rural provider, Tanganyika

> *"If the person's body is allergic to the SP, no, I wouldn't give them the medication. It's not that because I am a nurse I have to convince them, that risks making it worse."* – Urban provider, Tanganyika

Management of SP stock within the facility

The management of SP stock within the facility can be further parsed into two main themes that emerged: coordination between the pharmacy and ANC providers to ensure consistent SP stock in the ANC consultation area, and stock warning and requisition systems to anticipate and avoid SP stockouts.

Coordination between the pharmacy and ANC providers. While some providers discussed having a stock of SP available in the ANC consultation area to facilitate SP DOT, several said they either do not keep the stock in the consultation area (e.g., clients are provided SP during educational sessions), the stock is only accessible on specific ANC consultation days, or that they direct clients to the facility pharmacy to get SP from there.

> *"Every Wednesday we will receive the women who have not yet received the cards [new ANC clients]...and those who have the cards [returning ANC clients], we will receive them on Friday...It is when we are in the maternity ward that we give [SP], we do not give them any time, only on the [consultation] days. [Other days] we cannot give even one pill...On Friday we give [SP], and if we finish [consultations] we close the jars until Wednesday. I never give medicine to pregnant woman … outside of the [consultation] days... I tell her to go for consultation."* – Rural provider, Tanganyika

For others, when their supply of SP in the ANC consultation area runs out, they may either instruct clients to return to the facility when SP stocks are replenished, direct clients to the facility pharmacy for SP, or request the pharmacy to deliver more SP to the consultation area.

> *"[When there is no SP in stock at the health facility] some [clients] leave to buy [SP from other pharmacies] and others say they will wait for ours. Most wait."* – Rural provider, Tanganyika

"[And when you notice you are low in your consultation room ?] Then there is the person who manages the pharmacy. So we can always ask, even before consultations, to know if there is any more SP or not." – Urban provider, Lualaba

"How we work is good, it's always good because they keep the big stock there [in the pharmacy] and we at the service in question (ANC) keep the little stock. As soon as the little stock is used up we always go back to the big stock." – Urban provider, Tanganyika

Providers were not directly asked, but at times suggested that they are unaware of the level of SP stock in areas outside of the consultation area (e.g., at the pharmacy, or in a facility dispensary). A few providers talked about sending clients to the facility pharmacy to get SP, and the client returning to the provider to report that the pharmacy did not have SP in stock. These discussions suggest there could be room for improved communication and coordination between the pharmacy and ANC providers.

"When we placed the order [for SP from the zone office] with the ITA (deputy nurse), I sent the pregnant women with the notebook to the ITA so that he can give [SP] to her and write it in the book and the mother came back to me to say there was no more medication." – Rural provider, Tanganyika

"It's when I send women to the pharmacy, when they tell us that they were not served, I understand in that moment that we are out of stock." – Rural provider, Lualaba

SP stock warnings and requisition systems. Several providers discussed stock alert systems as a facilitator to ensuring SP provision at ANC. A stock alert system is used to signal when their SP stock has fallen below a specified threshold. These alert systems help them to ensure that a requisition for SP stock is placed before the facility reaches 0 stock. While some providers noted that when they reach stock alert or 0-stock levels in their ANC consultation area they file a requisition with the health zone office for additional SP supply, other providers suggested this level of stock management is not part of their responsibilities.

"In my opinion that [avoiding stockouts] should be for management. For those who manage the pharmacy, inventory, all of that. Very often they will ask us for our needs." – Urban provider, Lualaba

"I would say, it is necessary to know how to manage the stock alert, 'how much stock do I have?' so as not to experience stock outs." – Urban provider, Tanganyika

"Often we look at the stock sheet because on the stock sheet there is the stock alert, as soon as we reach the stock alert that warns us that soon we will have a stockout." – Rural provider, Lualaba

In a small number of health facilities providers mentioned that when their own facility is stocked out of SP they may seek a supply from a neighboring facility as a stop-gap measure. The alternative recourse, which providers seek to avoid, is counseling women that they must find SP elsewhere such as in a private pharmacy, where they will have to pay for it.

"Sometimes we will ask another facility that is near here. If that facility is also in difficulty, then we must give prescriptions to the women [so that they can pay to purchase SP from a private pharmacy]." – Urban provider, Lualaba

ANC registry data entry and reporting

Many providers indicated that there are several types of forms they must complete to record data during ANC consultations. These include the ANC registry form, the client consultation card, and sometimes the RUMER form tracking SP stock levels. While providers in some facilities noted that there is a dedicated staff member tasked with recording data in these forms, others said that they manage this task themselves while also interacting with the client to provide counseling and treatment. From exit interviews, most clients (77%) estimated that their ANC consultation lasted 10 minutes or less, which is a very short timeframe in which to assess health of a pregnancy, deliver services and educational messages while also keeping accurate records.

Data recording requires attention to detail, as providers described that they first review the client consultation card and update their ANC registry with any missing information contained in that document. For example, if a client attended ANC services at another health facility, providers transpose the client card data into their ANC registry to inform which dose of SP they will provide at this visit. From client exit interviews, we find 18% of clients who saw a provider at the health facility on the interview day reported that they had attended at least 1 ANC visit for their pregnancy at some other health facility, suggesting it is not uncommon for providers to need to reconcile data about SP doses across health facilities, if available from the client card. The burden of data entry simultaneous with client care may lead to 'shortcuts' in data entry on the ANC registry forms. From a review of the retrospective ANC registries, we noted large amounts of missing data, and this might be explained by the dual burden of client interaction while entering complete data.

"The difficulties we encounter: the first difficulty, we have many documents to fill out. Fatigue can also affect someone; secondly, we don't have enough materials or personnel who can help us to do the work correctly." – Rural provider, Lualaba

"Well, we often want to do the data recording at the same time as the ANC visit, and sometimes that doesn't work and we do it after." – Rural provider, Lualaba

A few providers noted that shortages of client cards and registry forms were a barrier to recordkeeping and accuracy of records or knowing which dose of SP to provide to a client.

"The [client consultation] card will be able to tell us that she comes from such and such a structure and that she has followed so many ANC and I can see when she was given SP … We run into difficulties that our supply of [client consultation] cards run out if there is not a partner allocated [to provide them]… this causes difficulties for the woman to move [across health facilities]…if she has not received her card it is just a paperwork [at the health facility that can confirm they] gave it [SP]. We have to organize a system for [tracking] the compliance of the taking of SP." – Rural provider, Tanganyika

In addition, there may be a lack of clear guidance on standardized expectations for how registry forms should be completed. Most providers noted that they are not specifically trained on this, and we found variation in the ways providers described how they enter data into the ANC registry. For example, some noted that they include dates for delivery of each SP dose while others said they mark these fields with an "X."

> *"Well there is also a procedure for what to record, because each year there is a new register, we find ourselves with another procedure that does not coincide with what we had, there we could also have something like a motion to help us improve."* – Urban provider, Lualaba

These variations in who and how data are entered are the first step in a chain of data hand-off to the health worker tasked with entering data into the SNIS. For most health facilities, the Deputy Nurse administrator (*Infirmiere titulaire, IT*) has the responsibility of entering data into the SNIS each month. In some facilities the role of data synthesis is shared between the ANC provider and IT, with the provider tallying the number of ANC consultations and doses of SP they provided over the course of the month, and the IT synthesizing these data across all providers at the facility. In other facilities, the ANC registries are handed to the IT and (s)he interprets them to arrive at synthesized totals for the month. If dates for ANC visits and SP provision are not recorded in the registry, and a client's data for all ANC visits is recorded in a single line of the ANC register (as was the case for all data extracted from ANC registries in the sampled health facilities in Tanganyika), this may make accurate data synthesis challenging. The IT may further need to reconcile or track client data across the ANC registry and the RUMER SP stock management forms to ensure an alignment of the data on SP provision and SP stock used at the facility.

4. Data quality evaluations

These results are reported at the province level to protect the confidentiality of health facilities sampled for this study. To be mindful of the small sample sizes, it is recommended that data is considered in terms of numbers of clients rather than percentages. Also, given the limited sample size, these data should be considered illustrative rather than representative at the province level.

a. The percent variation between observed delivery of IPTp and recorded delivery in health facility ANC registry records

A total of 33 observations could be matched with Current ANC Registry records (see Annex 5 for observation form data collection instrument). Among these, a total of 22 clients were observed being offered and/or ingesting SP while in the consultation room, 13/17 clients in Lualaba and 9/16 clients in Tanganyika (see Table 12).

Table 12.

OBSERVATIONS OF SP DELIVERY DURING ANC VISITS			
INDICATOR	OVERALL N=33	LUALABA N=17	TANGANYIKA N=16
Offered SP: n(%)	15 (45%)	6 (35%)	9 (56%)
Ingested SP: n(%)	20 (61%)	13 (76%)	7 (44%)
Offered OR Ingested SP in consultation room: n (%, SP delivery rate from observations)	**22** (67%)	13 (76%)	9 (56%)

From the matching current ANC registry records, we find different rates of SP delivery recorded from what was observed. Specifically, among all of the 33 observed clients, we find 17 clients were recorded as receiving SP at their most recent ANC visit, 7 in Lualaba and 10 in Tanganyika (see Table 13). In raw numbers, the number of clients recorded as receive SP does not match the number of clients observed receiving SP.

Table 13.

SP DELIVERY PER ANC REGISTRY AMONG ALL OBSERVED			
AMONG ALL OBSERVED…	OVERALL N=33	LUALABA N=17	TANGANYIKA N=16
…recorded as received SP at most recent ANC visit: n (%, SP delivery rate from registry records)	**17** (52%)	7 (41%)	10 (63%)

However, there is also discrepancy in which clients were recorded as receiving SP compared to which were observed having received SP. Comparing observation data vs. current ANC registry data for clients, we see only half of the client records were accurately recorded. If we take what was observed as 'truth' (clients seen as being offered and/or ingesting SP in the consultation room should be recorded as receiving SP in the current ANC registry record) these analyses call into question the quality of the ANC registry data. Specifically, among the 22 clients observed as either being offered and/or ingesting SP in the consultation room, only 13 were recorded as having received SP during the consultation per the current ANC registry (see Table 14). Using the formula below, we calculate a high percent of variation between what was observed and recorded for SP provision across the sampled facilities: 41%. This suggests that the data on SP provision in ANC registry records may be under-reporting as compared to what was observed.

Percent variation between observed and recorded SP provision =
[(# clients observed receiving IPTp during this ANC visit - # clients recorded receiving IPTp in current register) / (# clients observed receiving IPTp during this ANC visit)] x 100

Table 14.

VARIATION IN SP DELIVERY RATES OBSERVED AND RECORDED IN ANC REGISTRIES			
AMONG OFFERED AND/OR INGESTED SP IN CONSULTATION ROOM	OVERALL N=33	LUALABA N=17	TANGANYIKA N=16
…recorded as received SP during most recent ANC visit in ANC registry: n(%)	**13** (59%)	7 (54%)	6 (67%)
Percent variation in SP delivery as recorded in observation vs. current ANC registry	[(22-13)/22] x100 = **40.91%**	[(13-7)/13] x100 = 46.15%	[(9-6)/9] x100 = 33.33%

Two types of discordance were explored to understand cases outside of the 13/22 clients that were both observed and recorded as receiving SP. 1) Those who were observed receiving SP but not recorded as such (under-recording), and 2) Those who were not observed receiving SP but recorded as such (mis-recorded or SP delivered outside of ANC). In addition, through observation we understood that being offered SP at the health facility did not equate to clients taking SP (e.g., being directly observed as ingesting the medication). We investigated how providers recorded these cases, as well.

Examining the data for those who were observed as being offered and/or ingesting SP but not recorded as receiving it per their current ANC registry record, we find the discrepancies between observations and registries are systematic, with clustering by facility. Specifically, 8 of the 9 cases in which SP delivery was observed but not recorded are clustered at 3 health facilities. These systematic discrepancies suggest that supportive supervision could be a useful to identify health facilities in which dedicated training is needed to improve the quality of data recording for SP delivery in current ANC registries. Through facility-level supervision, recording practices can be spot-checked and improved.

We also found 4 cases clustered at 1 health facility where clients were not observed being offered or ingesting SP yet were recorded as receiving SP in the current ANC registry. From the data collected we do not know if this is a reflection of poor data quality or if provision and observation of SP ingestion occurred outside of the consultation room, such as during a preceding educational session. Through supportive supervision these discrepancies could also be investigated to ensure data about SP delivery is being accurately recorded in ANC registries.

Finally, we found two cases clustered at 1 health facility in which the clients were observed being offered SP but were not observed ingesting it in the consultation room. In these instances, the clients were not recorded as receiving SP in their current ANC registry record. As providers search for ways to manage the SP side effects they observe in their clinical practice, and given that we heard several discuss counseling clients to take SP at home with a meal, it is possible that there is a lack of clarity on how to record SP delivery for clients offered but not directly observed ingesting SP during their consultation. This could be considered under-recording of SP delivery, and raises questions about how often clients advised to take SP at home follow-through to ingesting the full dose of SP and therefore receiving its benefits.

A related situation was relayed in a provider interview, suggesting there may be situational complexities to data recording where expectations need to be standardized. In the story below, rather than receipt of SP being determined at the consultation and recorded definitively at that time, the provider seems to view the ANC registry data as 'in flux' over the course of the month. They followed-up with the client since they were not able to directly observe her ingesting the dose of SP, and recorded receipt of SP in the registry based on the follow-up.

> *"For example, we had a girl here who had taken SP and then she threw up. We told her to go take it at home. The husband came to give the report that she had not taken [the SP] at home. We look for every possible means to make her take it here at the [health] center. And we put in SP1 [in the current ANC registry] that she had not taken [SP].* – Urban provider, Tanganyika

However, as seen in results related to client exit interviews, alignment of registry records noting SP delivery with client recall of receiving (but not necessarily ingesting the SP on site) suggest that most providers may record SP delivery based on their own actions, and not based on if they know the medication was ingested and digested by the client.

b. The percent variation between client-reported delivery of IPTp and recorded delivery in health facility ANC registry records

We took several approaches to comparing data about SP provision from client exit interviews (see Annex 6 for Client Exit Interview data collection instrument) to what is recorded in the current ANC registry data for clients (see Annex 7 for Current Registry Extraction data collection instrument). During exit interviews, clients were asked several questions to verify whether they had received SP, and we constructed three approaches to calculating how many clients reported that they were offered SP, and rates of SP delivery per client recall from exit interviews. Missing data was imputed based on the province mean for all three approaches:

1. *Least conservative:* Used only one question about recall of being offered any pills to protect against malaria (defined by response to 1 question)
2. *Somewhat conservative:* Used only clients who reported that they saw a provider (verifying they had and are referring to an ANC visit in their responses), said they received medicine that was for malaria prevention (defined by responses to 3 questions)
3. *Most conservative:* Used only clients who reported that they saw a provider (verifying they had and are referring to an ANC visit in their responses), said they received medicine that was for malaria prevention, and verified that they had received at least 3 pills during ANC visit (defined by responses to 4 questions)

Table 15 provides the results comparing client recall of being offered SP using all three approaches with SP provision as recorded in current ANC registries. Using the *least conservative* approach, we see low agreement between SP provision recorded in the ANC registry and recall of SP being offered (63% of those recorded getting SP recall being offered). However, the data are much better aligned using the two *more conservative* approaches (for each, 92% of those recorded getting SP recall being offered). This suggests a more conservative

approach may be most accurate for accurately assessing which clients were offered SP during their ANC visit.

We next calculated the percent variation in SP delivery recorded vs. recalled. For recall of SP we used the most conservative approach as our "truth" to compare against what was recorded in the current ANC registry records. Overall, 75 clients recalled being offered SP during their ANC visit, but only 61 were recorded as having received SP during the consultation per the current ANC registry. Using the formula below, we find moderate variation between recall and recorded data: 19%, with slightly higher variation in Lualaba (21%) compared to Tanganyika (15%). This suggests that the data on SP provision in ANC registry records may be under-recorded as compared to what was recalled by ANC clients during exit interviews.

Percent variation between reported and recorded SP provision =
[(# clients report being offered SP during this ANC visit, *most conservative* - # clients recorded receiving SP in current register) / (# clients report being offered SP during this ANC visit, *most conservative*)] x 100

Table 15.

VARIATION IN SP DELIVERY RATES RECORDED IN ANC REGISTRIES AND RECALLED BY CLIENTS			
RECORDED AS RECEIVING SP DURING THEIR VISIT IN CURRENT REGISTRY - N (%)	OVERALL	LUALABA	TANGANYIKA
…and reported offered SP (delivery rate) – *least conservative*: n=301, 118, 183	191 (63%)	68 (58%)	123 (67%)
…and reported offered SP (delivery rate) – *somewhat conservative*: n=66, 35, 31	61 (92%)	33 (94%)	28 (90%)
…and reported offered SP (delivery rate) – *most conservative*: n=66, 35, 31	**61 (92%)**	33 (94%)	28 (90%)
Percent variation in SP delivery as recorded in Current ANC Registry vs. reported offered SP – *most conservative*	[(75-61)/75]x100= **18.67%**	[(42-33)/42] x100= 21.43%	[(33-28)/33] x100= 15.15%

Given that observation data revealed some clients are offered SP but counseled to take the medication at home, and provider interviews had suggested situations in which it is complex to decide whether SP should be recorded as provided or not, we wondered how client recall of actual ingestion of SP compared to recorded SP provision in registries. Do providers record SP provision in registries intending for it to mean SP was *delivered* to the client, or to mean SP was *ingested* by the client? We compared the number of clients who recalled being offered using the most conservative approach described above with the number who recalled ingesting SP on site

during their ANC visit. As shown in Table 16, 61/66 (92%) of clients who had been recorded as receiving SP in their current ANC registry recalled being offered SP, but just 49/61 (80%) clients recorded as receiving SP in their current ANC registry record recalled ingesting the dose on site. These can be considered comparisons of SP delivery rate vs. SP ingestion rate. The rate that more closely aligns with ANC registry records is SP delivery rate. Thus, we conclude most providers intend for SP data in ANC registries to reflect the number of clients to which SP was offered – not necessarily how many were directly observed ingesting the medication as per the WHO guidelines for IPTp service provision.

Table 16.

COMPARISON OF SP DELIVERY VS. INGESTION RATES WITH SP PROVISION IN ANC REGISTRIES			
RECORDED AS RECEIVING SP DURING THEIR VISIT IN CURRENT REGISTRY - N (%)	OVERALL	LUALABA	TANGANYIKA
…and reported **offered SP (delivery rate)** – *most conservative*: n=66, 35, 31	61 (92)	33 (94)	28 (90)
…and reported **ingested SP (ingestion rate)** – *most conservative*: n=61, 33, 28	49 (80)	29 (88)	20 (71)

c. The percent variation between health facility ANC registry records and Ministry of Health routine monitoring data (SNIS) for delivery of SP1

Routine monitoring data on delivery of SP during ANC is relatively complete, and data were extracted from the SNIS system to cover the time period from January 2020-January 2021. However, as discussed previously, the ANC registry data was characterized by many missing data elements (see Annex 1 for ANC Retrospective Registry Extraction data collection instrument). In fact, dates of ANC visits were missing for all records from all sampled health facilities in Tanganyika and were sometimes missing in records from health facilities in Lualaba.

Where ANC1 visit dates were available in Lualaba, the greatest period of overlap between available registry and SNIS data was from April – October 2020. During this time period, however, visit dates for ANC1 clients were only available for 10 of the 15 sampled health facilities. Even among the 10 health facilities, date data was missing for some ANC1 clients, so a total sample of 999 clients' ANC registry records were considered when calculating the rate of SP1 delivery at ANC1 for clients of the 10 Lualaba health facilities from April – October 2020. For these 10 health facilities, only four recorded any delivery of SP1 for clients who had ANC1 from April – October 2020; the remaining six health facilities did not record delivery of SP1 for any clients who had ANC1 during this time period. If we assume that all 10 health facilities in which ANC1 date data is available accurately recorded SP1 provision, then we would conclude that 6 of the health facilities systematically did not provide any SP1 for clients during the period of April-October 2020. However, data from the facility assessment on number of days of SP stockout indicate that most of these 10 facilities recorded 0 days of SP stockout from April –

October 2020. So, it seems unlikely that they truly provided no SP to ANC1 clients during that time. It seems more likely that this is a case of under-recording of SP provision in registry records.

Table 17 compares SP1 delivery per ANC registry data to that which was reported in the SNIS. Comparing SP1 delivery rates at ANC1 from registry and SNIS data for the 10 health facilities that had ANC1 date data, we observe an SP1 delivery rate at ANC1 that is 50 percentage points higher in the SNIS compared to the ANC registries. This discrepancy is alarmingly large. However, given that no SP1 provision is recorded for six of these 10 health facilities while SP delivery was reported in the SNIS, we must doubt the accuracy of the recorded registry data at these six health facilities. We may conclude that SNIS reports were calculated based on data outside of solely what was included in the ANC registries. Examining just the four health facilities in which some SP1 delivery was recorded for ANC1 clients who had their ANC1 visit from April – October 2020, we calculate an SP1 delivery rate at ANC1 of 85%. This is just a 2 percentage point difference from the what was reported in the SNIS for the same 4 health facilities and the same time period. We may conclude, then, that only in these 4 health facilities was the data likely recorded accurately for the clients, and thus aligns with what they have reported to the SNIS. So, in cases where we have confidence in the accuracy of the data recorded in the ANC registries, there does not seem to be high variation in SP1 provision rates per ANC registries vs. reported in the SNIS.

Data completeness is concerning when making comparisons of data in ANC registries and the SNIS reports. For the four health facilities where we have more confidence in the accuracy of the recorded registry data, we still lack confidence in the completeness of the registry data. A total of 345 clients' registry records were available with ANC1 date data recorded, however, these four facilities reported on 1,025 ANC1 clients in the SNIS. Thus, even in these four facilities where we may be confident in the accuracy of the data in the registry records, we seem to be missing client records for nearly two-thirds of the ANC1 clients that visited in the months of April – October 2020.

While ANC providers generally consider themselves responsible for recording data in the ANC registries, most do not consider themselves responsible for reporting these data into SNIS. Rather, that task is often seen as belonging to an IT (deputy nurse) who often is not present at the ANC consultation. Providers indicated that SP provision may be documented across several forms throughout a health facility, so the IT may need to reconcile ANC registry forms and pharmacy SP stocking sheets, and possibly other data sources to arrive at total numbers of ANC clients and total doses of SP delivered. At health facilities where ANC registry information is incomplete and inaccurately recorded, reconciling various sources to calculate data to report into the SNIS could open opportunities for misinterpretation. Additionally, even if data reported into the SNIS reflects the most accurate information about SP provision per health facility, it does not appear that health facility staff retroactively reconcile and update ANC registry records to ensure that they match the monthly data reported into the SNIS.

When we consider reasons for incomplete and inaccurate registries, we may return to the insights from provider interviews. We heard one example of a provider who continued to

monitor her clients to determine if she ingested SP that had been provided to her. As a result, the registry record was "in-flux" throughout the month. We heard many more providers note that there is a heavy burden to complete registry records while also providing consultation services, and often there is not a dedicated staff assigned to the task of completing the registry record. From the regression analyses we see that higher volume health facilities were associated with lower provision of SP in registry records, but we may now consider this could also be under-recording of SP provision. In high volume facilities, the pressure of needing to see more clients may make providers deprioritize complete and accurate recording of data in the ANC registry records. Taken together, these insights may explain the lack of completeness of registry records, and possibly the lack of accuracy in the recording of data. At present supervisory visits may not include exercises to compare ANC registry data with SNIS reports and emphasize the need for maintenance of complete and accurate registry records. Adding such an exercise during supervisory visits could be an avenue through which quality of registry records is improved and offer supervisors and opportunity to verify the data sources used and process employed for calculating data reported to the SNIS.

Table 17.

COMPARISON OF SP1 DELIVERY RATES AT ANC1, APRIL – OCTOBER 2020: ANC REGISTRY DATA VS. SNIS REPORT	
ANC REGISTRY DATA	RATE OF SP1 DELIVERY AT ANC1
SP1 delivered per ANC1, **10 health facilities in Lualaba** (n=999)	29.43%
SP1 delivered per ANC1, **4 health facilities in Lualaba** with both SP1 data and ANC1 date data (n=345)	**85.22%**
SNIS DATA	
SP1 delivered per ANC1, **matching 10 health facilities in Lualaba** (n=2,431)	79.47%
SP1 delivered per ANC1, **matching 4 health facilities in Lualaba** (n=1,026)	**87.43%**

Conclusion and Implications

This study characterizes the problem of missed opportunities for SP delivery at ANC and underscores that the reality of SP provision, recording and reporting is complex. While the data show that there are indeed missed opportunities for SP provision, the extent to which this is the case is difficult to ascertain as data sources do not agree. There are supply chain factors, service delivery factors, coordination, and data quality factors that all play a role in understanding how to improve the provision of SP during ANC. From triangulation of the data collected, we see some themes emerging for potential strategies to improve SP provision and data recording.

Though outside of the scope of this study, the ANC registry data reveal that there is a large drop-off in women returning to the health facility for ANC visits 2-4. Continued SP provision relies on clients returning for later ANC visits, so any interventions resulting from the findings in this report should be complemented by community-based interventions to encourage women and their social support systems to go to ANC 4+ times during pregnancy. These community outreach efforts can emphasize the benefits of ANC for prevention of malaria during pregnancy.

We find there are missed opportunities for SP delivery at ANC, but the extent to which SP is not being provided to eligible clients varies depending on the source of data that is examined. From ANC registries, which should be the closest source to recording SP provision during ANC, we find that when accounting for SP eligibility at ANC1, there are ample missed opportunities for provision of SP, with Tanganyika more often providing SP at ANC1 than Lualaba. While there continue to be ample missed opportunities for SP3+ provision among clients who attend 3+ ANC visits, the likelihood of SP3+ provision is higher in Lualaba than Tanganyika. Although overall in the study we find the rate of SP provision fall from SP1 to SP3+, it rises in Lualaba while falling in Tanganyika. However, in comparing registry data with the data available in the SNIS, we find a high level of missing data suggesting that ANC registry records may not be accurate and complete. We could only compare ANC registry records and SNIS data for a small number of facilities sampled in this study given the large extent of missing data on ANC visit dates in the ANC registries, and when focusing on the facilities where we had the best confidence in the accuracy of the ANC registry data we find little discrepancy in the rate of SP1 delivery at ANC1 across the two data sources. The main conclusion from comparing data sources is that ANC registry data is often in accurate and incomplete. We gather from interviews that the ANC registry records are supplemented by other sources to inform the data reported into the SNIS. We cannot verify if there are errors in calculation of data when reporting into the SNIS based on the ANC registries, given low confidence in the accuracy and completeness of the registry data. Further discussion of data recording and reporting is below, but these discrepancies underscore the importance of supportive supervision to ensure accuracy and completeness of ANC registry records and consistency between registry data and data entered in the SNIS. Health zone office involvement in the review of data can help to identify areas for data recording improvement, and bottlenecks in SP supply that may impede SP provision.

With respect to SP supply, from the data on number of days of stockout, we would not characterize the sampled facilities as suffering from a chronic shortage of SP. However, providers perceive stockouts to be a major barrier, and longer periods of time since SP stock resupply is significantly associated with decreased odds of SP provision at every ANC visit and provision of SP3+. COVID-19 may have also led to greater disruptions in delivery of SP stock, as we see that the number of days of SP stockout sharply increased in the period of September

2020-January 2021 as compared to the months prior, coinciding with the pandemic spreading more widely throughout DRC. It should be noted, however, that there was a large amount of missing and imputed data for days of SP stockout in each facility as we assumed conservatively that each time there was a stockout it lasted only 1 day. Through facility assessments we also find that in some health facilities there is SP stock available in another area of the facility (such as the pharmacy or storeroom) even when SP is out of stock in the ANC area. So, perceptions of stockouts may be misplaced if there are additional supplies of SP stock elsewhere in the health facility. From the regression analyses we see that if there is a reserve of SP stock in a pharmacy or storeroom there is a higher chance that clients receive SP at every visit. Providers often discuss sending their clients to the facility pharmacy to obtain SP after their ANC visit, but say they sometimes hear back from the clients that the pharmacy does not have SP in stock. These findings suggest that routine restocking of SP, keeping a reserve supply of SP to replenish the SP stock in the ANC area and strengthening the communication about SP stock between the ANC area and pharmacy or storeroom manager through institutionalized stock check-ins prior to ANC consultation days could be useful to avoid stockouts and improve SP provision. Partner organizations such as Prosani/USAID may be able to support transport of PNLP products such as SP from the zone offices to health facilities to minimize stockouts and reduce the amount of time between replenishments of SP stock. Restocking should also take into account each facility's monthly SP usage rate (*Consommation Moyenne Mensuelle* – CMM), a parameter each pharmacy calculates for each product they stock to facilitate efficient stock management. Rather than restocking each facility with a fixed number of SP doses, each facility should be restocked per their CMM to ensure they are receiving an adequate amount of SP based on their client volume.

Providers working at facilities with stock alert systems described the important role these play in managing SP stock and supporting SP provision. At some health facilities, providers use a stock alert system to indicate when they are running low on SP stock in a particular area. This helps to facilitate communication between areas of the health facility to manage the flow of SP stock to areas where it is needed. Increasing the sense of shared ownership for stock management and fostering the use of a multi-level stock alert system from the ANC consultation area to the pharmacy, and pharmacy to the health zone office could help to ensure sufficient SP stock availability. There may be opportunities for peer-to-peer learning exchanges on how to develop effective stock alert systems, where facilities in which this works well could mentor others to adopt a similar approach.

The study finds several service delivery factors are associated with reduced provision of SP, and possibly with under-recording of SP provision. Client volume is associated with lower odds of SP provision, and this is reinforced by the association between increasing numbers of ANC service delivery hours and lower odds of SP provision. It seems likely that in larger volume health facilities, providers may be overwhelmed by the number of tasks they must complete within each ANC visit, including completion of several data entry forms. As a result, either SP provision may be compromised, or more likely accurate and complete recording of SP provision is de-prioritized. Additionally, in provider interviews we heard that although there may be scheduled days for ANC visits, if a client were to arrive on a non-scheduled day she would be assessed for the health of her pregnancy. However, it was unclear if her visit would be recorded in the ANC registry and if she would receive SP at the visit if she arrived on a non-ANC service day. Perhaps it is more possible for small health facilities with lower client volumes to accommodate unscheduled ANC visits, provide SP at those visits, as well as access the registries

to record these data. Finding strategies for larger size health facilities to be more flexible in their delivery of SP may be helpful and funding a dedicated staff member to focus on complete and accurate data recording is necessary. It is also possible that SP supply and stock management challenges are further exacerbated in larger health facilities; this would need to be explored in subsequent studies comparing SP delivery based on varying facility characteristics such as client volume. The current study did not power the sample selection to examine this comparison in detail but suggests that larger health facilities may have greater need for support to ensure consistent SP provision and accurate data recording.

Training and supervision play an important role in enhancing SP provision during ANC. Likelihood of SP provision at every ANC visit and provision of SP3+ increased if facilities had a supervisory visit in the last year. On average the sampled facilities had 3 supervisory visits in the past year and it had been 4 months since facilities had their last visit by DPS. Nearly half of providers interviewed said they had never been trained on SP provision. Although provider knowledge scores indicate a strong knowledge of the SP provision guidelines, their interviews indicated some confusion about when pregnant women are first eligible to receive SP and how many doses of SP a woman can be given during her pregnancy. Providers seemed to take cues about SP provision from the ANC registry form, where one must indicate the number of ANC1 clients who visited before 16 weeks gestational age and where only 4 spaces for SP provision are included. Changes to the ANC data collection form could be considered to better underscore SP guidelines for SP provision starting at 13 weeks and delivery of up to 8 doses (should a client make ANC visits). These changes would need to be reconciled with the SNIS to ensure that the appropriate data could be tracked nationally. Many providers also note that it is rare for a client to make 4+ ANC visits and start their ANC visits as early as 13 weeks to make delivery of SP3+ possible. As such, to truly improve the provision of SP at a community level, efforts to improve service provision should be paired with community-based behavior change communication strategies to increase early ANC visits and the frequency with which clients come to ANC. Supervisory visits could also address issues identified concerning data quality. We noted that fewer clients were recorded as receiving SP compared to the number observed, and that the lack of recording was systematically clustered to a few health facilities. Close monitoring of the data recording process and feedback as well as discussion on how to address staff burden for recording would be important results to come out of increased supervisory visits.

One of the main provider characteristics that could improve SP provision at ANC is addressing provider self-efficacy to manage the side-effects of SP, particularly for clients who arrive with an empty stomach. Although WHO and national guidelines require direct observation of SP ingestion during the ANC visit, many providers do not do this in practice. The main reason seems to be avoiding negative reactions such as nausea, vomiting and increased heart rate. Providers also discussed fearing doing harm if a client has experienced negative effects when taking SP in the past. Recognizing and having the confidence to counsel clients and manage normal side-effects of SP could reduce some provider hesitancy about offering SP and counseling clients who refuse SP. This topic could be addressed with formal training offered to providers, which could address the fact that few remember receiving any SP provision training in recent years. PNLP could provide all facilities with a factsheet about common and problematic side-effects of SP so that providers may integrate discussion of expected SP side-effects and ways to mitigate them with their clients. This additional resource may also help providers better identify when a client is experiencing non-routine side-effects. It could be further shared with ReCos and community leaders so that they could socialize the preparation

needed to mitigate anticipated side-effects of SP for clients who attend ANC. Provider anticipation of side-effects affected their adherence to guidelines about DOT of SP. We observed some providers offered SP to clients but did not observe them ingesting the medication on site. When DOT did not occur, some providers did not record SP as being delivered during the ANC visit, and this may constitute under-recording of SP delivery from the facility. However, it is not known whether clients who are asked to take SP at home follow-through and take the full dose. Therefore, strategies also should be considered for how to support clients taking SP at home if they are instead being counseled to take SP with a meal.

Findings about SP provision vs. SP ingestion on site during consultation helped to uncover how recording of SP data is not straightforward. While understanding whether SP was offered is important for evaluating if providers are adhering to SP delivery guidelines, it is not sufficient given that many providers do not follow guidelines on DOT of the medication. Thus, to sufficiently assess the extent to which ANC clients are being protected against malaria through receipt of SP, we need to be able to track SP ingestion. This may require further longitudinal studies following-up with clients who are provided SP to understand whether the medication is taken. As we saw from one provider's story, even when medication was taken, if the client vomited the SP the provider did not record SP as delivered. Though she tried to have the client take the medication at home, she received confirmation from the client's spouse that it was not taken and thus she did not indicate SP provision though the facility had in fact offered the client SP. However, from client exit interviews, we saw the best alignment between a more conservative approach for calculating how many clients said they received SP and how many clients were recorded in the ANC registries as being offered (but not necessarily observed ingesting) SP. It is worthwhile for DRC health officials to clarify what SP provision data they seek through ANC registry forms and relay this to providers through supervisory visits. This may entail referring to manuals that are provided to health facilities about how to complete the registry forms and clarifying that registry data should indicate if SP is given, even if the ingestion of SP is not observed or is rejected by the client's body. Alternatively, it may entail modifying ANC registry forms to reflect the different outcomes: SP provision, SP ingestion, and SP digestion (e.g., no vomiting out the medication during a 15-minute observation period). Supervisors offering clarity on the intended interpretation of ANC registry data/SNIS data about SP provision could ensure that providers know that these data should reflect their own actions (SP provision) irrespective of the client's actions (SP ingestion and digestion).

Many providers spoke about the burden of data recording, and this may be another area for intervention. Although we examined only ANC registry records, providers noted that they must reconcile client ANC consultation forms with ANC registry records, and some also update SP stock forms. Filling out these forms can be challenging to balance with the delivery of care. Data quality study aims identified shortfalls in recording SP provision among those who were observed receiving the product and systematic missing data when comparing registry records to SNIS data. From exit interviews, most clients estimated that their consultations lasted 10 minutes or less. During this limited period, if providers must assess client health, provide health services, and counsel clients on various aspects of a healthy pregnancy including prevention of malaria, it could be useful to consider models in which facilities have a dedicated staff member assigned to record keeping. This could ensure that the individual keeping records has adequate time to complete all the data, addressing an issue this study encountered with large amount of missing data in ANC registry records. This staff member could also be expected to reconcile the

registry records with SNIS report at the end of each month to ensure that all data sources are aligned.

While ANC providers generally consider themselves responsible for recording the data in the ANC registries, most did not consider themselves responsible for reporting these data into SNIS. Rather, that task was often seen as belonging to an IT (deputy nurse) who likely is not present during every ANC consultation. Providers also indicated that SP provision may be documented across several forms throughout a health facility, so the IT must reconcile these forms from the ANC registry and the pharmacy's SP stocking sheets. Without collaboration, discussion and clarification by all parties contributing data that is synthesized for calculation of the numbers to report into SNIS, it is possible there may be misinterpretations and it is likely that ANC registry records will not align with the data reported in SNIS. Lack of retroactive update to ensure accurate and complete ANC registry records likely explains the wide discrepancies we see between SP delivery rates per facility based on ANC registry data vs. as reported in SNIS. Institution of a data review and synthesis process bringing providers and the IT together may help in improving data quality for retroactive updates to registries and alignment with data reported in the SNIS. Supportive supervision to spot-check registry data against the SNIS and ensure a standardized system for ANC registry data recording could also facilitate improved quality of the data on SP provision.

PNLP staff recommend that the findings of this study be communicated with stakeholders using targeted channels. For providers, use of catalogues and training manuals, websites, and supervisory meetings is suggested. Reinforcement of messages about attending ANC for malaria prevention should be delivered to pregnant women, parents, community and religious leaders through a variety of channels including mass media, posters/banners, town criers, churches, schools, health centers, and ReCos. Given the structural changes to SP supply/restocking, health facility staffing and registry form layout that these findings suggest, it is also important to discuss these findings with decision-makers such as Ministries, Secretary Generals, National Directors and the division that produces SNIS to ensure that funds, resources and political will are mobilized to support the changes required.

To summarize, a bulleted list of the recommendations from this report is included below on how to improve SP provision during ANC:

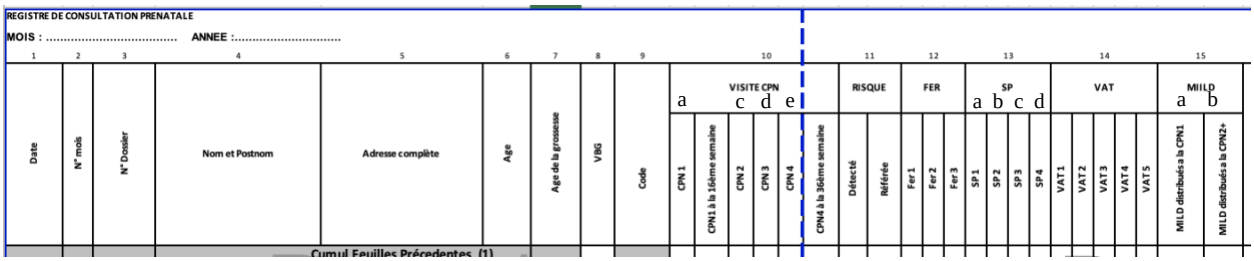
- Increase formal training and the number and frequency of supportive supervision visits by DPS and use them to address SP eligibility and DOT guidelines, accuracy and completeness of ANC registry data, discrepancies in data in ANC registries as compared to SNIS reporting and clarify the intended use of SP data in ANC registries (e.g., to track provision of SP, not necessarily SP ingestion/digestion).
    - Encourage and employ decision-maker support to finance health facilities to dedicate a staff member to the task of data record keeping during ANC visits, to enhance data accuracy and completeness and reduce the dual burden on ANC providers to record complete and accurate data while also providing health services and counseling.
- Explore models for more flexible provision of SP, particularly for implementation at health facilities with large client volumes. Consider strategies to reduce provider burden and cue SP provision as well as data recording in these facilities to ensure SP delivery and accurate, complete records.

- Encourage health facilities to keep a 'reserve' stock of SP in the pharmacy or a storeroom, to ensure a back-up supply of SP when the ANC area runs out of stock, but before the entire health facility is stocked out of SP.
- Develop strategies for improving communication and coordination between ANC providers and staff working in the health facility pharmacy, to ensure that sufficient ANC is stocked in the consultation area at the start of each ANC service day, is made available to providers on non-scheduled ANC consultation days in case of clients visiting unexpectedly, and that SP stock levels are socialized with non-pharmacy staff to facilitate a shared responsibility for SP stock management.
    - Encourage health facilities to adopt multi-level stock alert systems to help manage SP stock throughout the facility and facilitate timely requests for resupply of SP stock.
    - Explore peer to peer learning opportunities to share lessons on how to implement effective stock alert systems.
    - Institutionalize pharmacy-ANC staff check-ins prior to ANC consultation days to socialize the amount of SP stock available in each area of the health facility.
- Create an automatic monthly SP restocking system based on facility CMM to avoid long periods when facilities do not get a new supply of SP stock, and to avoid lengthy SP stockout periods. Engage local partners such as Prosani/USAID to support delivery of SP from central zonal offices to the health facilities.
- Focus provider training on emphasizing SP provision guidelines about when pregnant women are eligible to begin SP (13 weeks), the recommendation that clients may receive as many SP doses as possible given a 1-month period between doses (up to 8 doses during pregnancy), and how to recognize 'normal' vs. more concerning side-effects/reactions to SP that would contraindicate delivery for a client.
    - Reinforce formal training with the development and distribution of job aids and counseling messages for providers to use with clients. These job aids should address potential but normal side-effects of SP, such as nausea and vomiting, and strategies to mitigate side-effects.
    - Discuss strategies for supporting at-home SP ingestion if providers find DOT of SP infeasible or impractical for their clients.
        - Conduct research to understand the extent to which clients follow provider recommendations to take SP at home when it is provided.
        - Develop interventions that may alleviate or reduce the side-effects that clients experience in taking SP to facilitate greater adoption of DOT in SP provision.
        - Take into consideration how facilities must differently prepare to facilitate DOT of SP during COVID (e.g., provision of disposable cups for drinking water to swallow SP pills).
    - Consider revising the ANC registry form to underscore the SP provision guidelines/clarify misunderstandings regarding 16-week eligibility, prohibition of more than 4 SP doses, and how to record SP delivery when providers do not practice DOT.
    - Include community-based behavior change strategies to increase early and frequent ANC attendance, to allow providers the opportunity to start SP

provision early in a woman's pregnancy and provide multiple doses throughout the pregnancy.

- Consider whether the data on SP provision is sufficient for understanding how ANC services are contributing to malaria prevention in pregnancy. Explore options for how to track SP ingestion, as a more accurate measure of how many ANC clients are benefitting from this malaria prevention measure, separately from SP provision.
- Encourage health facilities to institute a data review and synthesis process to support the accurate reporting of ANC and SP data into SNIS and ensure consistency with, accuracy and completeness or ANC registry records.

Annex 1. Excerpt of standard ANC registry form in DRC


REGISTRE DE CONSULTATION PRENATALE

MOIS : ..... ANNEE :.....

1	2	3	4	5	6	7	8	9	10					11		12			13				14					15	
Date	N° mois	N° Dossier	Nom et Postnom	Adresse complète	Age	Age de la grossesse	VBG	Code	VISITE CPN a		c	d	e	RISQUE		FER			SP a	b	c	d	VAT					MIILD a	b
									CPN 1	CPN1 à la 16ème semaine	CPN 2	CPN 3	CPN 4	CPN4 à la 36ème semaine	Détecté	Référée	Fer 1	Fer 2	Fer 3	SP 1	SP 2	SP 3	SP 4	VAT1	VAT 2	VAT3	VAT4	VAT5	MILD distribuée à la CPN1	MILD distribuée à la CPN2+
			Cumul Feuilles Précédentes (1)																										

DATA EXTRACTED FOR STUDY		
COLUMN NUMBER	DATA ELEMENT	COMMENTS
1	Date of first ANC visit	These data were often missing in the ANC registries
3	Client medical ID number	Used to track a client's ANC registry data across months
6	Client age	
7	Gestational age at first ANC visit	These data were often missing in the ANC registries
10a	ANC1	While these lines are supposed to indicate dates of visits, those data were often missing. Instead, the boxes were marked with an "X" or check mark to indicate a visit had taken place.
10c	ANC2	
10d	ANC3	
10e	ANC4	
13a	SP1	These lines are supposed to indicate dates each dose was provided. However, provider interview data suggests that some providers indicate provision with an "X". If all ANC consultation data per client was captured in a single line of the ANC register and dates for each dose of SP were not provided, data collectors assumed that the SP dose aligned with the number of ANC visit (e.g., SP3 if an ANC3 visit was indicated).
13b	SP2	
13c	SP3	
13d	SP4	
15a	ITN provided at ANC1	
15b	ITN provided at ANC2+	

Annex 2. Excerpt of facility assessment instrument

Note: Full instrument and English version of instrument available upon request.

Section II. Informations générales sur les CPN

Numéro	Question		Réponse	Code	Saut
F_100	Pour chaque jour de la semaine, indiquez le nombre d'heures pendant lesquelles les services de CPN sont généralement disponibles dans cet établissement. ***Lisez chaque réponse à voix haute.*** *Tapez 99 si pas de réponse*	[a]	Lundi	[__|__]	
		[b]	Mardi	[__|__]	
		[c]	Mercredi	[__|__]	
		[d]	Jeudi	[__|__]	
		[e]	Vendredi	[__|__]	
		[f]	Samedi	[__|__]	
		[g]	Dimanche	[__|__]	
F_101	Combien de prestataires de santé dispensent des soins prénatals dans cet établissement ?		Prestataires de santé	[__|__]	
F_102	Combien de prestataires de santé ont assuré des consultations prénatales dans cet établissement la semaine dernière ?		Prestataires de santé	[__|__]	
F_103	CONSULTEZ LE REGISTRE CPN : Combien de consultations prénatales ont eu lieu la semaine dernière (d'il y a deux dimanches à dimanche dernier) ?		Consultations prénatales	[__|__|__|__]	
F_104	Cet établissement dispose-t-il d'une copie des directives nationales sur le paludisme ? Si c'est le cas, demandez à la voir et prenez une photo.		Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	
F_105	Cet établissement dispose-t-il d'un exemplaire d'un manuel de formation utilisé pour former le personnel aux directives sur le paludisme ? Si c'est le cas, demandez à le voir et prenez une photo.		Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	
F_106	Cet établissement dispose-t-il d'un outil de travail pour l'estimation de l'âge gestationnel ? Si c'est le cas, demandez à le voir et prenez une photo.		Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	

Section II. Informations générales sur les CPN

Numéro	Question		Réponse	Code	Saut
F_100	Pour chaque jour de la semaine, indiquez le nombre d'heures pendant lesquelles les services de CPN sont généralement disponibles dans cet établissement. ***Lisez chaque réponse à voix haute.*** *Tapez 99 si pas de réponse*	[a]	Lundi	[__|__]	
		[b]	Mardi	[__|__]	
		[c]	Mercredi	[__|__]	
		[d]	Jeudi	[__|__]	
		[e]	Vendredi	[__|__]	
		[f]	Samedi	[__|__]	
		[g]	Dimanche	[__|__]	
F_101	Combien de prestataires de santé dispensent des soins prénatals dans cet établissement ?		Prestataires de santé	[__|__]	
F_102	Combien de prestataires de santé ont assuré des consultations prénatales dans cet établissement la semaine dernière ?		Prestataires de santé	[__|__]	
F_103	CONSULTEZ LE REGISTRE CPN : Combien de consultations prénatales ont eu lieu la semaine dernière (d'il y a deux dimanches à dimanche dernier) ?		Consultations prénatales	[__|__|__|__]	
F_104	Cet établissement dispose-t-il d'une copie des directives nationales sur le paludisme ? Si c'est le cas, demandez à la voir et prenez une photo.		Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	
F_105	Cet établissement dispose-t-il d'un exemplaire d'un manuel de formation utilisé pour former le personnel aux directives sur le paludisme ? Si c'est le cas, demandez à le voir et prenez une photo.		Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	
F_106	Cet établissement dispose-t-il d'un outil de travail pour l'estimation de l'âge gestationnel ? Si c'est le cas, demandez à le voir et prenez une photo.		Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	

Numéro	Question	Réponse	Code	Saut
F_107	Y a-t-il des affiches ou des brochures sur le TPIp dans des endroits où les femmes enceintes pourraient les voir (par exemple, dans la salle d'attente, la salle de consultation, les toilettes) ? Si c'est le cas, demandez à les voir et prenez une photo.	Oui, j'ai pris une photo Non Ne sais pas / n'ai pas vu	1 2 8	
F_108	L'établissement de santé dispose-t-il d'eau potable aujourd'hui ? Si c'est le cas, demandez à la voir et prenez une photo.	Oui, j'ai pris une photo Non Ne sait pas	1 2 8	
F_109	L'établissement dispose-t-il de gobelets propres que les clients peuvent utiliser aujourd'hui ? Si c'est le cas, demandez à les voir et prenez une photo.	Oui, j'ai pris une photo Non Ne sait pas	1 2 8	

Section III. Stock dans la zone de soins prénatals

Ces questions doivent être posées à la personne responsable de la gestion du stock de SP pour les CPN, stocké dans la zone de consultations prénatales. Le prestataire responsable doit consulter cette personne pour répondre aux questions de cette section de l'entretien et de la visite de l'établissement.

#	Question	Réponse	Code	Saut
F_201	Y a-t-il des comprimés de SP en stock dans la zone de CPN aujourd'hui ?	Oui Non	1 2	 →206
F_202	Pouvez-vous compter physiquement le nombre de comprimés de SP en stock dans la zone de CPN ? (Posez la question au participant ; répondez en indiquant l'action du collecteur de données)	Oui, j'ai pris une photo Non, mais je vois le récipient et j'ai pris une photo Non, je n'y ai pas accès	1 2 3	 →204 →206
F_203	Combien de comprimés de SP sont disponibles aujourd'hui dans la zone de CPN ?	Comprimés *Tapez 9998 si ne sait pas*	[__|__|__|__]	
F_204	Quel nombre total de comprimés peut contenir le récipient (peut être écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas*	[__|__|__|__]	
F_205	À quel point le récipient est-il rempli ?	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	

#	Question	Réponse	Code	Saut
F_206	Lorsque vous avez besoin de plus de comprimés de SP dans la zone de CPN, où les obtenez-vous habituellement ? *Si ça dépend, sélectionnez le lieu d'où ils commandent le plus souvent.*	Pharmacie dans l'établissement Officine dans l'établissement Autre pharmacie Autre officine Autre Ne sait pas Pas de réponse	1 2 3 4 5 8 9	
F_207	Les comprimés de SP pour les CPN sont-ils généralement commandés selon un calendrier de routine ou seulement lorsque le stock du service ou de la clinique prénatale atteint un certain niveau ? **Lisez chaque réponse à voix haute.**	Calendrier de routine En fonction du niveau du stock En fonction du nombre de clientes attendues aujourd'hui Autre Ne sait pas Pas de réponse	1 2 3 4 8 9	
F_208	À quelle fréquence passez-vous habituellement des commandes de SP ? *Si « ça dépend », demandez d'estimer la fréquence la plus typique.*	Chaque jour Chaque semaine Toutes les deux semaines Chaque mois Chaque trimestre Chaque semestre Autre Ne sait pas Pas de réponse	1 2 3 4 5 6 7 8 9	
F_209	Environ combien de comprimés de SP reste-t-il dans la zone de CPN lorsque vous faites une nouvelle commande ? *Si la personne interrogée dit quelque chose comme « Assez pour les clientes du jour », demandez-lui d'estimer le nombre de comprimés que cela représente. NOTE : chaque cliente reçoit 3 comprimés, donc s'ils attendent 10 clientes, ils auront besoin de 30 comprimés.*	0 1 – 300 400 - 600 700 – 900 1000 ou plus Ne sait pas Pas de réponse	1 2 3 4 5 8 9	

#	Question	Réponse	Code	Saut
F_210	Combien de comprimés de SP recevez-vous environ avec chaque nouvelle commande ?	Comprimés *Tapez 9999 si pas de réponse* *Tapez 9998 si ne sait pas*	[__|__|__|__]	
F_211	Inscrivez dans cette section tout commentaire précisant les commandes ou les quantités des stocks de SP.	_____ _____		
F_212	L'établissement a-t-il une pharmacie ?	Oui Non	1 2	
F_213	Y a-t-il un autre endroit dans l'établissement où les médicaments sont stockés ?	Oui Non	1 2	 ➔341

Section III. Stock de la pharmacie / établissements de santé

Ces questions doivent être posées au pharmacien de l'établissement ou à la personne responsable de la gestion du stock de SP de l'établissement de santé. Le prestataire responsable doit consulter cette personne pour répondre aux questions de cette section de l'entretien et de la visite de l'établissement.

#	Question		Réponse	Code	Saut
F_301	Cet établissement reçoit-il des comprimés de sulfadoxine-pyriméthamine (SP) pour la prévention du paludisme pendant la grossesse ?		Oui Non	1 2	 ➔341
F_302	Existe-t-il une fiche de stock de SP ? Si oui, demandez à la voir.		Oui, je l'ai vue Oui, je ne l'ai pas vue Non	1 2 3	 ➔312 ➔312
F_303	D'après la fiche de stock, quand la pharmacie / l'établissement a-t-il reçu des SP pour la dernière fois ?	[a]	Jour	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	

#	Question		Réponse	Code	Saut
F_304	D'après la fiche de stock, combien de comprimés sont arrivés à ce moment-là ?		Comprimés *Tapez 9999 si données manquantes sur la fiche de stock* *Tapez 9998 si données illisibles sur la fiche de stock*	[__|__|__|__]	
F_305	La fiche de stock a-t-elle été mise à jour au cours des 7 derniers jours ?		Oui Non Ne sait pas	1 2 8	
F_306	D'après la fiche de stock, quelle est la dernière quantité de comprimés restante dans cette pharmacie/cet établissement ? Mesurer en nombre de comprimés.		Comprimés *Tapez 9999 si données manquantes sur la fiche de stock* *Tapez 9998 si données illisibles sur la fiche de stock*	[__|__|__|__]	
F_307	D'après la fiche de stock, combien de **fois** par mois la pharmacie / l'établissement a-t-il reçu du stock de SP ? *Tapez 0 si aucune* *Tapez 998 si donnée illisible* *Tapez 999 si aucune donnée pour ce mois*	[a]	Nombre de fois en juillet 2019/ 12 mois avant la collecte de données	[__|__|__]	
		[b]	Nombre de fois en août 2019/ 11 mois avant la collecte de données	[__|__|__]	
		[c]	Nombre de fois en septembre 2019/ 10 mois avant la collecte de données	[__|__|__]	
		[d]	Nombre de fois en octobre 2019/ 9 mois avant la collecte de données	[__|__|__]	
		[e]	Nombre de fois en novembre 2019/ 8 mois avant la collecte de données	[__|__|__]	
		[f]	Nombre de fois en décembre 2019/ 7 mois avant la collecte de données	[__|__|__]	
		[g]	Nombre de fois en janvier 2020/ 6 mois avant la collecte de données	[__|__|__]	
		[h]	Nombre de fois en février 2020/ 5 mois avant la collecte de données	[__|__|__]	

#	Question		Réponse	Code	Saut
		[i]	Nombre de fois en mars 2020/ 4 mois avant la collecte de données	[__|__|__]	
		[j]	Nombre de fois en avril 2020/ 3 mois avant la collecte de données	[__|__|__]	
		[k]	Nombre de fois en mai 2020/ 2 mois avant la collecte de données	[__|__|__]	
		[l]	Nombre de fois en juin 2020/ Mois avant la collecte de données	[__|__|__]	
F_308	D'après la fiche de stock, combien de **fois** par mois la pharmacie / l'établissement a-t-il été à court de stock de SP ? (Comptez le nombre de dates par mois avec une quantité 0 dans la fiche de stock) *Tapez 0 s'il y avait du stock tout le mois* *Tapez 998 si donnée illisible* *Tapez 999 si aucune donnée pour ce mois*	[a]	Nombre de fois en juillet 2019/ 12 mois avant la collecte de données	[__|__|__]	
		[b]	Nombre de fois en août 2019/ 11 mois avant la collecte de données	[__|__|__]	
		[c]	Nombre de fois en septembre 2019/ 10 mois avant la collecte de données	[__|__|__]	
		[d]	Nombre de fois en octobre 2019/ 9 mois avant la collecte de données	[__|__|__]	
		[e]	Nombre de fois en novembre 2019/ 8 mois avant la collecte de données	[__|__|__]	
		[f]	Nombre de fois en décembre 2019/ 7 mois avant la collecte de données	[__|__|__]	
		[g]	Nombre de fois en janvier 2020/ 6 mois avant la collecte de données	[__|__|__]	
		[h]	Nombre de fois en février 2020/ 5 mois avant la collecte de données	[__|__|__]	
		[i]	Nombre de fois en mars 2020/ 4 mois avant la collecte de données	[__|__|__]	
		[j]	Nombre de fois en avril 2020/ 3 mois avant la collecte de données	[__|__|__]	

#	Question		Réponse	Code	Saut
		[k]	Nombre de fois en mai 2020/ 2 mois avant la collecte de données	[__|__|__]	
		[l]	Nombre de fois en juin 2020/ Mois avant la collecte de données	[__|__|__]	
F_309	D'après la fiche de stock, pendant combien de **jours** la pharmacie / l'établissement a-t-il été à court de stock de SP ? (Comptez le nombre de jours entre la date d'une quantité 0 dans la fiche de stock et la date de réception de SP.) *Tapez 0 s'il y avait du stock tout le mois* *Tapez 998 si donnée illisible* *Tapez 999 si aucune donnée pour ce mois*	[a]	Jours en juillet 2019/ 12 mois avant la collecte de données	[__|__|__]	
		[b]	Jours en août 2019/ 11 mois avant la collecte de données	[__|__|__]	
		[c]	Jours en septembre 2019/ 10 mois avant la collecte de données	[__|__|__]	
		[d]	Jours en octobre 2019/ 9 mois avant la collecte de données	[__|__|__]	
		[e]	Jours en novembre 2019/ 8 mois avant la collecte de données	[__|__|__]	
		[f]	Jours en décembre 2019/ 7 mois avant la collecte de données	[__|__|__]	
		[g]	Jours en janvier 2020/ 6 mois avant la collecte de données	[__|__|__]	
		[h]	Jours en février 2020/ 5 mois avant la collecte de données	[__|__|__]	
		[i]	Jours en mars 2020/ 4 mois avant la collecte de données	[__|__|__]	
		[j]	Jours en avril 2020/ 3 mois avant la collecte de données	[__|__|__]	
		[k]	Jours en mai 2020/ 2 mois avant la collecte de données	[__|__|__]	
		[l]	Jours en juin 2020/ Mois avant la collecte de données	[__|__|__]	

#	Question	Réponse	Code	Saut
F_310	Y a-t-il des indications que des données sont manquantes ou incomplètes sur la fiche de stock ?	Oui Non	1 2	 ➔314
F_311	Veuillez expliquer.	_____ _____		➔314
F_312	A environ quelle fréquence la pharmacie ou l'établissement reçoit des comprimés de SP ?	Mensuellement Tous les deux mois Tous les trimestres Deux fois par an Une fois par an Ne sait pas Pas de réponse	1 2 3 4 5 8 9	
F_313	Environ combien de comprimés de SP à la fois la pharmacie / l'établissement reçoit ?	Comprimés *Tapez 9999 si pas de réponse* *Tapez 9998 si ne sait pas*	[__|__|__|__]	
F_314	Les questions suivantes concernent le stock de SP de la pharmacie / l'établissement. Y a-t-il des comprimés de SP <u>en stock</u> dans la pharmacie / l'établissement <u>aujourd'hui</u> ?	Oui, j'ai pris une photo Non Ne sait pas	1 2 9	 →341 →341
F_315	Pouvez-vous compter physiquement le nombre de comprimés de SP en stock dans la pharmacie / l'établissement ? *(Posez la question au participant ; répondez en indiquant l'action du collecteur de données)*	Oui Non, mais je vois le(s) récipient(s) et j'ai pris une photo Non, je n'y ai pas accès	1 2 3	 →317 →341
F_316	Combien de comprimés de SP sont disponibles dans la pharmacie / l'établissement ?	Comprimés *Tapez 9999 si refuse de compter*	[__|__|__|__]	→341 →317
F_317	Combien de récipients de comprimés de SP y a-t-il dans la pharmacie / l'établissement aujourd'hui ?	Récipients *Tapez 9999 si refuse de compter*	[__|__|__|__]	

#	Question	Réponse	Code	Saut
F_318	Récipient **1 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_319	Récipient 1 : À quel point le récipient est-il rempli ? (Le collecteur de données observe le récipient et enregistre la réponse)	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_320	Y a-t-il un autre récipient ?	Oui Non	1 2	 →341
F_321	Récipient **2 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_322	Récipient 2 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_323	Y a-t-il un autre récipient ?	Oui Non	1 2	 →341
F_324	Récipient **3 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_325	Récipient 3 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_326	Y a-t-il un autre récipient ?	Oui Non	1 2	 →341

#	Question	Réponse	Code	Saut
F_327	Récipient **4 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_328	Récipient 4 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_329	Y a-t-il un autre récipient ?	Oui Non	1 2	 →341
F_330	Récipient **5 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_331	Récipient 5 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_332	Y a-t-il un autre récipient ?	Oui Non	1 2	 →341
F_333	Récipient **6 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_334	Récipient 6 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 75 % À environ 25% Presque vide	1 2 3 4 5	
F_335	Y a-t-il un autre récipient ?	Oui Non	1 2	 →341

#	Question	Réponse	Code	Saut
F_336	Récipient **7 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_337	Récipient 7 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_338	Y a-t-il un autre récipient ?	Oui Non	1 2	→341
F_339	Récipient **8 :** quel nombre total de comprimés peut-il contenir (écrit sur l'extérieur du flacon) ?	Comprimés *Tapez 9998 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_340	Récipient 8 : À quel point le récipient est-il rempli ? *(Le collecteur de données observe le récipient et enregistre la réponse)*	Presque à 100 % À environ 75 % À environ 50% À environ 25% Presque vide	1 2 3 4 5	
F_341	L'établissement a-t-il une officine ?	Oui Non	1 0	→501

Section V. Stock de moustiquaires et questions finales

#	Question		Réponse	Code	Saut
F_501	Cet établissement reçoit-il des moustiquaires pour la prévention du paludisme ?		Oui Non Ne sait pas Pas de réponse	1 2 8 9	 ➔512
F_502	Existe-t-il une fiche de stock pour les moustiquaires ? Si oui, demandez à la voir.		Oui, je l'ai vue Oui, je ne l'ai pas vue Non	1 2 3	 ➔508 ➔508
F_503	D'après la fiche de stock, quand l'établissement a-t-il reçu pour la dernière fois des moustiquaires (de quelque type ou marque que ce soit) ?	[a]	Jour	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
F_504	D'après la fiche de stock, combien de moustiquaires sont arrivées à ce moment-là ?		Moustiquaires *Tapez 9999 si données manquantes sur la fiche de stock* *Tapez 9998 si données illisibles sur la fiche de stock*	[__|__|__|__]	
F_505	Selon la fiche de stock, quelle marque et quel type de moustiquaire l'établissement a-t-il reçu ? (Indiquez les marques et types de moustiquaire du dernier lot enregistré de moustiquaires reçues - par exemple Permanet 2.0) *Tapez 9999 si données manquantes sur la fiche de stock* *Tapez 9998 si données illisibles sur la fiche de stock*	[a]	_____		
		[b]	_____		
		[c]	_____		
F_506	Y a-t-il des indications que des données sont manquantes ou incomplètes sur la fiche de stock ?		Oui Non	1 2	 ➔508
F_507	Veuillez expliquer.		_____ _____		

#	Question		Réponse	Code	Saut
F_508	Les questions suivantes concernent le stock de moustiquaires de l'établissement. Y a-t-il des moustiquaires <u>en stock</u> dans l'établissement <u>aujourd'hui</u> ?		Oui, j'ai pris une photo Non Ne sait pas	1 2 9	 →512 →512
F_509	Pouvez-vous compter physiquement le nombre de moustiquaires en stock dans l'établissement ? *(Posez la question au participant ; répondez en indiquant l'action du collecteur de données)*		Oui Non, mais je les vois et j'ai pris une photo Non, je n'y ai pas accès	1 2 3	 →512
F_510	Combien de moustiquaires environ sont disponibles aujourd'hui dans l'établissement ? (Soit en faisant une estimation par comptage physique, soit en utilisant la fiche de stock pour déterminer)		Moustiquaires *Tapez 9999 si ne sait pas / ne peut pas dire*	[__|__|__|__]	
F_511	Comment avez-vous déterminé le nombre disponible aujourd'hui ?		Fiche de stock Comptage par le collecteur de données ou le personnel de l'établissement Estimation du collecteur de données Déclaration du personnel de l'établissement N'a pas pu obtenir de compte	1 2 3 4 99	
F_512	Quand la dernière visite de contrôle du district ou de la DPS a-t-elle eu lieu dans cet établissement ?	[a]	Mois	[__|__]	
		[b]	Année	[__|__|__|__]	
F_513	Combien de visites de contrôle la DPS a-t-elle effectuées chaque mois dans cet établissement ? *Tapez 0 si aucune* *Tapez 999 si ne sait pas / aucune donnée pour ce mois*	[a]	Visites en juillet 2019/ 12 mois avant la collecte de données	[__|__]	
		[b]	Visites en août 2019/ 11 mois avant la collecte de données	[__|__]	
		[c]	Visites en septembre 2019/ 10 mois avant la collecte de données	[__|__]	

#	Question		Réponse	Code	Saut
		[d]	Visites en octobre 2019/ 9 mois avant la collecte de données	[__|__]	
		[e]	Visites en novembre 2019/ 8 mois avant la collecte de données	[__|__]	
		[f]	Visites en décembre 2019/ 7 mois avant la collecte de données	[__|__]	
		[g]	Visites en janvier 2020/ 6 mois avant la collecte de données	[__|__]	
		[h]	Visites en février 2020/ 5 mois avant la collecte de données	[__|__]	
		[i]	Visites en mars 2020/ 4 mois avant la collecte de données	[__|__]	
		[j]	Visites en avril 2020/ 3 mois avant la collecte de données	[__|__]	
		[k]	Visites en mai 2020/ 2 mois avant la collecte de données	[__|__]	
		[l]	Visites en juin 2020/ Mois avant la collecte de données	[__|__]	

Annex 3. Excerpt of retrospective registry extraction instrument

Note: Full instrument and English version of instrument available upon request.

#	Question		Réponse	Code	Saut
R_200	Numéro d'identification du dossier médical de la cliente depuis le registre CPN		[__|__|__|__|__|__|__] *Tapez 999999 si aucun numéro d'identification du dossier médical n'est disponible*		→202
R_201	Retapez le numéro d'identification du dossier médical de la cliente NOTE : Si le numéro saisi ici ne correspond pas à celui du champ précédent, un message s'affichera : Les deux numéros d'identification saisis ne sont pas identiques. Veuillez revenir aux deux questions précédentes et réessayer.		[__|__|__|__|__|__|__]		→204
R_202	Nom complet de la cliente figurant dans le registre CPN (prénom, nom, postnom)		_____		
R_203	Retapez le nom complet de la cliente (prénom, nom, postnom) NB : Si le nom saisi ici ne correspond pas à celui du champ précédent, un message s'affichera : Les deux noms saisis ne sont pas identiques. Veuillez revenir aux deux questions précédentes et réessayer. Si ni le numéro d'identification du dossier médical de la cliente ni son nom complet ne sont disponibles dans le registre, écartez ce dossier.		_____		
R_204	Âge de la cliente		Ans *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
R_205	1e CONSULTATION : Date de la première CPN	[a]	Jour *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
R_206	1e CONSULTATION : Âge gestationnel (en semaines)		Âge gestationnel (en semaines) *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	

R_207	1e CONSULTATION : L'âge gestationnel lors de la première consultation était inférieur à 13 semaines		Oui Non Aucune donnée pour cette CPN	1 2 9	
R_208	1e CONSULTATION : Prise de SP		1e dose 2e dose 3e dose 4e dose 5e dose 6e dose 7e dose 8e dose Aucune donnée pour cette CPN	1 2 3 4 5 6 7 8 9	
R_209	1e CONSULTATION : Réception d'une MIILD (moustiquaire imprégnée d'insecticide longue durée)		Oui Non Aucune donnée pour cette CPN	1 2 9	
R_210	Le registre comporte-t-il des commentaires sur la prévention du paludisme ou sur le statut d'infection paludique pour cette consultation ?		Oui Non Illisible	1 2 8	 →212 →212
R_211	1e CONSULTATION : Saisissez les commentaires relatifs au paludisme pour la première CPN.		_____ _____		
R_212	Cette femme a-t-elle une autre CPN enregistrée dans le registre (une deuxième consultation) ? Note : L'autre/deuxième consultation doit comporter le numéro d'identification du dossier médical de la cliente ou son nom complet.		Oui Non	1 2	 →261
R_213	2e CONSULTATION : Date de la deuxième CPN	[a]	Jour *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
R_214	2e CONSULTATION : Âge gestationnel (en semaines)		Âge gestationnel (en semaines) *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
R_215	2e CONSULTATION : Prise de SP		1e dose 2e dose 3e dose 4e dose 5e dose	1 2 3 4 5	

			6e dose	6	
			7e dose	7	
			8e dose	8	
			Aucune donnée pour cette CPN	9	
R_216	2e CONSULTATION : Réception d'une MIILD (moustiquaire imprégnée d'insecticide longue durée)		Oui	1	
			Non	2	
			Aucune donnée pour cette CPN	9	
R_217	Le registre comporte-t-il des commentaires sur la prévention du paludisme ou sur le statut d'infection paludique pour cette consultation ?		Oui	1	
			Non	2	→219
			Illisible	8	→219
R_118	2e CONSULTATION : Saisissez les commentaires relatifs au paludisme pour la deuxième CPN.		_____ _____		
R_219	Cette femme a-t-elle une autre CPN enregistrée dans le registre (une troisième consultation) ? Note : L'autre/troisième consultation doit comporter le numéro d'identification du dossier médical de la cliente ou son nom complet.		Oui	1	
			Non	2	→261
R_220	3e CONSULTATION : Date de la troisième CPN	[a]	Jour *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
R_221	3e CONSULTATION : Âge gestationnel (en semaines)		Âge gestationnel (en semaines) *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
R_222	3e CONSULTATION : Prise de SP		1e dose	1	
			2e dose	2	
			3e dose	3	
			4e dose	4	
			5e dose	5	
			6e dose	6	
			7e dose	7	
			8e dose	8	
			Aucune donnée pour cette CPN	9	
R_223	3e CONSULTATION : Réception d'une MIILD (moustiquaire imprégnée d'insecticide longue durée)		Oui	1	
			Non	2	
			Aucune donnée pour cette CPN	9	
R_224	Le registre comporte-t-il des commentaires sur la prévention du		Oui	1	

	paludisme ou sur le statut d'infection paludique pour cette consultation ?		Non Illisible	2 8	→226 →226
R_225	3e CONSULTATION : Saisissez les commentaires relatifs au paludisme pour la troisième CPN.		_____ _____		
R_226	Cette femme a-t-elle une autre CPN enregistrée dans le registre (une quatrième consultation) ? Note : L'autre/quatrième consultation doit comporter le numéro d'identification du dossier médical de la cliente ou son nom complet.		Oui Non	1 2	 →261
R_227	4e CONSULTATION : Date de la quatrième CPN	[a]	Jour *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
R_228	4e CONSULTATION : Âge gestationnel (en semaines)		Âge gestationnel (en semaines) *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
R_229	4e CONSULTATION : Prise de SP		1e dose 2e dose 3e dose 4e dose 5e dose 6e dose 7e dose 8e dose Aucune donnée pour cette CPN	1 2 3 4 5 6 7 8 9	
R_230	4e CONSULTATION : Réception d'une MIILD (moustiquaire imprégnée d'insecticide longue durée)		Oui Non Aucune donnée pour cette CPN	1 2 9	
R_231	Le registre comporte-t-il des commentaires sur la prévention du paludisme ou sur le statut d'infection paludique pour cette consultation ?		Oui Non Illisible	1 2 8	 →233 →233
R_232	4e CONSULTATION : Saisissez les commentaires relatifs au paludisme pour la quatrième CPN.		_____ _____		
R_233	Cette femme a-t-elle une autre CPN enregistrée dans le registre (une cinquième consultation) ? Note : L'autre/cinquième consultation doit comporter le numéro		Oui Non	1 2	 →261

	paludisme ou sur le statut d'infection paludique pour cette consultation ?		Illisible	8	→261
R_260	8e CONSULTATION : Saisissez les commentaires relatifs au paludisme pour la huitième CPN.		_____ _____		
R_261	Le registre indique-t-il que la femme a subi un test de dépistage du paludisme lors d'une CPN ?		Oui Non	1 2	 →266
R_262	Date du test de dépistage du paludisme	[a]	Jour *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
R_263	Quel type de test de dépistage du paludisme a été réalisé ?		Test de diagnostic rapide (TDR) Examen microscopique-HTZ Non enregistré	1 2 9	
R_264	Quel a été le résultat du test de dépistage du paludisme ?		Positif Négatif Peu clair/illisible Non enregistré	1 2 8 9	
R_265	La cliente s'est-elle vu prescrire ou a-t-elle reçu un traitement antipaludique ?		Oui Non Non enregistré	1 2 9	
R_266	Si ce champ dans le registre présente quelque chose d'inhabituel, veuillez le commenter (par exemple, les données étaient illisibles ou le registre ne comportait pas de colonnes pour certains de ces indicateurs, si pertinent, comment les consultations au-delà de CPN4 ont été enregistrées dans le registre, etc.)		_____ _____ _____ _____		

Annex 4. Excerpt of ANC-IPTp provider interview instrument

Note: Full instrument and English version of instrument available upon request.

Section II. Renseignements sur le prestataire

#	Question	Réponse	Code	Saut
P_200	Code du participant	[__|__|__]		
P_201	Sexe du participant	Homme Femme	1 2	
P_202	Quel âge avez-vous ?	Ans	[__|__]	
P_203	Quel est le titre de votre poste ? *(NE PAS lire les réponses à voix haute)*	Docteur Pharmacien/ne Infirmier/e (Infirmier/e titulaire ou autre) Infirmier/e auxiliaire Technicien médical Agent de santé/Relais communautaire Sage-femme Autre	1 2 3 4 5 6 7 8	→205
P_204	Précisez le titre du poste « Autre »	_____		
P_205	Depuis combien d'années environ travaillez-vous dans les services de soins prénatals en général ?	Moins d'un an 1- 4 ans 5- 9 ans 10 ans ou plus Pas de réponse	1 2 3 4 9	
P_206	Depuis combien d'années environ travaillez-vous dans les services de soins prénatals de cet établissement ?	Moins d'un an 1- 4 ans 5- 9 ans	1 2 3	

		10 ans ou plus Pas de réponse	4 9	
P_207	Environ combien de consultations prénatales effectuez-vous <u>en une journée</u> en *semaine* (du lundi au vendredi) ? *(S'il/elle répond « ça dépend », demandez-lui de donner une moyenne)*	1-5 consultations 6-10 consultations 11-15 consultations 16-20 consultations 21 consultations ou plus Pas de réponse	1 2 3 4 5 9	
P_207	Environ combien de consultations prénatales effectuez-vous <u>en une journée</u> le *week-end* (samedi-dimanche) ? *(S'il/elle répond « ça dépend », demandez-lui de donner une moyenne)*	1-5 consultations 6-10 consultations 11-15 consultations 16-20 consultations 21 consultations ou plus Pas de réponse	1 2 3 4 5 9	
P_208	Combien de fois devez-vous refuser des femmes parce qu'il n'y a pas assez de temps pour toutes les recevoir en CPN dans la journée ? Diriez-vous... *(Lisez les réponses à voix haute)*	Jamais Parfois Souvent Toujours NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 5 9	

Section III. Expérience des prestataires en matière de prévention du paludisme pendant la grossesse

#	Question	Réponse	Notes sur la compréhension des questions
P_300	Quels sont vos rôles et responsabilités par rapport au paludisme pendant la grossesse ? *Approfondir :* • *Que faites-vous pour prévenir le paludisme lors des consultations prénatales habituelles ?* • *Y a-t-il d'autres moments où vous parlez du paludisme à vos clientes ?*		

	• *Quel rôle jouez-vous dans la tenue des registres relatifs au paludisme pendant la grossesse ?* • *Quel est votre rôle dans la gestion des stocks pour le traitement ou la prévention du paludisme ?*		
P_301	Que dites-vous aux clientes des CPN au sujet du paludisme pendant la grossesse ? *Approfondir :* • *Quand parlez-vous du paludisme à vos clientes ? À quelle fréquence parlez-vous du paludisme à vos clientes ?* • *S'il est fait mention de discussions sur la santé / dialogues communautaires en dehors des consultations, à quelle fréquence menez-vous ces discussions sur la santé ? À quelle fréquence abordez-vous les sujets relatifs au paludisme lors de ces discussions ?*		
P_302	Que faites-vous lors des CPN pour aider les clientes à éviter le paludisme pendant la grossesse ? *(Laissez le/la prestataire énumérer. Peut inclure la fourniture de MII, le dépistage du paludisme, la fourniture de TPIp/SP, les conseils sur le paludisme pendant la grossesse)* *Demandez : Autre chose ?*		

Section IV. Expérience des prestataires avec le TPIp / SP

#	Question	Réponse	Notes sur la compréhension des questions
P_400	J'aimerais maintenant en savoir plus sur le traitement préventif intermittent pendant la grossesse		

	ou TPIp, également connu sous le nom de sulfadoxine/pyriméthamine ou SP. Que pensez-vous de l'idée de donner aux femmes enceintes de la SP pour les empêcher de contracter le paludisme ? *Approfondir :* • *Quel est l'intérêt ?* • *Est-ce que ça fonctionne ?* • *Est-ce sans danger pour les femmes enceintes ? (En général, à différents âges, à différents niveaux de parités, à différents moments de la journée/à jeun ou après un repas, pris avec d'autres médicaments, en fonction des réactions ou effets secondaires antérieurs de la cliente)*		
P_401	Pouvez-vous me dire ce qu'indiquent vos directives actuelles en ce qui concerne la fourniture de SP dans le cadre des services de soins prénatals ? *Approfondir :* • *À qui faut-il l'administrer ?* • *Combien en donnez-vous ?* • *La SP a-t-elle un coût pour la cliente ?* • *Où la dose doit-elle être prise (observée pendant la consultation ou non) ?*		
P_402	Êtes-vous en mesure de fournir la SP conformément aux directives ? Pourquoi / pourquoi pas ? *Approfondissez beaucoup !* • *Qu'est-ce qui facilite la fourniture de SP ?* • *Quels sont les défis que vous devez relever pour fournir la SP ?*		

	• *Comment évaluer si une cliente peut bénéficier de la SP ? Qu'est-ce qui rend l'évaluation de l'éligibilité à la SP facile ou difficile ?* • *Qu'est-ce qui peut encore vous empêcher de fournir de la SP aux clientes enceintes dans cet établissement ?*		

#	Question	Réponse	Code	Saut
P_403	Je vais maintenant vous poser quelques questions très précises sur la SP. Selon vous, les directives relatives à la fourniture de SP sont-elles claires ? Diriez-vous qu'elles sont... ? *(Lisez les réponses à voix haute)*	Très claires Claires Pas très claires Très peu claires NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
P_404	À quel moment peut-on commencer à administrer la SP pendant la grossesse ? *(NE PAS lire les réponses à voix haute)*	À 13 semaines d'âge gestationnel Au 2e trimestre Après les premiers / un rapprochement des mouvements du fœtus Autre Ne sait pas Pas de réponse	1 2 3 4 8 9	→ 306 → 306 → 306
P_405	Si mention « Autre » indiquée dans la rubrique P_404, précisez les critères utilisés par le/la prestataire pour déterminer la date à laquelle la SP peut être administrée pendant la grossesse	_____		
P_406	Combien de doses totales de SP une femme enceinte doit-elle recevoir pendant sa grossesse ?	Doses *Tapez 98 si ne sait pas* *Tapez 99 si pas de réponse*	[__|__]	
P_407	À quel intervalle les doses de SP peuvent-elles être prises par une cliente enceinte ? *(NE PAS lire les réponses à voix haute)*	Toutes les 4 semaines 1 fois par mois Autre Ne sait pas Pas de réponse	1 2 3 8 9	→ 309 → 309
P_408	Si mention « Autre » indiquée dans la rubrique P_407, précisez à quel	_____		

	intervalle le/la prestataire dit que la SP peut être prise par une cliente enceinte.			
P_409	Lors des consultations avec les femmes enceintes, à quelle fréquence vous sentez-vous incertain/e de proposer ou non de la SP ? Diriez-vous... *(Lisez les réponses à voix haute)*	Jamais Parfois Souvent Presque toujours NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	

Section V. Expérience des prestataires en matière de stocks de SP

#	Question	Réponse	Code	Saut
P_500	J'aimerais maintenant parler du stock de SP. En RDC, certains établissements manquent parfois de SP, le médicament utilisé pour le TPIp. Selon vous, à quelle fréquence votre établissement est-il en rupture de stock ? Diriez-vous... *(Lisez les réponses à voix haute)*	Très souvent Assez souvent Pas si souvent Jamais NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	

#	Question	Réponse	Notes sur la compréhension des questions
P_501	Discutons plus en détail de cette question. Quel rôle les ruptures de stock jouent-elles dans votre capacité à fournir de la SP dans cet établissement ? *Approfondir :* • *Comment savez-vous que vous êtes à court de SP (dans votre salle de consultation et dans la réserve ou dans d'autres endroits où la SP est stockée) ?* • *Que faites-vous, le cas échéant, lorsque vous pensez que vous êtes à court de SP (dans votre salle de consultation et dans la réserve ou dans d'autres endroits où la SP est stockée) ?*		

	• *Lorsque vous êtes à court, comment cela affecte-t-il la façon dont vous administrez la SP aux femmes qui assistent aux CPN ?* • *Que faites-vous lorsque la SP n'est pas disponible dans votre salle de consultation ?* • *Que faites-vous lorsque la SP n'est pas disponible dans votre établissement (ni dans votre salle de consultation, ni dans la réserve ou tout autre endroit où la SP est stockée dans l'établissement) ? Que dites-vous à la cliente dans ce cas ?*		
P_502	À votre avis, pourquoi y a-t-il des ruptures de stock de SP dans cet établissement ? *Approfondir : D'autres raisons ?*		
P_503	Comment pensez-vous que ces ruptures de stock peuvent être évitées dans votre établissement ? *Approfondir : D'autres idées ?*		

Section VI. Expérience des prestataires en matière de tenue des registres

#	Question	Réponse	Notes sur la compréhension des questions
P_600	J'aimerais maintenant parler de la tenue des registres. Comment la fourniture de SP est-elle consignée dans cet établissement ? *Approfondir :* • *Où les informations sont-elles enregistrées ?* • *Sont-elles enregistrées ailleurs ?* • *Qui les enregistre ?* • *Quand l'enregistrement est-il effectué - pendant la consultation, après, combien de temps après ?*		

P_601	Quelles difficultés, le cas échéant, rencontrez-vous pour enregistrer la fourniture de SP à une cliente ? *Approfondir :* • *Comment conserver / trouver le dossier d'une cliente* • *Contraintes d'espace sur le formulaire* • *Savoir ce qu'il faut écrire sur le formulaire* • *Comment enregistrer les cas où une cliente reçoit plus de 4 doses de SP au cours de ses CPN ?* • *Comment indiquer qu'une cliente n'est pas éligible pour la SP ? Quand vous n'avez pas fourni de SP en raison d'antécédents de réactions négatives/effets secondaires ? Quand la SP est prescrite mais que la cliente la refuse ? Quand la SP n'est pas disponible / en stock ? Quand l'eau / les gobelets ne sont pas disponibles pour faciliter le traitement sous surveillance directe (DOT) ? Quand la SP est prescrite mais sans DOT ?*		
P_602	Comment pourriez-vous améliorer la tenue des registres de SP dans votre établissement ? *Demandez : Autre chose ?*		
P_603	Pouvez-vous décrire la préparation de rapports sur les indicateurs de la SP au bureau de santé du district, à inclure dans le système de suivi de routine DHIS2 ? *Approfondir :* • *À qui incombe la tâche de remplir les formulaires de synthèse pour les CPN ?*		

	• *Étape par étape, comment les données sont-elles calculées et comment le formulaire de synthèse est-il rempli (en particulier la partie concernant la fourniture de SP) ?* • *Comment enregistrez-vous lorsqu'une cliente assiste à plus de 4 CPN ? Quand elles reçoivent plus de 4 doses de SP ? Quand elles assistent à une CPN ailleurs ou reçoivent de la SP ailleurs ?*		
P_604	Comment pourriez-vous améliorer la préparation des rapports sur les indicateurs de la SP au bureau de santé du district ? *Demandez : Autre chose ?*		

Section VII. Formation des prestataires, supports de travail

#	Question	Réponse	Code	Saut
P_701	Quand avez-vous été formé/e pour la dernière fois à la fourniture de TPIp ?	Au cours des deux dernières années Il y a 3– 5 ans Il y a plus de 5 ans Je n'ai jamais été formé/e Ne se souvient pas Pas de réponse	1 2 3 4 8 9	 →704 →704
P_702	Quel genre de formation était-ce ? *(Lisez les réponses à voix haute)*	À l'école / à l'université En milieu de travail Formelle, hors site Ne se souvient pas Pas de réponse	1 2 3 4 9	
P_703	Quelle a été l'utilité de la formation pour votre travail ? Diriez-vous que c'était... ? *(Lisez les réponses à voix haute)*	Très utile Utile Assez utile Pas très utile	1 2 3 4	
P_704	Pensez-vous avoir besoin d'une formation supplémentaire sur la fourniture de TPIp ?	Oui Non Ne sait pas Pas de réponse	1 2 8 9	

P_705	Quand avez-vous été formé/e pour la dernière fois à l'estimation de l'âge gestationnel ? *(Si nécessaire, mentionnez la dernière participation à la « Formation centrée sur les soins prénatals »)*	Au cours des deux dernières années Il y a 3– 5 ans Il y a plus de 5 ans Je n'ai jamais été formé/e Ne se souvient pas Pas de réponse	1 2 3 4 8 9	 →707 →707
P_706	Quel genre de formation était-ce ? *(Lisez les réponses à voix haute)*	À l'école / à l'université En milieu de travail Formelle, hors site Ne se souvient pas Pas de réponse	1 2 3 4 9	
P_707	Avez-vous déjà vu un support de travail pour vous aider à <u>estimer l'âge gestationnel</u> ?	Oui Non Ne sait pas Pas de réponse	1 2 8 9	 →800 →800
P_708	À quelle fréquence utilisez-vous ce support de travail ?	Toujours Parfois Rarement Jamais Pas de réponse	1 2 3 4 9	

Section VIII. Attitude des prestataires à l'égard des clientes des CPN, du paludisme et du TPIp

#	Question	Réponse	Code	Saut
P_800	J'aimerais maintenant vous demander votre avis sur quelques énoncés. Je vais lire un énoncé et vous pourrez me dire si vous êtes tout à fait d'accord, plutôt d'accord, plutôt en pas d'accord ou pas du tout d'accord. Il est de ma responsabilité de veiller à ce que les femmes qui se rendent dans cet établissement pour y recevoir des soins prénatals ne contractent pas le paludisme pendant leur grossesse. Diriez-vous que vous êtes... ? *(Lisez les réponses à voix haute)*	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
P_801	Les femmes enceintes qui bénéficient des services de soins prénatals dans cet établissement savent comment éviter le paludisme pendant leur grossesse.	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord	1 2 3 4	

		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_802	Les femmes enceintes qui sollicitent des services de soins prénatals dans cet établissement font tout pour éviter de contracter le paludisme pendant leur grossesse.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_803	Les femmes enceintes qui sollicitent des services de soins prénatals dans cet établissement comptent sur moi pour leur dire tout ce qu'elles doivent savoir pour éviter le paludisme pendant leur grossesse.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_804	Les femmes enceintes qui sollicitent des services de soins prénatals dans cet établissement apprécient mes services pour les aider à éviter de contracter le paludisme pendant leur grossesse.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_805	J'ai confiance en ma capacité à fournir le traitement préventif / SP aux femmes qui sollicitent des soins prénatals dans cet établissement.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_806	La prise de SP pour prévenir le paludisme est sans danger pour la femme enceinte et son fœtus.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_807	Lorsqu'une femme enceinte me demande quels sont les effets secondaires de la SP, cela affecte ma décision de lui administrer ou non la SP.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_808	Quand une femme enceinte dit qu'elle a eu des réactions négatives à la SP dans le passé, cela affecte ma décision de lui administrer ou non la SP.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	

		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_809	La SP fonctionne bien pour garder la mère et le bébé en bonne santé.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_810	Les autres prestataires de soins prénatals de cet établissement administrent de la SP aux femmes enceintes conformément aux directives nationales.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_811	Les autres prestataires de soins prénatals de cet établissement désapprouveraient que je n'administre pas la SP aux femmes enceintes conformément aux directives nationales.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_812	Mon/ma superviseur/se désapprouverait que je n'administre pas la SP aux femmes enceintes conformément aux directives nationales.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_813	Il est important pour les objectifs de notre établissement de santé que j'administre la SP aux femmes enceintes selon les directives nationales.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_814	Il est important pour mon/ma superviseur/se que je consigne avec précision la fourniture de SP dans le registre des CPN.	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	
		NE LISEZ PAS : Ne sait pas	8	
		NE LISEZ PAS : Pas de réponse	9	
P_815	Il est important pour les objectifs de notre établissement de santé que nous intégrions avec précision les données sur la fourniture de SP aux	Tout à fait d'accord	1	
		Plutôt d'accord	2	
		Plutôt pas d'accord	3	
		Pas du tout d'accord	4	

	femmes enceintes dans le système DHIS2.	NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	8 9	
P_816	Les femmes enceintes de cette communauté courent le risque de contracter le paludisme pendant leur grossesse.	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
P_817	Lorsqu'une femme enceinte contracte le paludisme, les effets sur elle et son enfant à naître sont très graves.	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	

Section IX. Conclusion

#	Question	Réponse	Notes sur la compréhension des questions
P_900	Nous avons presque terminé l'entretien. Je vous remercie pour tout ce que vous avez partagé avec moi. Quelles sont vos recommandations pour augmenter le nombre de femmes enceintes dans votre établissement qui reçoivent au moins 4 doses de SP dans le cadre des soins prénatals ? *Approfondir :* • *Que changeriez-vous dans le mode de fonctionnement de cet établissement ?* • *Qu'est-ce qui vous permettrait de vous assurer plus facilement que toutes vos clientes des CPN reçoivent 4 doses de SP ?*		

#	Question	Réponse	Code	Saut
P_901	Je vais vous montrer 7 cartes. Chacune décrit une **solution potentielle pour améliorer la**			

Annex 5. Excerpt of ANC consultation observation instrument

Note: Full instrument and English version of instrument available upon request.

O_107	Type de prestataire(s) de santé présent/es pendant l'observation				
	[a]	Docteur	Absent/e Présent/e	0 1	
	[b]	Pharmacien/ne	Absent/e Présent/e	0 1	
	[c]	Infirmier/e (Titulaire ou autre)	Absent/e Présent/e	0 1	
	[d]	Infirmier/e auxiliaire	Absent/e Présent/e	0 1	
	[e]	Technicien médical	Absent/e Présent/e	0 1	

#	Question		Réponse	Code	Saut
	[f]	Agent de santé / Relais communautaire	Absent/e Présent/e	0 1	
	[g]	Sage-femme	Absent/e Présent/e	0 1	
	[h]	Autre	Absent/e Présent/e	0 1	→109
O_108	Si mention « Autre » indiquée dans la rubriqueO_107[h], précisez le titre du poste.		_____		
O_109	Heure de début de la consultation (format 24 heures) *(Note : moment où la cliente entre dans la salle de consultation)*		HH : MM	[__|__ : __|__]	

Section II. Observation

#	Question	Réponse	Code	Saut
Matériel éducatif				
O_200	La salle de consultation est équipée d'une affiche ou d'une brochure sur le paludisme pendant la grossesse	Oui Non	1 2	
Évaluation de l'âge gestationnel par le prestataire de santé				
O_201	Utilise le support de travail permettant d'estimer l'âge gestationnel	Oui Non	1 2	
O_202	Mesure la hauteur du fond utérin	Oui Non	1 2	
O_203	Demande à la cliente depuis combien de temps elle est enceinte	Oui Non	1 2	
O_204	Demande à la cliente de préciser le temps écoulé depuis ses dernières règles	Oui Non	1 2	
O_205	Consulte le registre des consultations ou tableau des clientes	Oui Non	1 2	

#	Question	Réponse	Code	Saut
Messages de conseil				
O_206	Explique que le paludisme pendant la grossesse nuit à la mère et au bébé	Oui Non	1 2	
O_207	Dit à la cliente que la SP sert à la prévention du paludisme	Oui Non	1 2	
O_208	Explique le nombre de doses de SP que la cliente doit recevoir au cours de sa grossesse	Oui Non	1 2	
O_209	Mentionne que la SP doit être prise lors de la consultation (traitement sous surveillance directe)	Oui Non	1 2	
O_210	Explique le coût de la SP à la cliente (par exemple, gratuit)	Oui Non	1 2	
Prise de SP				
O_211	Donne une dose de SP à la cliente (3 comprimés) *(Si moins de 3 comprimés sont donnés, sélectionnez « Non »)*	Oui Non	1 2	
O_212	La cliente ingère une dose de SP (3 comprimés) en salle de consultation *(Si moins de 3 comprimés sont ingérés en salle de consultation, sélectionnez « Non »)*	Oui Non	1 2	
O_213	Offre de l'eau à la cliente	Oui Non	1 2	
O_214	Indique à la cliente où elle peut se rendre pour obtenir de la SP dans le même établissement de santé	Oui Non	1 2	
O_215	Indique à la cliente où elle peut se rendre pour obtenir de la SP hors de cet établissement de santé	Oui Non	1 2	
Tenue de dossiers pendant la consultation				
O_216	Le/la prestataire de santé enregistre les données dans le registre des CPN pendant la consultation	Oui Non	1 2	
O_217	Le/la prestataire de santé enregistre les données sur la carte de CPN / le carnet de visite pendant la consultation	Oui Non	1 2	
Moustiquaire imprégnée d'insecticide (MIILD)				
O_218	Le/la prestataire de santé demande à la cliente si elle dort sous MIILD	Oui Non	1 2	

#	Question	Réponse	Code	Saut
O_219	Le/la prestataire de santé décrit l'importance de l'utilisation de la MIILD	Oui Non	1 2	
O_220	MIILD offerte à la cliente	Oui Non	1 2	
O_221	La cliente accepte la MIILD	Oui Non	1 2	
O_222	Le/la prestataire de santé explique à la cliente comment utiliser la MIILD	Oui Non	1 2	
Prochaine consultation				
O_223	Le/la prestataire de santé rappelle à la cliente la date de la prochaine CPN lors de la consultation	Oui Non	1 2	
O_224	Le/la prestataire de santé donne à la cliente un rappel de la date de la prochaine visite sur la carte de CPN / le carnet de visite lors de la consultation	Oui Non	1 2	
O_225	Le/la prestataire de santé écrit la date de la prochaine visite de la cliente sur la carte de CPN / le carnet de visite lors de la consultation	Oui Non	1 2	
O_226	Heure de fin de la consultation (format 24 heures) *(Note : moment où la cliente quitte la salle de consultation)*	HH : MM	[__|__ : __|__]	

Section III. Notes complémentaires

#	Question	Réponse	Code	Saut
O_300	Quelle langue a été principalement parlée lors de la consultation ?	Français Swahili Lingala Kikongo Tshiluba Autre Ne sait pas	1 2 3 4 5 6 8	→302 →302
O_301	Si mention « Autre » indiquée dans la rubrique O_300, précisez la langue.	_____		

Annex 6. Excerpt of ANC client exit interview instrument

Note: Full instrument and English version of instrument available upon request.

S_105	Quel âge avez-vous ?	Ans	[__|__] *Si ne sait pas, tapez 88* *Si pas de réponse, tapez 99*	→107 →106 →106

#	Question		Réponse	Code	Saut
S_106	Quelle est votre date de naissance ?	[a]	Jour	[__|__] *Si pas de réponse, tapez 99*	
		[b]	Mois	[__|__] *Si pas de réponse, tapez 99*	
		[c]	Année	[__|__|__|__] *Si pas de réponse, tapez 9999*	
S_107	Avez-vous une copie de votre formulaire de CPN avec vous aujourd'hui ? Si oui, demandez à voir le formulaire.		Oui, formulaire vu Oui, mais formulaire pas vu Non, formulaire non remis à la cliente Ne sait pas Pas de réponse	1 2 4 8 9	→110
S_108	Numéro d'identification du dossier médical de la cliente tel que sur le formulaire de CPN		[__|__|__|__|__|__] *Tapez 999999 si aucun numéro d'identification du dossier médical n'est disponible*		

S_111	Pour retrouver votre dossier dans le registre CPN de l'établissement de santé, quel est votre nom complet ? (Prénom, nom, postnom)	_____ *Tapez NA si aucun nom n'est donné*	

S_112	Depuis combien de temps êtes-vous enceinte ? (Saisissez le nombre en [a] et l'unité de mesure en [b])	[a]	Nombre	[__|__]	
		[b]	Semaines Mois	1 2	
S_113	C'est votre première grossesse ?		Oui Non	1 2	**→115**
S_114	Combien de grossesses avez-vous eues avant celle-ci ?		Nombre de grossesses	[__|__] *Si pas de réponse, tapez 99*	
S_115	Avez-vous pu consulter un prestataire aujourd'hui ?		Oui Non	1 2	**→118**

#	Question	Réponse	Code	Saut
S_116	Pourquoi n'avez-vous pas pu consulter un prestataire aujourd'hui ? *(NE PAS lire chaque option à voix haute ; enregistrer les réponses fournies par la cliente)*			
	[a] Le/la prestataire n'était pas là	Mentionné Non mentionné	1 2	
	[b] Le/la prestataire était trop occupé/e	Mentionné Non mentionné	1 2	
	[c] On m'a dit que c'était trop tôt dans ma grossesse	Mentionné Non mentionné	1 2	
	[d] Je ne pouvais pas payer	Mentionné Non mentionné	1 2	
	[e] Autre	Mentionné Non mentionné	1 2	 **→117**
S_116a	Si « autre », précisez	_____		

S_117	S'agit-il aujourd'hui de votre première CPN pour cette grossesse ?	Oui Non	1 2	**→140**
S_118	À combien de CPN avez-vous assisté pour cette grossesse dans cet établissement de santé ?	Nombre de consultations	[__|__] *Si pas de réponse, tapez 99*	**→140**
S_119	Est-ce votre première CPN pour cette grossesse ?	Oui Non	1 2	**→122**
S_120	En incluant cette consultation, à combien CPN avez-vous assisté pour cette grossesse dans cet établissement de santé ?	Nombre de consultations	[__|__] *Si pas de réponse, tapez 99*	
S_121	À combien de CPN avez-vous assisté pour cette grossesse dans un autre établissement de santé ?	Nombre de consultations	[__|__] *Si aucune, tapez 0* *Si pas de réponse, tapez 99*	

#	Question	Réponse	Code	Saut
S_122	Le/la prestataire vous a-t-il/elle parlé aujourd'hui de la prévention du paludisme ?	Oui Non Ne sait pas / Ne se souvient pas Pas de réponse	1 2 8 9	 →124
S_123	Que vous a dit le/la prestataire pour prévenir le paludisme ? *(NE PAS lire chaque option à voix haute ; enregistrer les réponses fournies par la cliente)*			
	[a] Le/la prestataire ne m'a pas dit de faire quoi que ce soit pour prévenir le paludisme	Mentionné Non mentionné	1 2	
	[b] Ne se souvient pas	Mentionné Non mentionné	1 2	
	[c] De prendre le TPIp/des comprimés de SP	Mentionné Non mentionné	1 2	
	[d] D'utiliser une moustiquaire imprégnée d'insecticide (MII/MIILD)	Mentionné Non mentionné	1 2	
	[e] D'utiliser une moustiquaire – « traitée à l'insecticide » non mentionné	Mentionné Non mentionné	1 2	
	[f] D'éviter les moustiques	Mentionné Non mentionné	1 2	
	[g] Autre	Mentionné Non mentionné	1 2	→123a
	[h] Pas de réponse	Aucune réponse donnée	9	
S_123a	Si mention « Autre » indiquée dans la rubrique S_123, précisez	_____		
S_124	Lors de votre consultation, vous a-t-on proposé des	Oui Non Ne sait pas / Ne se souvient pas	1 2 8	 →126 →126

#	Question	Réponse	Code	Saut
	médicaments ou des comprimés ?	Pas de réponse	9	→126
S_125	À quoi servent les comprimés ? *(NE PAS lire chaque option à voix haute ; enregistrer les réponses fournies par la cliente)*			
	[a] Prévention du paludisme	Mentionné Non mentionné	1 2	
	[b] Anémie/ Fer	Mentionné Non mentionné	1 2	
	[c] Vitamines	Mentionné Non mentionné	1 2	
	[d] Autre	Mentionné Non mentionné	1 2	→125a
	[e] Ne sait pas / Ne se souvient pas	Mentionné Non mentionné	1 2	
	[f] Pas de réponse	Aucune réponse donnée	9	
S_125a	Si mention « Autre » indiquée dans la rubrique S_125, précisez	_____		
S_126	Vous a-t-on donné des comprimés pour vous protéger contre le paludisme ? Ces comprimés sont parfois appelées SP ou FANSIDAR.	Oui Non Ne sait pas / Ne se souvient pas Pas de réponse	1 2 8 9	 →129 →129 →129
S_127	Comment avez-vous su que les comprimés étaient pour le paludisme ? *(NE PAS lire chaque option à voix haute ; enregistrer les réponses fournies par la cliente)*			

#	Question	Réponse	Code	Saut
	[a] Le/la prestataire me l'a dit	Mentionné Non mentionné	1 2	
	[b] J'ai demandé au prestataire à quoi ils servent	Mentionné Non mentionné	1 2	
	[c] Je les avais déjà pris auparavant	Mentionné Non mentionné	1 2	
	[d] La famille/des amis m'ont dit à quoi ils servent	Mentionné Non mentionné	1 2	
	[e] Autre	Mentionné Non mentionné	1 2	**→127a**
S_127a	Si mention « Autre » indiquée dans la rubrique S_127, précisez	_____		
S_128	Combien de comprimés vous a-t-on donné pour vous protéger contre le paludisme ?	Nombre de comprimés	[__|__] *Si ne se souvient pas, tapez 88* *Si pas de réponse, tapez 99*	**→130**
S_129	Vous a-t-on donné 3 petits comprimés blancs lors de la consultation d'aujourd'hui ?	Oui Non Ne sait pas / Ne se souvient pas Pas de réponse	1 2 8 9	 **→132** **→132** **→132**
S_130	Avez-vous pris / ingéré les comprimés lors de votre consultation d'aujourd'hui ?	Oui Non Pas de réponse	1 2 9	**→132** **→131** **→132**
S_131	Pourquoi n'avez-vous pas pris les comprimés lors de votre consultation d'aujourd'hui ? *(NE PAS lire chaque option à voix haute ; enregistrer les réponses fournies par la cliente)*			
	[a] Ne veut pas prendre de médicaments pendant la grossesse	Mentionné Non mentionné	1 2	

#	Question	Réponse	Code	Saut
	[b] C'est amer	Mentionné Non mentionné	1 2	
	[c] Ça va me rendre malade	Mentionné Non mentionné	1 2	
	[d] Ne veut pas prendre l'estomac vide	Mentionné Non mentionné	1 2	
	[e] La famille ne le permet pas	Mentionné Non mentionné	1 2	
	[f] Le/la prestataire m'a dit de les prendre à la maison	Mentionné Non mentionné	1 2	
	[g] Il n'y avait pas d'eau	Mentionné Non mentionné	1 2	
	[h] Je n'en ai pas besoin / Je ne suis pas exposée au risque de paludisme	Mentionné Non mentionné	1 2	
	[i] Autre	Mentionné Non mentionné	1 2	**→131a**
	[j] Pas de réponse	Aucune réponse donnée	9	
S_131a	Si mention « Autre » indiquée dans la rubrique S_131, précisez	_____		
S_132	Avez-vous reçu une moustiquaire imprégnée d'insecticide (MII/MILDA) dans l'établissement aujourd'hui ?	Oui Non Pas de réponse	1 2 9	
S_133	Je voudrais maintenant vous interroger sur votre expérience avec le/la prestataire de CPN d'aujourd'hui. Je vais lire un énoncé et vous pourrez me dire si vous êtes tout à fait d'accord, plutôt d'accord, plutôt en pas d'accord ou pas du tout d'accord.	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	

#	Question	Réponse	Code	Saut
	[b] C'est amer	Mentionné Non mentionné	1 2	
	[c] Ça va me rendre malade	Mentionné Non mentionné	1 2	
	[d] Ne veut pas prendre l'estomac vide	Mentionné Non mentionné	1 2	
	[e] La famille ne le permet pas	Mentionné Non mentionné	1 2	
	[f] Le/la prestataire m'a dit de les prendre à la maison	Mentionné Non mentionné	1 2	
	[g] Il n'y avait pas d'eau	Mentionné Non mentionné	1 2	
	[h] Je n'en ai pas besoin / Je ne suis pas exposée au risque de paludisme	Mentionné Non mentionné	1 2	
	[i] Autre	Mentionné Non mentionné	1 2	**→131a**
	[j] Pas de réponse	Aucune réponse donnée	9	
S_131a	Si mention « Autre » indiquée dans la rubrique S_131, précisez	_____		
S_132	Avez-vous reçu une moustiquaire imprégnée d'insecticide (MII/MILDA) dans l'établissement aujourd'hui ?	Oui Non Pas de réponse	1 2 9	
S_133	Je voudrais maintenant vous interroger sur votre expérience avec le/la prestataire de CPN d'aujourd'hui. Je vais lire un énoncé et vous pourrez me dire si vous êtes tout à fait d'accord, plutôt d'accord, plutôt en pas d'accord ou pas du tout d'accord.	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	

#	Question	Réponse	Code	Saut
	Le/la prestataire de services que j'ai vu/e aujourd'hui était professionnel/le. Diriez-vous que vous êtes... ? *(Lisez les réponses à voix haute)*			
S_134	Le/la prestataire de services que j'ai vu aujourd'hui m'a traitée avec moins de respect que les autres clientes	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
S_135	Le/la prestataire que j'ai vu/e aujourd'hui a su me traiter correctement	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
S_136	Le/la prestataire que j'ai vu/e aujourd'hui m'a traitée avec respect	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
S_137	Je reviendrai chez ce/tte prestataire	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
S_138	Je suis satisfaite de la façon dont le/la prestataire m'a traitée aujourd'hui	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
S_139	Combien de temps a duré votre consultation avec le/la prestataire aujourd'hui ? Je vous demande juste combien	Moins de 5 minutes 5-10 minutes 11-15 minutes 16-20 minutes	1 2 3 4	

#	Question	Réponse	Code	Saut
	de temps vous avez passé dans la salle de consultation avec le/la prestataire.	21-30 minutes Plus de 30 minutes Ne sait pas Pas de réponse	5 6 8 9	
S_140	Je voudrais vous poser quelques questions qui ne sont pas spécifiques à la consultation d'aujourd'hui, mais qui concernent la grossesse en général. Quand une femme enceinte doit-elle se rendre pour la première fois dans un établissement de santé pour y recevoir des soins prénatals ? *(Lisez chaque option à voix haute ; saisissez la réponse qui correspond le mieux à la réponse de la cliente)*	Dès qu'elle sait qu'elle est enceinte Quand le bébé bouge pour la première fois Au cours du premier trimestre Début du 4e mois ou du 2e trimestre À tout moment pendant la grossesse Autre Ne sait pas Pas de réponse	1 2 3 4 5 6 8 9	**→140a**
S_140a	Si mention « Autre » indiquée dans la rubrique S_140, précisez	_____		
S_141	Combien de fois une femme doit-elle se faire examiner pendant sa grossesse ? (Si la réponse est « Autant que possible », demandez un nombre spécifique. Si la cliente ne peut pas spécifier un nombre, saisissez Ne sait pas /88)	Nombre d'examens	[__|__] *Si ne sait pas, tapez 88* *Si pas de réponse, tapez 99*	
S_142	J'ai maintenant quelques questions à vous poser sur cette grossesse. Avez-vous fait un test de dépistage du paludisme	Oui Non Ne sait pas / Ne se souvient pas Pas de réponse	1 2 8 9	 **→144** **→144** **→144**

#	Question	Réponse	Code	Saut
	à un moment quelconque de votre grossesse ?			
S_143	Quel a été le résultat du test de dépistage du paludisme ?	Positif Négatif Ne sait pas / Ne se souvient pas Pas de réponse	1 2 8 9	
S_144	Êtes-vous actuellement sous traitement antipaludique ?	Oui Non Pas de réponse	1 2 9	
S_145	Avez-vous reçu un traitement antipaludique pendant cette grossesse ?	Oui Non Pas de réponse	1 2 9	
S_146	Nous avons presque terminé. Je veux juste vous demander de me parler de votre expérience avec cet établissement de santé. Je vais lire un énoncé et vous pourrez me dire si vous êtes tout à fait d'accord, plutôt d'accord, plutôt en pas d'accord ou pas du tout d'accord. Je reviendrai à l'avenir dans cet établissement de santé pour y recevoir des soins *(Lisez les réponses à voix haute)*	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	
S_147	Je suis satisfaite du service que je reçois dans cet établissement de santé	Tout à fait d'accord Plutôt d'accord Plutôt pas d'accord Pas du tout d'accord NE LISEZ PAS : Ne sait pas NE LISEZ PAS : Pas de réponse	1 2 3 4 8 9	

NOUS AVONS TERMINE L'ENTRETIEN. MERCI BEAUCOUP POUR VOTRE TEMPS.

Annex 7. Excerpt of Current ANC registry extraction instrument

Note: Full instrument and English version of instrument available upon request.

Section II. Données du registre

#	Question		Réponse	Code	Saut
A_200	Numéro d'identification du dossier médical de la cliente depuis le registre CPN		[__|__|__|__|__|__] *Tapez 999999 si aucun numéro d'identification du dossier médical n'est disponible*		→202
A_201	Retapez le numéro d'identification du dossier médical de la cliente NB : Si le numéro saisi ici ne correspond pas à celui du champ précédent, un message s'affichera : Les deux numéros d'identification saisis ne sont pas identiques. Veuillez revenir aux deux questions précédentes et réessayer.		[__|__|__|__|__|__]		→204
A_202	Nom complet de la cliente figurant dans le registre CPN (prénom, nom, postnom)		_____		
A_203	Retapez le nom complet de la cliente (prénom, nom, postnom) NB : Si le nom saisi ici ne correspond pas à celui du champ précédent, un message s'affichera : Les deux noms saisis ne sont pas identiques. Veuillez revenir aux deux questions précédentes et réessayer. Si ni le numéro d'identification du dossier médical de la cliente ni son nom complet ne sont disponibles dans le registre, écartez ce dossier.		_____		
A_204	Âge de la cliente		Ans *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	
A_205	Date de la dernière CPN	[a]	Jour *Tapez 99 si donnée manquante* *Tapez 88 si donnée illisible*	[__|__]	

		[b]	Mois	[__|__]	
		[c]	Année	[__|__|__|__]	
A_206	La visite d'aujourd'hui est la quantième CPN ?		Première consultation Deuxième consultation Troisième consultation Quatrième consultation Cinquième consultation Sixième consultation Septième consultation Huitième consultation	1 2 3 4 5 6 7 8	→208
A_207	Âge gestationnel (en semaines) lors de la consultation d'aujourd'hui		Âge gestationnel (en semaines) *Tapez 99 si donnée manquante pour la consultation d'aujourd'hui* *Tapez 88 si donnée illisible*	[__|__]	
A_208	Âge gestationnel (en semaines) lors de la première consultation		Âge gestationnel (en semaines) *Tapez 99 si donnée manquante pour la première consultation* *Tapez 88 si donnée illisible*	[__|__]	
A_209	L'âge gestationnel (en semaines) lors de la première consultation était inférieur à 13 semaines		Oui Non Aucune donnée pour cette CPN	1 2 9	
A_210	Réception de SP lors de la consultation d'aujourd'hui		Oui Non Aucune donnée pour cette CPN	1 2 9	 →212 →212
A_211	La quantième dose de SP a été administrée lors de la consultation d'aujourd'hui ?		1e dose 2e dose 3e dose 4e dose 5e dose 6e dose 7e dose 8e dose	1 2 3 4 5 6 7 8	
A_212	Réception d'une MIILD (moustiquaire imprégnée d'insecticide longue durée)		Oui Non Aucune donnée pour cette CPN	1 2 9	
A_210	Le registre comporte-t-il des commentaires concernant la prévention du paludisme ou le statut d'infection paludique pour la consultation d'aujourd'hui ?		Oui Non Illisible	1 2 8	 →212 →212

A_211	Saisissez les commentaires relatifs au paludisme pour la CPN d'aujourd'hui.	_____ _____	
A_212	Si ce champ dans le registre présente quelque chose d'inhabituel, veuillez le commenter (par exemple, les données étaient illisibles ou le registre ne comportait pas de colonnes pour certains de ces indicateurs)	_____ _____ _____ _____	