Health Pooled Fund South Sudan

MONITORING THE UTILISATION OF PRIMARY CARE SERVICES IN HPF3 SUPPORTED COUNTIES in SOUTH SUDAN

May 14th, 2020

Contents

List of acronyms

ANC: Antenatal care
CBD: Community-Based Distributors
CHW: Community Health Workers
DHIS1.4: District Health Information Software version 1.4
EPI: Extended Programme for Immunization
GPS: Global Positioning System
HPF3: The third phase of Health Pooled Fund
iCCM: Integrated Community Case Management
MFL: Master Facility List
mRDT: malaria Rapid Diagnostic Test
ORS: Oral Rehydration Solutions
RMNCH: Reproductive, Maternal, Newborn, and Child Health

EXECUTIVE SUMMARY

INTRODUCTION

The KIT Royal Tropical Institute was tasked to analyse and report on utilisation of primary health care services in HPF3 supported geographical areas in South Sudan. The main objective of this assessment was to identify spatial and temporal trends of service utilisation that could be indicative of limitations in access to healthcare. Facility-based and community-based primary care data were evaluated and compared to identify dependencies between community- and facility-based health care delivery models.

METHODS

A quantitative secondary analysis was undertaken, combining the different data sources to extract a wider understanding of primary care utilisation at community and facility level through temporal and spatial trends. Three independent data sources, obtained from the third phase of the Health Pooled Fund (HPF3) Monitoring and Evaluation team, were used in these analyses. The data sources included the master facility list containing all facilities in South Sudan, the district health information system District Health Information Software version 1.4 (DHIS1.4), which gathers health indicators from facilities, and the integrated community case management (iCCM) database, which gathers data from community health programme.

First, different datasets were cleaned and standardised. Next, the datasets were merged into a single database based on the smallest common unit of reporting. Thirdly, data quality checks for completeness, variability, and internal validity were conducted and used to identify indicators to be used in the analysis. Non-parametric correlation tests were used to determine whether community health service delivery affects health facility service utilization. Finally, spatial and temporal trends were mapped in order to explore concurrent or opposite trends and localize them. The final results of the quantitative analysis were presented to healthcare experts in South Sudan, particularly HPF3 team members, to validate and contextualize the outcomes. The key outcomes and recommendations were will be used to support the implementation of HPF3 and to inform follow-up analysis and monitoring activities to improve the quality of the programme.

FINDINGS

The co-existence of two independent data collection systems, aggregating vast amounts of data without data integration and standardisation leads to inefficiencies and incoherence in the information available to support decision-making. HPF3 operated data management systems should aim to reinforce and contribute to existing data infrastructure, or, where possible be integrated as much as possible in existing systems. The data collected at by community health workers, which are aggregated and reported from health facilities show a higher level of completeness and internal validity as compared to the DHIS1.4 data collected at the facility level. Therefore community-based surveillance could be considered to offer a good basis for routine monitoring and evaluation of essential health care needs which also provides better options to adapt the implementation to the local context.

Trends in the monthly county level data for 2018 show that there is little correlation between facility and community level care. While DHIS1.4 data show rising trends in the malaria indicators and decreasing trends in diarrhoea and Extended Programme for Immunization (EPI) indicators, at community level, these all increase over the course of the year. These differences could suggest that community-based primary care diverts traffic away from health facilities, yet no significant associations were found. Another interpretation would be that community health workers are potentially reaching populations that are underserved by health facilities, and that it probably postpones visits to health facilities. Therefore, these results suggest that integrated community case management programmes seems to play a beneficial role in primary care provision of hard-to-reach population.

LIMITATIONS

The results presented in this report are subjected to the following limitations which could affect the outcomes and interpretation of the results:

- While the datasets were successfully merged, the iCCM and DHIS1.4 neither share identical indicators nor have purposefully related indicators, which allow for a direct comparison of primary care utilisation at community and health facility levels.
- The data quality of iCCM and DHIS1.4 derived data differed across indicators as well as geographic areas. The DHIS1.4 data was found to have much missing data, and poor internal validity which limit its use for decision-making.
- In 2018 the iCCM programme was not running in all HPF3 supported counties, limiting these analysis to a selection of counties which might not be representative of the whole HPF3 supported area.
- The present approach provides insights at facility and county level and does not account for more granular variation in health service utilization, recording and reporting which are obscured by using aggregated data.
- To maximize the completeness and internal consistency of the data used in the analysis, these analyses were limited to a 12 month period (2018). The short timeframe limited the ability to evaluate seasonal and long term trends with confidence.
- Population estimates at lower geographical level (i.e. Boma) are missing and have to be extrapolated from a decade old census, or from satellite imagery, which has some flaws. Having a local population estimate (i.e. denominator) is an important step to assess utilisation of services.

RECOMMENDATIONS

Based on the findings from this analysis, we recommend investment to be made to harmonize or even integrate community-based data collection and reporting into national (health facility-based) databases. Although this would require upfront investments in data management resources at facility level, it is expected to improve the cost effectiveness by reducing the overall amount of resources required for data management in the long term. The integration of this data would allow for timely monitoring and evaluation of community-based health care needs and a direct comparison to facility-based utilization of primary care services. Simultaneous monitoring of community-based interventions and facility-based health care delivery will allow policymakers

and implementers to identify gaps in access to healthcare and to assess where people are most likely to access healthcare. Additionally, it is important to have population estimates for the catchment areas served by the Community Health Workers (CHW) and the health facilities in order to get a better understanding the resources and services packages needs. Lastly, the results suggest that different populations are covered by health facilities and CHW respectively. As only four counties have an estimated 50% or more of their population within primary care services (community- or facility-based), increasing the number of CHW in the other counties to reach a minimal coverage is essential. Based on the current population estimates, we recommend increasing the number of CHW to ensure access to primary care especially in the hard-to reach areas

INTRODUCTION

KIT Royal Tropical Institute was tasked to analyse and report on utilisation of primary care services at facilities and community health care services in Health Pool Fund 3 (HPF3)-supported counties in South Sudan. This analysis aims to provide temporal and spatial analysis of the utilisation of healthcare both at community and primary care levels.

HPF3 is a multi-donor programmes which aims to strengthen the South Sudan health system. HPF3 is implemented by implementing partners (IPs) in 21 lots (geographical areas) across eight of the ten states of South Sudan. The integrated community case management (iCCM) programme was implemented in a sub-selection of HPF3's territorial coverage, particularly the following States: *Central Equatoria, Eastern Equatoria, Lakes, Northern Bahr el Ghazal, Unity, Warrap, and Western Bahr el Ghazal.* The iCCM initiative aims to increase primary health care utilisation by engaging communities through community health workers (CHWs) to reach as many beneficiaries, particularly children under 5. The analysis focuses exclusively on 21 counties[1] within these states. In this analysis, the iCCM community-based distributors (CBDs) are referred to as Community Health Workers (CHW).

Objective

The objective of this study is to assess the impact of the community health (iCCM) programme on health facility coverage and utilisation of primary care services.

Research question

The main research question is:

> *What were the geographic and temporal variations in the access and utilisation of primary care services in 2018 at community and facility level in HPF3 supported counties?*

Secondary research questions include:

> *How does the community health programme impact health care utilisation at health facilities?*
>
> *What is the impact of the iCCM programme on primary care coverage?*
>
> *Is the iCCM programme impacting health care utilisation in absolute or relative terms?*

To address the research question, we first assess data quality, providing an estimate of the feasibility of the utilisation analysis. Then, we look at utilisation over time and space on selected indicators for counties and health facilities. Finally provide recommendations based on the data quality and utilisation results.

[1] Juba, Ikotos, Kapoeta North, Lopa/Lafon, Awerial, Cueibet, Rumbek East, Rumbek North, Wulu, Yirol East, Yirol West, Aweil Centre, Aweil East, Aweil North, Aweil South, Aweil West, Payinjiar, Gogrial East, Gogrial West, Jur River, Wau

METHODOLOGY

The trend and spatial analysis of primary care utilisation was done using data from the iCCM dataset and data from the District Health Information Software version 1.4 (DHIS1.4) from health facilities. The R software (3.5.1) was used for the data management, the data analysis and most of the outputs. QGIS 3.4 is used for specific spatial outputs.

Data sources & management

Three sets of data are used for this analysis:

- The iCCM activities and recorded at facility level (iCCM dataset). This correspond to outreach activities done by the CHWs (counts) which are compiled and reported monthly. No point coordinates are available for these data.
- At the facility level various indicators of primary care services, which can be used to measure health care utilisation, are recorded in the District Health Information System (DHIS1.4 dataset) of South Sudan. The number of people receiving healthcare are reported monthly, as raw counts numbers, and no point coordinates are available.
- The Master Facility List (MFL dataset) of South Sudan, as of August 2019[2], which provides point coordinates (GPS) for all registered facilities in South Sudan.
- Community Health Workers Coordinates: this dataset was used albeit showing critical data quality issues in the recorded GPS coordinates provided in some instances.

Three different datasets pose a challenge in terms of data management. While these datasets are well built on their own, they do not share a common unique identifier (UID) which allows data integration. The MFL provides more comprehensive information related to the health facilities than in DHIS1.4. The iCCM dataset is a smaller subset of DHIS1.4. As such, while the MFL has a total of 1101 health facilities recorded, iCCM has 207 health facilities on record.
The MFL and iCCM datasets were collated to match health facilities based on county location and name of health facilities, allowing to attribute GPS location to indicators. As names may diverge from one dataset to another a 'fuzzy join' is applied. The fuzzy join uses the Jaccard-Winkler translation method: it calculates the number of permutation needed from one word to reach another word. A permutation means either changing a letter in a word (changing "a" to "b" = 1 permutation) or changing the location of a letter in a word.

The higher the number of permutation, the less likely they are matching. The Jaccard-Winkler method provides an index from 0 to 1; 0 is a perfect match (no permutation needed) to 1 perfect mismatch (infinite number of permutation). The maximum divergence threshold is 0.1 to ensure a high level of matching.
After permutation, visual inspection was completed to ensure perfect matching. The resulting dataset contains *128* health facilities that is a 50% of the total of the iCCM dataset and 12% of the MFL.

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[2] *Due to timeliness, the MFL released in August 2019 is up to date until February/March 2019 and has therefore been used as the most up to date and matching data for the year 2019.*

A similar approach was used on the MFL and the DHIS1.4 data set. The resulting dataset is composed of 317 health facilities that is 30% of the DHIS1.4 dataset and 29% of the MFL.
The data reported in ICCM and DHIS1.4 is available monthly for the year 2018 for all indicators. The indicators with too many missing values were discarded.

Data quality assessment

Given the absence of identically measured indicators between the datasets, it was not possible to concretely measure health facility services utilisation against community health services utilisation and see a direct, causal interaction from one to another. As such, statistical correlations were used to identify associations between facility and community-based healthcare utilization. Correlations were calculated by comparing the utilization rates reported at facility level to the aggregated numbers reported by CHW active within the catchment area of a health facility.

Establishing the number of Zeros and missing

The first step to measure correlation without bias is to establish the quality of the data at health facility level. For this purpose, the shape of the distribution of each indicator was charted (not shown), the number of missing and of zero per indicators and per health facility was investigated. The number of zeros was investigated further geographically and temporally by (1) mapping the percentage of zeros per health facility for each indicator, and temporally by charting time series over the 12 months (2018). If a health facility reported more than 75% of zeros over 12 months, the quality of this specific indicator in that specific facility was considered inappropriate. The spatial and temporal mapping of zero values is exposed in the result sections.
The data quality checks allowed for the removal of indicators with too many missing values or unlikely constant values over 12 months; and the distributions shape for each indicators indicated that almost none of the indicators was normally distributed.

Correlating DHIS1.4 and iCCM indicators to identify potential proxy equivalent of service usage

Given that indicators were not normally distributed, a non-parametric correlation testing was used to calculate the correlations within datasets (between indicators of the same dataset) and across datasets (for comparable indicators in a different dataset). The correlation within dataset aims to measure internal or construct validity[3] while correlations across datasets measure external or content validity. The indicators measured across datasets were aggregated into specific disease conditions; for example malaria was related to fever indicators, while diarrhoea was related to ORS and zinc treatments. The identified correlations were then used to narrow down the analysis between iCCM and DHIS1.4 variables. Out of this, rates were established and re-tested for correlations between iCCM and DHIS1.4 variables. Indicators with too many missing data points were excluded from the analysis.

Utilisation analysis

A utilisation analysis requires to have a reference point in order to establish whether the number of people utilising services is increasing: either from a baseline measurement, or from the overall

[3] The empirical assessment of construct validity. https://www.sciencedirect.com/science/article/abs/pii/S0272696398000205

population (denominator). As population estimates in South Sudan rely mostly on extrapolations of the national census conducted in 2008, misestimates population growth are expected as projections do not take into account population movement (including refugees and IDPs) accurately but only birth and mortality. Therefore, using census extrapolation as a denominator seemed an unreliable estimate. Instead, the denominator was determined using satellite imagery techniques, calculating population using built-up surface. Population was calculated within catchment areas of health facilities location and community health workers locations. The population numbers in catchment area were then used as denominator to calculate rates of service utilisation.

Establishing a county level denominator

The catchment area was defined as a five kilometres buffer around each HPF3 supported health facility that was matched in the iCCM (CHW) dataset. Similarly, to take into account the iCCM (outreach) activities, a two kilometres buffer was drawn around each estimated location of the community health workers. The location of health facilities and of community health workers was provided by each dataset (DHIS1.4 and iCCM) in the form of latitude and longitude coordinates. While the DHIS1.4 GPS coordinates were accurate at 95% with only a couple of facilities landing outside the borders of South Sudan, many coordinates for the CHWs ended outside borders and in unlikely places, several thousand kilometres away from South Sudan.

Spatial accuracy validation of the data was done using QGIS location-based tools: points not within borders of South Sudan were exclude.

The CHWs are associated with a specific health facility and a specific county. To establish a county level denominator based on the combination of both health facility and CHW's catchment area, the surfaces covered by all health facilities and CHW in a specific counties were merged. Once merged, the total surface covered per county was used in combination with gridded population estimate from World pop[4] based on satellite imagery at 100x100 resolution and adjusted to fit UN's population estimate for South Sudan in 2015. The surface covered therefore 'captured' the population estimated by Worldpop and provided an estimate of catchment area population.
It is important to note that inaccuracies in the point coordinates of CHW casts uncertainty on the population coverage estimate. It is particularly visible in the map in **annex A**.

Utilisation rates over time

With a population denominator, service usage rates by catchment area could be calculated. Since the data is available for every month in 2018, it was possible to map at county level the utilisation of services over time. The results is spatial temporal maps showing the evolution of services utilisation and selected proxy indicators.

[4] https://www.worldpop.org/ and https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0107042 for the methodology

RESULTS

Data quality

A total of 128 facilities were identified across the DHIS1.4 and iCCM datasets for, for analysis. This corresponds to 59% of the iCCM facilities reported in the dataset. These facilities were spread across the 21 Counties distributed in seven States, or 35% of the counties where DHIS1.4 data is recorded. The zero reporting attempts to highlight facilities or areas with reporting issues. It is not possible to fully determine if continuous reporting of zero values at a facility is a data reporting issue or actual lack of service utilisation (i.e. no service used and recorded as such). Yet it can be evaluated against other related indicators from the same facility or county. Therefore variations or lack therefore on indicators within the same health facility/area would tend to indicate reporting issues.

DHIS 1.4

In the DHIS1.4 dataset, zero reporting is quite common across health facilities. Accordingly, zero reports appears to occur simultaneously across facilities within the same area or counties. This suggests that external causes such as reduced population healthcare needs or programmatic factors (reduced outreach) result in reduced utilization of services across multiple facilities in the same geographic area. The data quality in DHIS1.4 is very variable with some indicators having good reporting while other have no or inconsistent reporting.

Figure 1 shows an example of the proportion of month in which facilities reported zero singular antenatal care (ANC1) visits in selected HPF3 facilities. Health facilities in central counties show low zero reports whereas southern ones are mainly reporting zeros. While underreporting is widespread, the geographic pattern of zero reporting suggests that external factors influence the delivery and uptake of ANC services. External factors such as reduced access due to the availability or acceptance of government health services. Maps for all DHIS1.4 indicators (table 1) are presented in **Annex B**.

Table 1 DHIS1.4 Indicator table

Indicator	Description
[1] “Malaria sev tot”	Number of confirmed severe Malaria
[2] “Malaria rdt tot”	Total number of Malaria mRDT test done
[3] “Malaria unc conf”	Total number of bacteriologically confirmed Malaria
[5] “Diarrhoea treated with ORS under 5 years”	Number of diarrhoea treated with ORS in u5 patient
[6] “Diarrhoea under 5 years”	Total number of diarrhoea detected in u5
[7] “Headcount estimated RPIL”	
[8] “Headcount under 5 years estimated”	Estimated headcount under 5 years at facility
[9] “Inpatient day maternity”	Total number of patient-day spent at maternity
[10] “Inpatient day total”	Total number of patient-day at facility
[11] “Live birth in facility”	Total number of live birth at facility

[12] “Nutrition OTP admission”	Total number of Outpatient therapeutic patient admitted
[13] “Pneumonia presumed under 5 years”	Total number of presumed Pneumonia in u5
[14] “Antenatal client 1st visit”	Total number of ANC 1st visit
[15] “Antenatal client 4th or more visit”	Total number of ANC 4th visit or more
[16] “Consultation curative total”	Total number of curative consultation at facility
[17] “Consultation curative 5 years and older”	Total number of curative consultation above 5 years at facility
[18] “Consultation curative under 5 years”	Total number of curative consultation under 5 years at facility

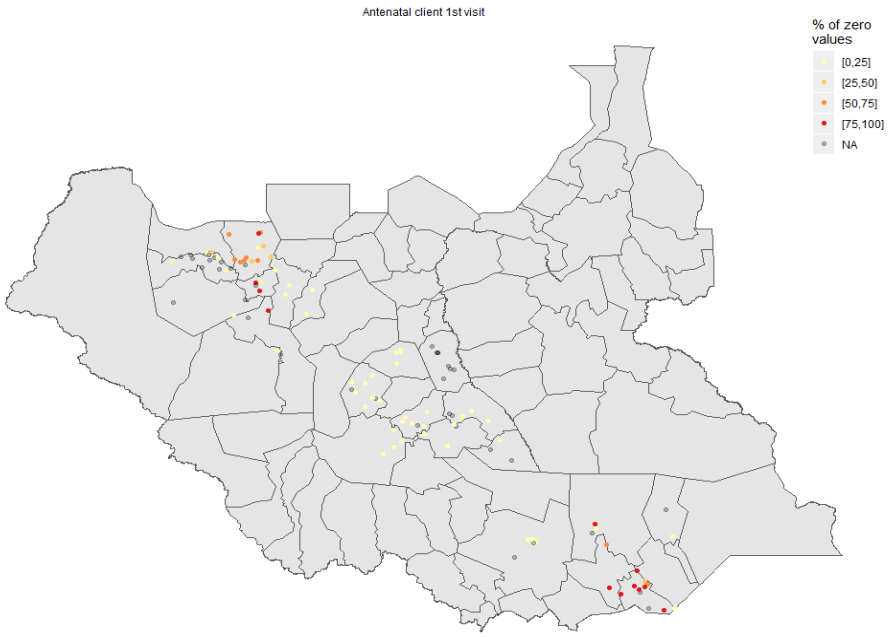


Figure 1. DHIS1.4 ANC 1st visit Zero reporting map. Dots represent health facilities (coloured dots). Coloring indicates and how many time health facilities have reported zero (0) for a specific indicator over the year 2018. The darker the dots, the more zeros reported.

iCCM data quality

Geographically, the iCCM data seems to have higher coherence and validity. A few indicators are missing, and has recurrent zero reporting over 12 months. Although there are outliers, there is no spatial clusters seen as in the DHIS1.4 dataset. Figure 2 shows an example of the iCCM overall quality, where almost all health facilities report variations in their numbers, with little missing data. While not perfect, the iCCM data showed overall better data quality than DHIS1.4. Some, indicators also showed much higher share of zeros being reported, which could indicate an

overall high level of data quality and completeness. However, it is unclear why, from the same CHW and health facility, the quality in reporting per indicators would be so different.

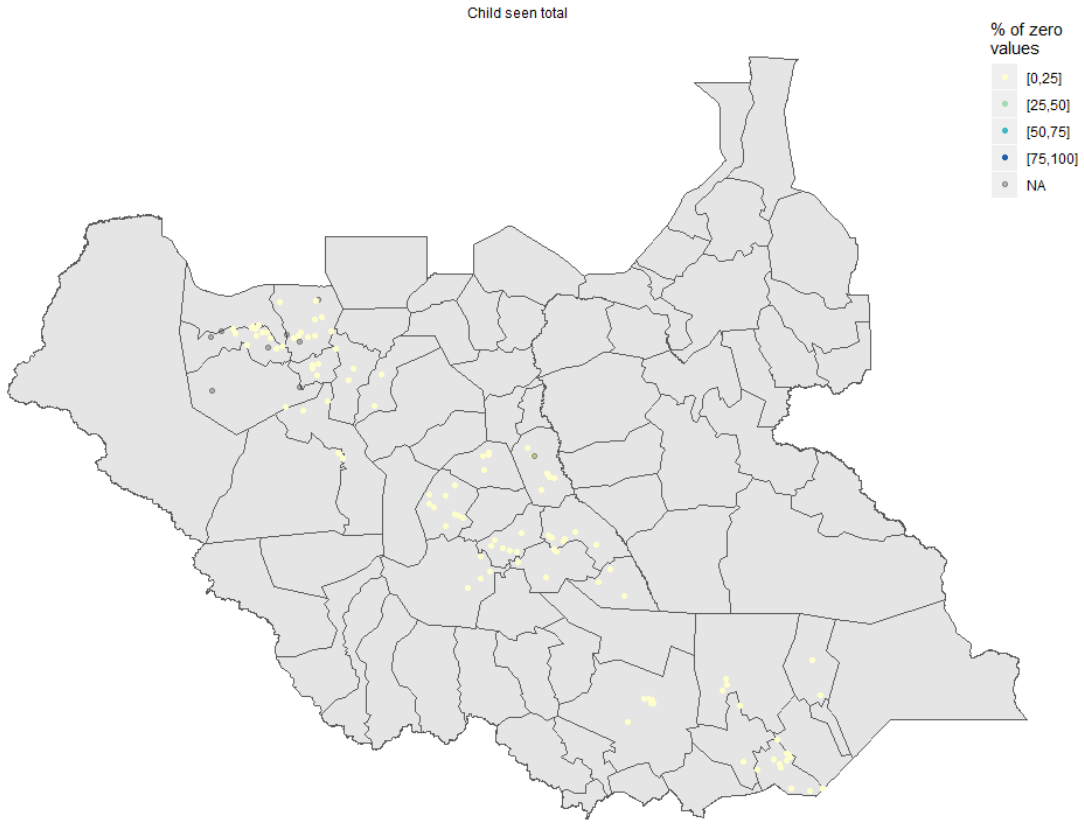


Figure 2 - ICCM children seen by CHW with zero reporting map. Points represent health facilities (coloured dots) and how many times each health facility have reported zero (0) for a in 2018. The darker the dot, the more zeros reported.

The iCCM dataset shows better, systematic reporting over most of facilities. The DHIS1.4 dataset shows much more disparity in the quality of reporting, per facilities and per indicators. This is surprising given that the data is ultimately generated at the same facility for both dataset. All iCCM indicator maps can be found in **Annex C**.

Table 2 iCCM indicators table

Indicator	Description
[1] "ACT ASAQ treatment given all"	Total number of ACT-ASAQ treatment given by a CHW
[2] "Amoxicillin treatment given"	Total number of Amoxicillin treatment given by a CHW
[3] "CBD Monthly active"	Total number of active CHW per facility
[4] "CBD Monthly supervision visit"	Total number of supervision visit per month
[5] "CBD Monthly timely complete report	Total number of complete and timely report
[6] "Child referred danger signs malnutrition other"	Total number of children referred by CHW for danger signs

[7] "Child screened for malnutrition all"	Total number of children screened by CHW for malnutrition
[8] "Child seen total"	Total number of children seen by CHW
[9] "Cough and fast breathing symptoms all"	Total number of individual recorded by CHW with Coughing & fast breathing symptoms
[10] "Diarrhoea symptoms all"	Total number of individual recorded by CHW with diarrhoea symptoms
[11] "Fever symptoms all"	Total number of individual recorded by CHW with fever symptoms
[12] "ORS treatment given"	Total number of ORS treatment given by CHW
[13] "Zinc treatment given"	Total number of zinc treatment given by CHW

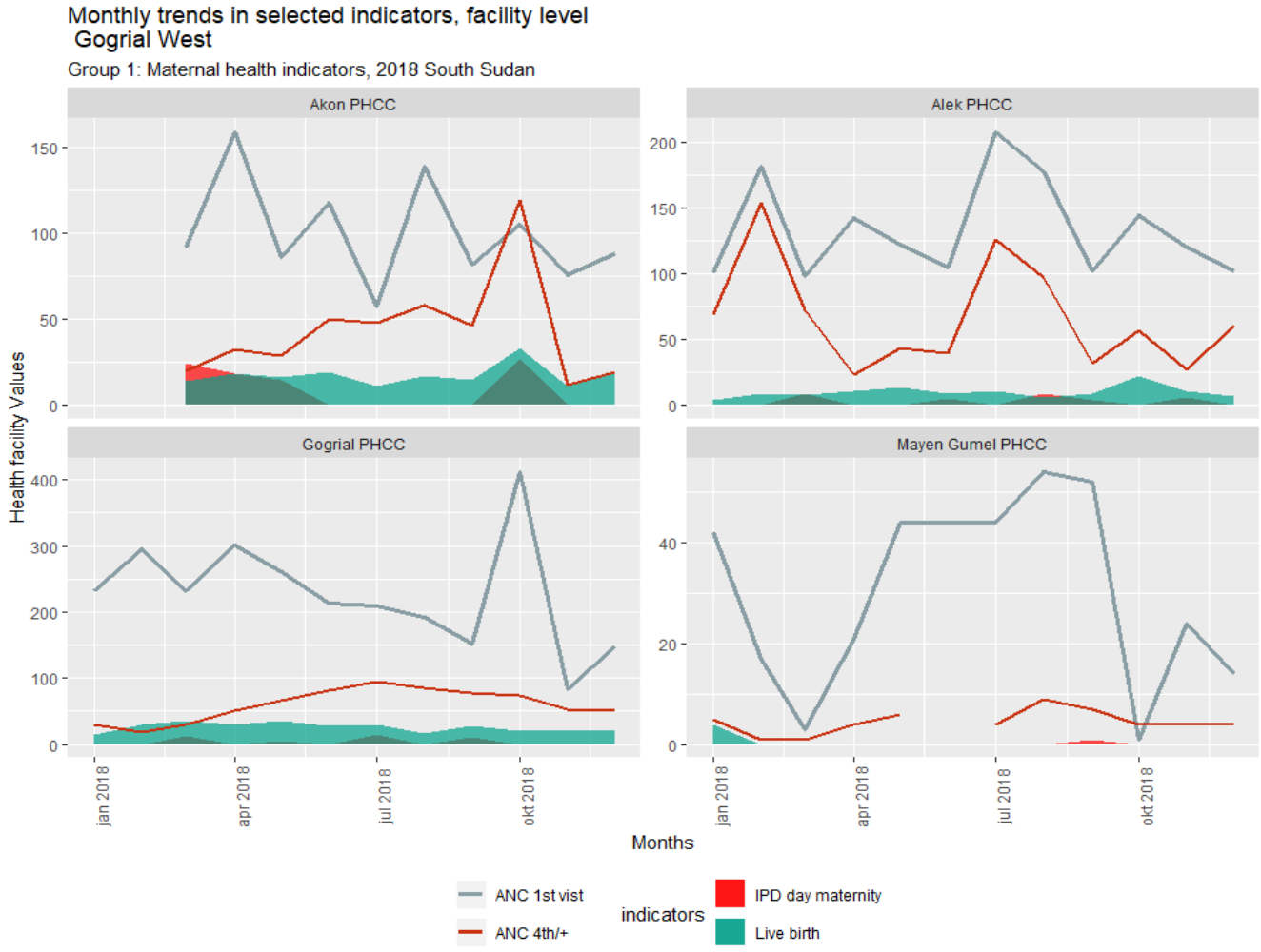
Time series trend analysis

Figure 3 shows an example of the temporal trend in maternal health indicators for 2018 as reported in DHIS1.4 for Gogrial West County. As seen in figure 3, all health facilities show high variance in the reported utilization of ANC services. Even in a relatively highly utilized health facility like Gogrial PHCC with seemingly good reporting, the peak in October 2018 for ANC 1st visit seems unlikely given all other data points and trend in the three other health facilities. The complete time series for all selected indicators and health facilities (per county) is presented in **Annex D (Group 1 to 3 is DHIS1.4)**. The following series of graphics display indicators per health facilities per countries.

Four groups of indicators have been created:

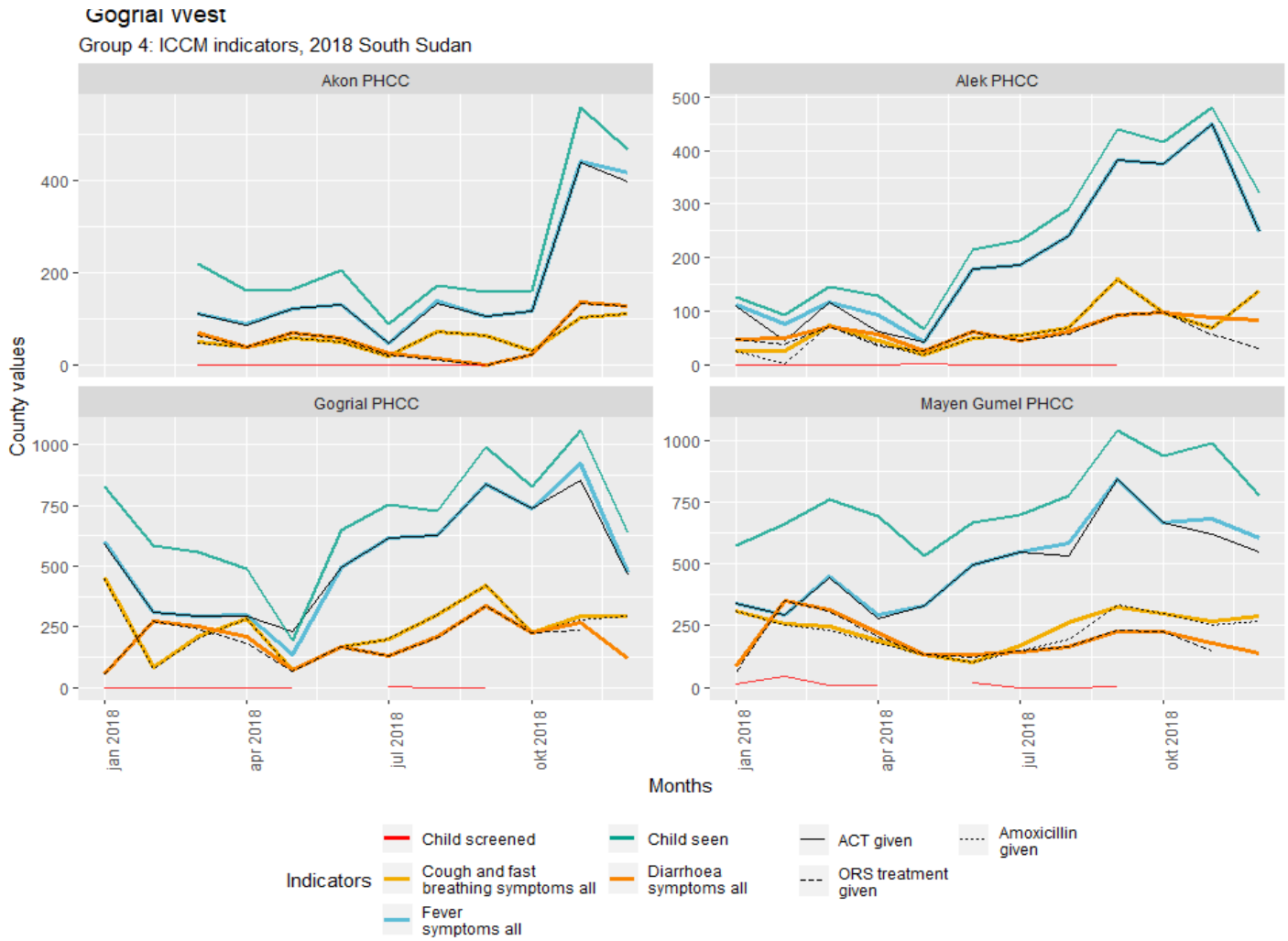
- Group 1: Maternal health (DHIS1.4)
- Group 2: Main infectious conditions (DHIS1.4)
- Group 3: Nutrition and diarrhoea (DHIS1.4)
- Group 4: iCCM indicators.

Figure 3 Temporal trends in maternal indicators, Gogrial West



In comparison the child care reports made by CHW operating under the same facilities in Gogrial West (Figure 4) show higher consistency over time. The number of children screened remains relatively stable. The temporal variations seen in the symptoms screened do vary over time, yet are proportionally consistent leading to believe that the quality data reporting is relatively good as compared to the DHIS1.4 data. The complete iCCM and EPI (Pentavalent) time series are presented in in **Annex D (Group 4 and 5).**

Figure 4 Temporal trends in child health indicators reported by CHW per health facility in Gogrial West



DHIS1.4 and iCCM cross comparisons

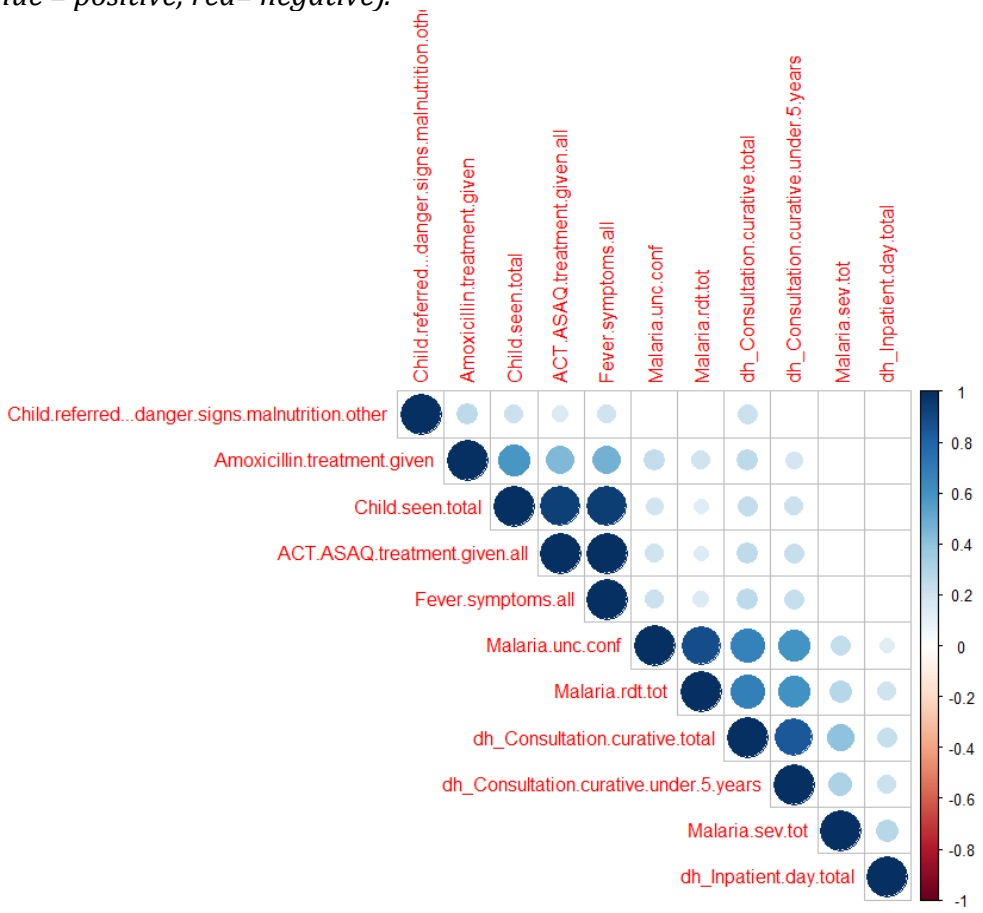
The DHIS1.4 and iCCM indicators are tracking utilisation of similar health conditions at different levels of the health system. Hence they attempt to measure the same health outcome, for example malaria infection and need for treatment or diagnostic, but do so at a different point of care. This creates difficulties in assessing how community activities impact on the utilisation of services at health facility level, and vice-versa, because the indicators have not been thought through comprehensively between facilities and CHW. In addition, the lack of denominator (catchment area population) prevents the estimation of the proportion of the population being covered by various types of service packages at facility and community level. While the denominator problem was partially accounted for using satellite imaging to estimate population distribution at a higher spatial resolution, other causes are expected to affect this disagreement between community and facility-based utilisation rates. While correlations are used to show a statistical association between two related numerical indicators, these cannot be used to show

causation. Therefore, interpreting potential correlations is done through hypotheses that cannot be tested within the scope of this analysis.

While indicators are not the same between the DHIS1.4 and iCCM, conceptually related indicators which are also correlated can be expected to be different measures of the same health outcome. For example: Malaria indicators from DHIS1.4 were correlated with fever indicators in iCCM (fever symptoms) and treatment given for fever (ACT-ASAQ & Amoxicillin).

All of the indicators tested show moderate to low correlations with (coefficients between -0.3 and 0.3), yet most are significant at $p < 0.05$. Significant correlations were found between child fever and various malaria treatment indicators both in the iCCM and DHIS1.4 datasets (figure 5). While there is correlation between indicators within datasets, there is almost none between datasets. As such, the data shows internal validity, indicating a certain quality. This could imply that the patient seen by the iCCM are not the same as the patient seen at a health facility or that seeing a CHW is not associated with health facility utilisation. Therefore, the CHW may reach other population that have little or no access to health facilities. **All the plots and correlation results are available in Annex E.**

Figure 5 Correlation of Fever and Malaria indicators, iCCM and DHIS1.4. The size of the circle shows the correlation coefficient (from -1 to 1.0 indicates no correlation) while the colour indicates the direction (blue = positive, red= negative).



UTILISATION OF PRIMARY CARE SERVICES

Healthcare utilization as reported by health facilities (DHIS1.4) and those reported by CHW (iCCM), were assessed using the same indicators as listed in table 1 and 2. The temporal trends in health care utilization were assessed simultaneously for all indicators per county (figure 6) as well as for all counties per indicator (figure 7). Figure 6 shows that in almost all counties increasing numbers were reported for each of the selected as well as the aggregated indicators, with the notable exception numbers of of Juba, Payinjiar, and Aweil Centre showing the most marked decline. Whilst the decline is proportionally low, it is notable because most other counties are showing upward trends, with Awerial, Cueibet, Rumbek, Wulu, and Yirol East & West have the most marked upward increase.

Figure 6 Temporal trends in the number cases reported by CHM per county

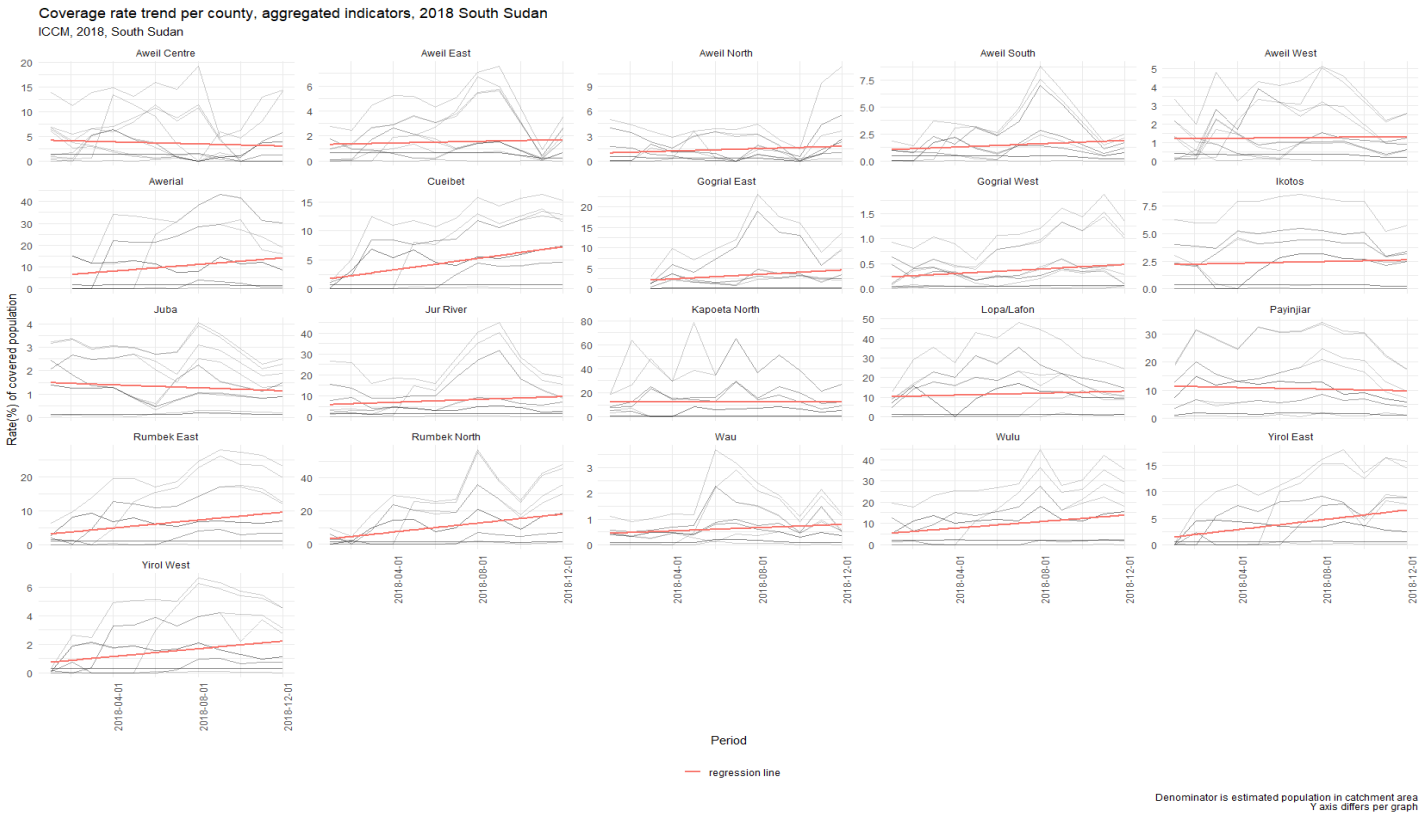
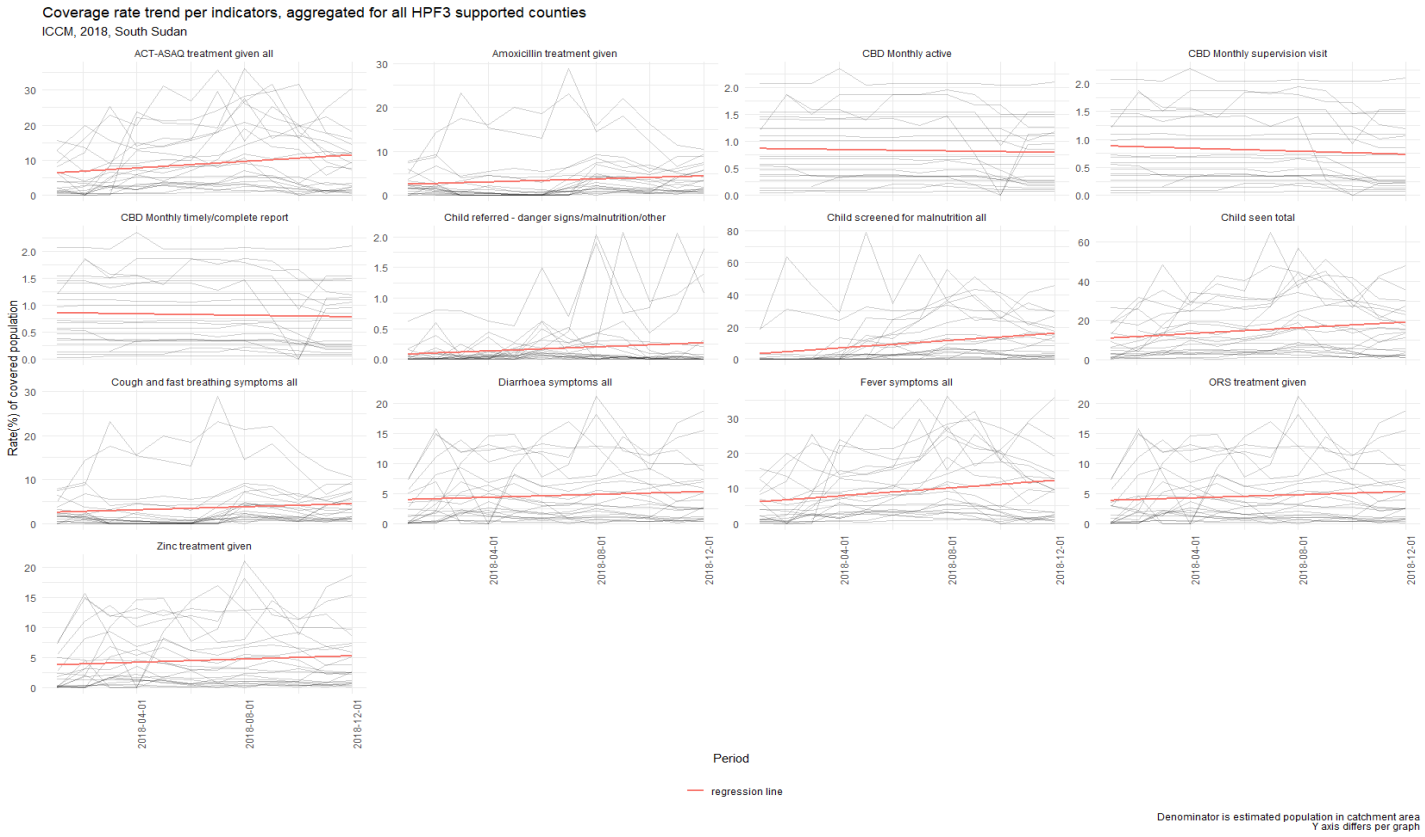


Figure 7 shows the overall trend per indicators for all HPF3 supported counties. All types of primary care offered by community health workers show an upward trend.

DHIS1.4 Indicators and County aggregates by comparison show almost no trend or declining ones **(See Annex F)**. This could be a sign that users that would usually go to a health facility were instead "captured" by the community-based services. However given that lack of correlations between facility and community-based indicators, the opposite trends may signal different things: First, health facility traffic is declining for another reason than the roll-out of community services. Second, community services are starting to reach hard-to-reach population that were

previously not accessing care. In the first case, that would mean that some population previously using services is now not using services anymore. Secondly, given the increasing trend for all conditions at iCCM, the burden of disease is not lowering, therefore what is seen in health facility is worrying in terms of access and utilisation of care.

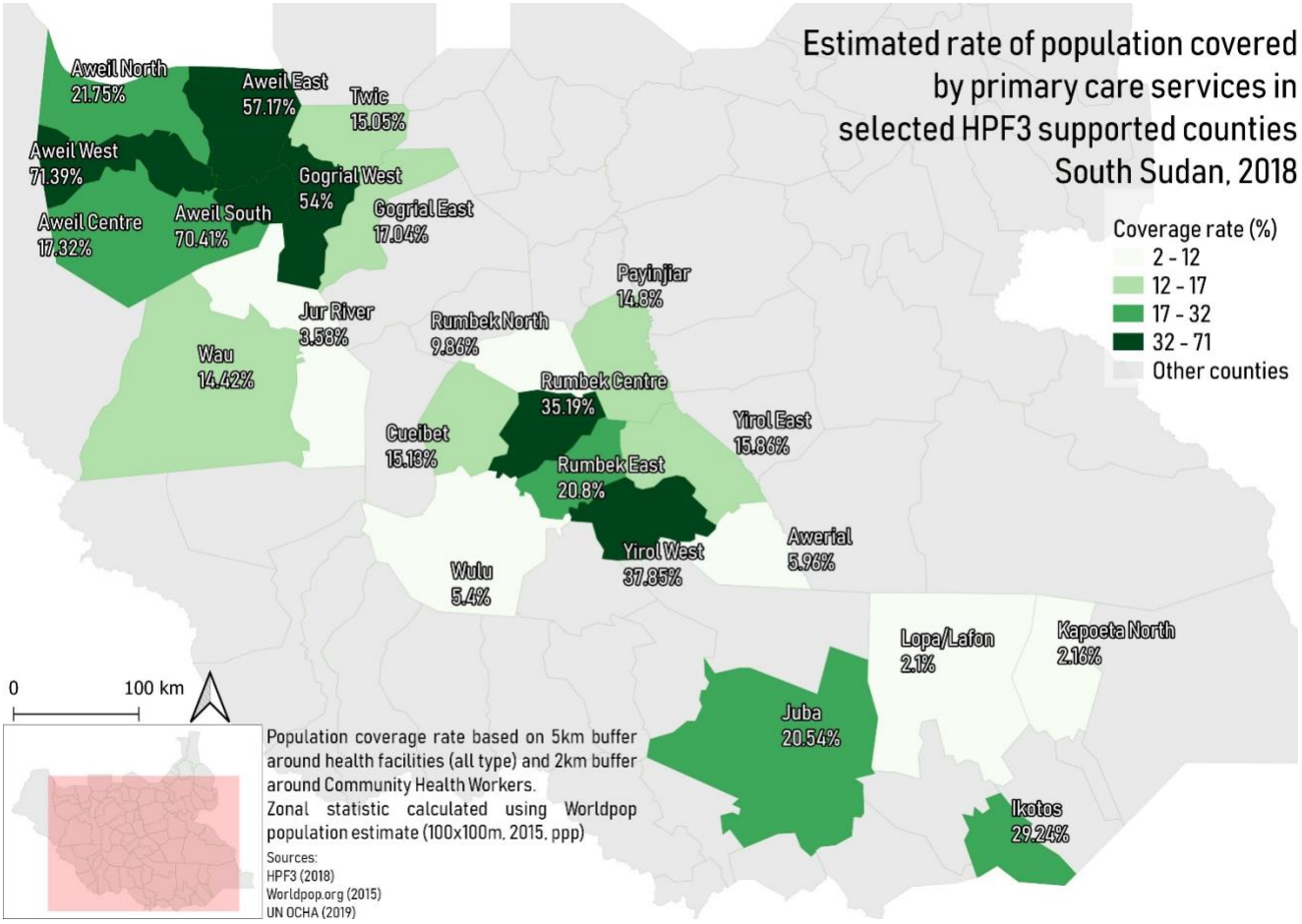
Figure 7 Temporal trends in the number cases reported by CHM per indicator



Health system coverage

The estimated proportion of population covered by primary health care services for each county shows that there is a clear cluster of higher coverage in the Northern part of the country (figure 8). However this cluster of counties with relatively high population coverage (> 40%) is likely explained by the low population density found across these counties and does not account for nomadic populations residing in the area.

Figure 82 Population covered by Primary Care services, map



More importantly, the coverage in Aweil North and Aweil Centre counties is strikingly low at 22% and 17% respectively compared to direct neighbours Aweil South (70%) and Aweil West (71%). Only four counties are estimated to have more than 50% of population covered by primary care services, this leaves 16 counties where more than 50% population is estimated to lack coverage. The table below shows the absolute numbers (Table 3).

Table 33 Population estimate table

County	Estimated population coverage	Total estimated population	Part of population covered (%)
Aweil Centre	14876	85879	17.3
Aweil East	239521	418974	57.2
Aweil North	43462	199833	21.7
Aweil South	68872	97817	70.4
Aweil West	163680	229283	71.4
Awerial	4004	67233	6.0
Cueibet	25244	166809	15.1
Gogrial East	23935	140426	17.0
Gogrial West	164159	304002	54.0
Ikotos	30075	102862	29.2
Juba	105719	514771	20.5
Jur River	4937	137792	3.6
Kapoeta North	3071	142072	2.2
Lopa/Lafon	1786	84973	2.1
Payinjiar	10709	72337	14.8
Rumbek East	21142	101664	20.8
Rumbek North	5389	54656	9.9
Wau	34881	241897	14.4
Wulu	3571	66090	5.4
Yirol East	18077	114012	15.9
Yirol West	36869	97405	37.9

Spatio-temporal trends in community-based activities

The spatial-temporal trends of community base health care services were assessed using the following set of indicators:

Indicators: ICCM
Fever symptoms all
Diarrhoea symptoms all
Cough & Fast breathing symptoms all
Total Children seen by CHW

All indicators except for cough& fast breathing symptoms show an increasing trend in population covered (hence screened) by CHWs, this is at a constant number of active CHW per county. Throughout the year a relatively high rate of fever symptoms is observed in the central counties, as compared to the rest of the HPF3 covered counties (figure 9). In particular, in Rumbek North (30% or more), Wulu and Cueibet (20% or more). The most northern and southern counties are showing little to no variations as their rates of population covered reported with fever symptoms overall remains 10%.

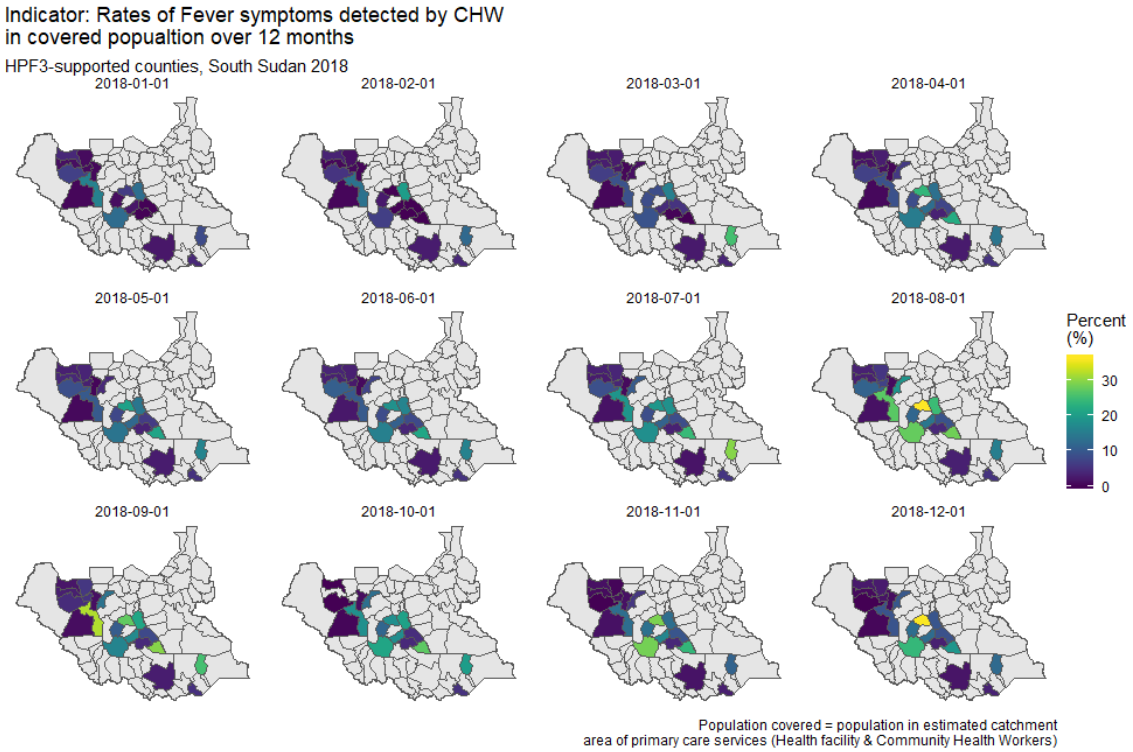


Figure 9 Spatiotemporal trends in rates of fever symptoms detected by CHWs

Spatio-temporal variations in health facility service utilisation

The indicators from DHIS1.4 shows more variances in their temporal pattern than iCCM. However, in spatial terms, the central counties experience higher variances and also absolute rates than northern and southern counties. In particular, it seems that Payinjiar, Wulu and Cueibet experience large variations in the number of curative consultation at the health facility (figure 10). Payinjiar, notably, provided more curative consultation than expected based on the population number in the estimated catchment area of primary care service, reaching almost 120%.

Similarly, for presumed pneumonia and for Malaria Rapid Diagnostic Test (mRDT) conducted at facilities, the proportion of service utilisation are generally higher, and more variables throughout the year for the counties located in the states of Lakes and Unity (figure 11).

Figure 40 Spatiotemporal trends, consultation curative DHIS1.4

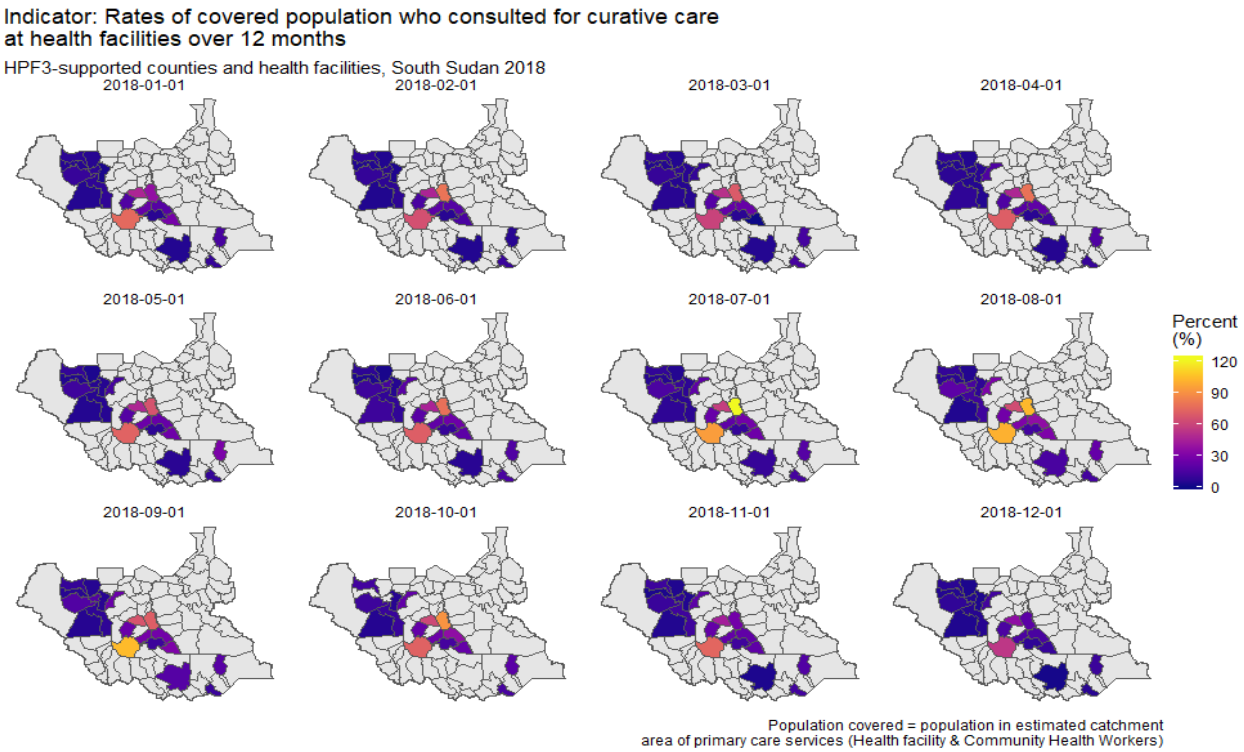
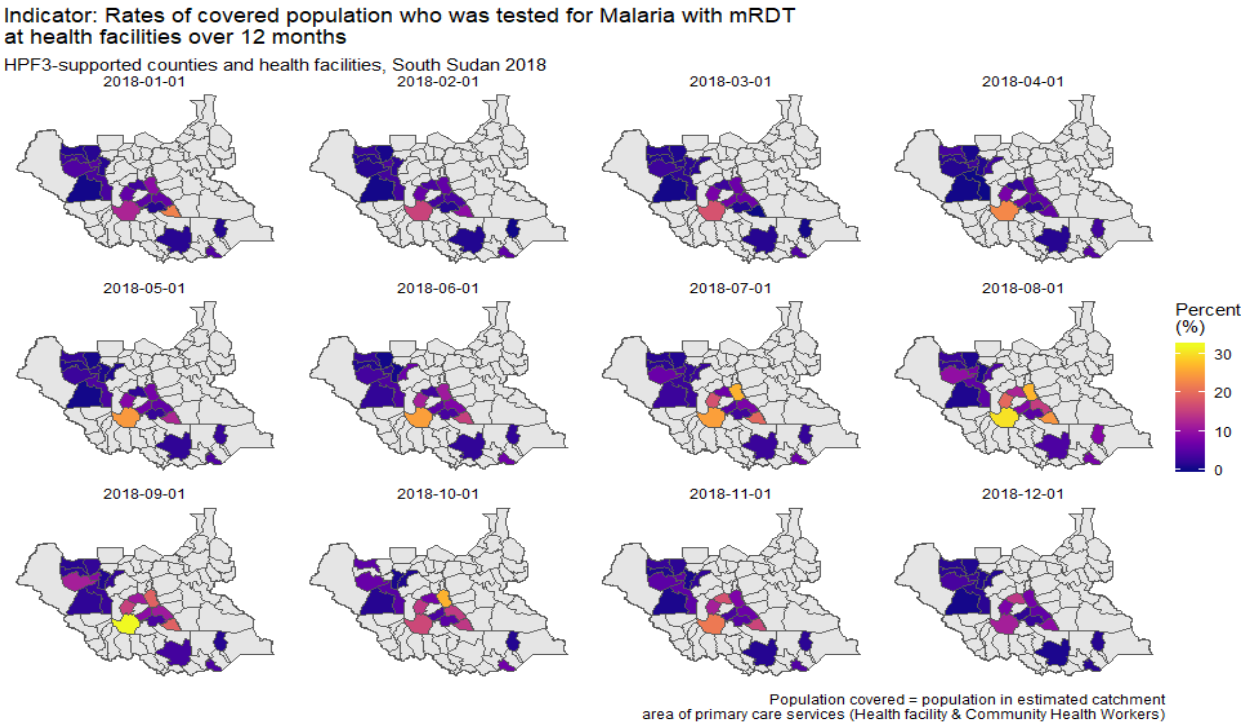


Figure 11 Spatiotemporal trends, malaria mRDT done, DHIS



CONCLUSIONS AND RECOMMENDATIONS

Looking at the utilisation of primary care service at health facility and the community in HPF3 supported counties, this report assessed data quality, correlations, general and specific temporal as well as spatial trends based on different datasets over the period 2018.

Due to the different structure of the data sources, only explorative analyses could be conducted. It was possible to extract some insights into the concurrent utilisation of primary care service between facility and community health services. In particular, the increasing trends in the number of cases reported at community level should reinforce the implementation of the community health programmes. While to be confirmed, the community health services (iCCM) seem to provide services to population that do not reach the facilities. Similarly, health facilities seem to experience opposing trends in relation to the community services. Together, that would indicate that the population prefers not to use facility-based services, or that they are only able to use community-based services due to access constraints (in financial, geographical, or cultural terms among others). However this conclusion can only be reached by further investigation of the individual motivations and barriers affecting healthcare seeking behaviour.

The inability to establish robust conclusions is partly due to the lack of integration between the iCCM and DHIS1.4 databases, which limit these analyses to indirect assessments of causal pathways using unstructured data. The marked variance between iCCM and DHIS1.4 indicators can therefore not be directly compared. For example a CHW is going to see and report all symptoms for all people of the selected indicators (fever for any adult or children). On the other hand, the population utilising service at health facility has been triaged already. Even for generic indicators such as curative consultations, a triage is done because of the service itself (outpatient department, child welfare clinic). Moreover, barriers to access facility-based service are higher compared to community outreach, which greatly reduces utilisation of facility-based care.

The divergent trends between iCCM and DHIS1.4 tend to indicate that the populations utilising each service are distinct, or that they do not use the service at the same time. Since DHIS1.4 trends are lowering over 2018, it might be expected that some part of the services provided by the CHW are sufficient in light of the expressed needs. Nonetheless, given the increased utilisation of treatment, and increased detection of symptoms by community health workers, the fact that utilisation at facility level seems to decrease should be investigated further. A potential track of investigation is looking at how the community itself reacts to receiving treatment (medication) from CHW, and whether receiving treatments impacts the need for seeking care at a health facility.

While indicator denominators are dissimilar between datasets, the lack of population denominators at a low geographical level is another barrier to analysing the present data. While not insurmountable, it becomes critical to have an up to date estimate of the population living in South Sudan to evaluate better the potential case-load and therefore the demand and expected supply of services. Nonetheless, this explorative analysis suggests that community health (iCCM) programmes seem to improve primary care utilisation in HPF3 selected counties and therefore probably play an important role in improving population health. Still, given the estimated rate of

population covered, with only four counties having a coverage of 50% or more of their population, the need to increase access to health services is clear.

Three main recommendation can be deduced from this analysis, relating to data quality and tracking utilisation of primary care services:

Recommendation 1: INTEGRATE COMMUNITY HEALTH (ICCM) AND DHIS1.4 DATABASES TO INCREASE EFFICIENCY GAINS AND EVIDENCE GENERATION

The first recommendation flowing form this analysis is to identify and use similar or clearly relatable indicators between DHIS1.4 and iCCM. It is critical to measure the impact of the community health (iCCM) programmes. This means being able to track who is being referred and to where (at community level), who has been referred and from where (at health facility), and for what reasons. Indicators must be aligned per diseases or symptoms between community and facility level to allow for a meaningful tracking of service utilisation. This will require a tighter integration of health facility (DHIS1.4) and community health (iCCM) datasets. Integration of iCCM and DHIS1.4 could be achieved by reporting data in a singular data management system (e.g. DHIS1.4), having it managed by the same procedures (e.g. timeliness and completion among other), and using relatable or associated indicators at facility and community level. Beneficial spill-over can be expected from iCCM to DHIS1.4. A tighter integration of the community and facility level indicators will pave the ground for an effective surveillance system to detect outbreak and users' needs by having finer signals at different levels of care for the same ailments.

Recommendation 2: HAVING A ROBUST DENOMINATOR IS KEY IN DETERMINING UTILISATION

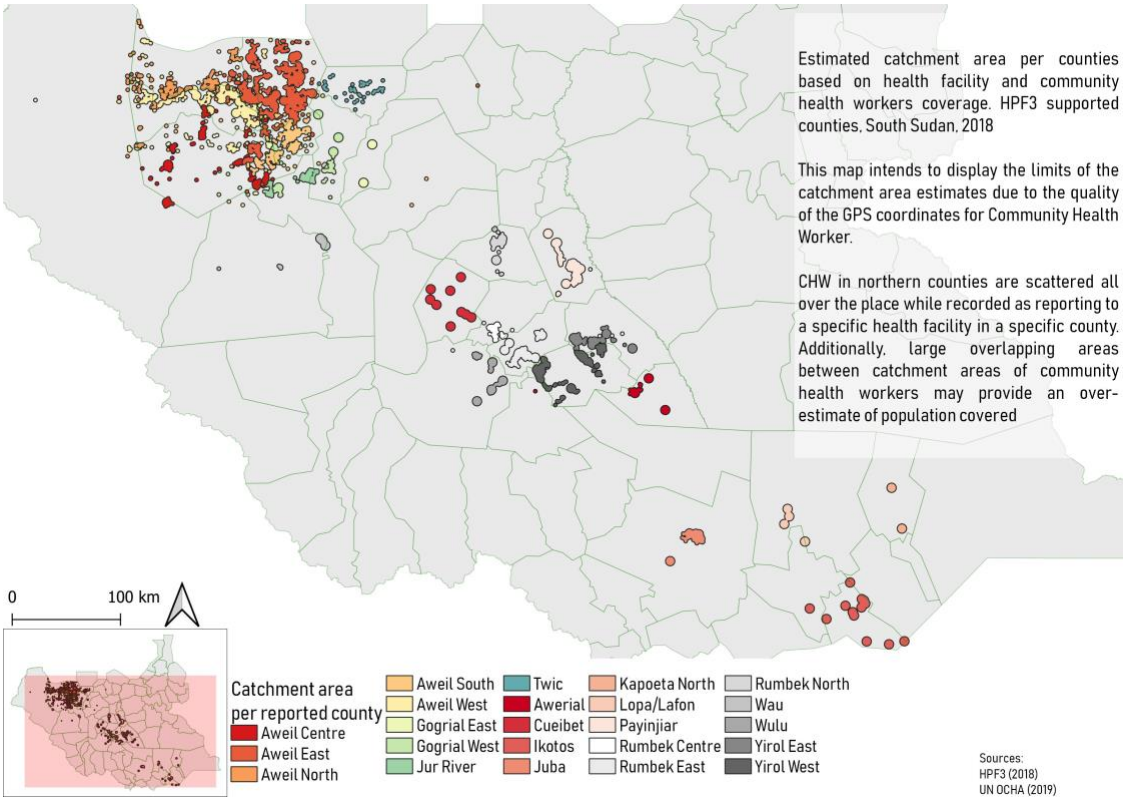
It is necessary to know what should be the expected case-load per facility and per CHW. Concretely, this means having a reasonably accurate estimation of how many people are within a geographical area, either in a county, a Payam, or a Boma. This could also be the catchment area of a health facility. Not having a reliable denominator prevents accurate analyses to be undertaken and denies the possibility to make fully informed decision on resources allocation. In the short to medium term this however requires a nation-wide census or an extensive survey powered for population estimation (Population estimation survey), which can be undertaken at different geographical level. In the long term, as part of institution-building and wider systems-strengthening efforts, the most sustainable solution would be to move towards the establishment of a civil registration system in South Sudan.

Recommendation 3: INCREASE THE NUMBER OF CHW TO REACH AT LEAST 50% OF ESTIMATED POPULATION COVERAGE

If the conclusion from this analysis that populations covered by health facilities and by CHW are distinct is correct, then it shows that health facility access remains constrained and that community health (iCCM) programmes have an important role to play in providing primary care to hard-to-reach population. As only four counties have an estimated 50% or more of their population within primary care services (community- or facility-based), increasing the number of CHW in the other counties to reach a minimum level of healthcare coverage is essential.

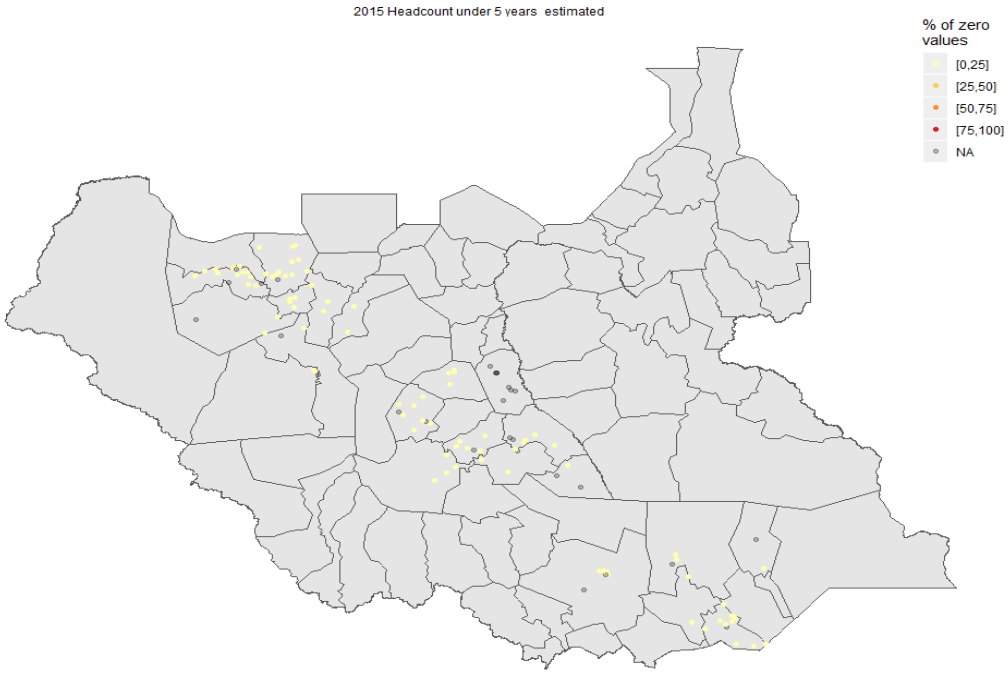
ANNEXES

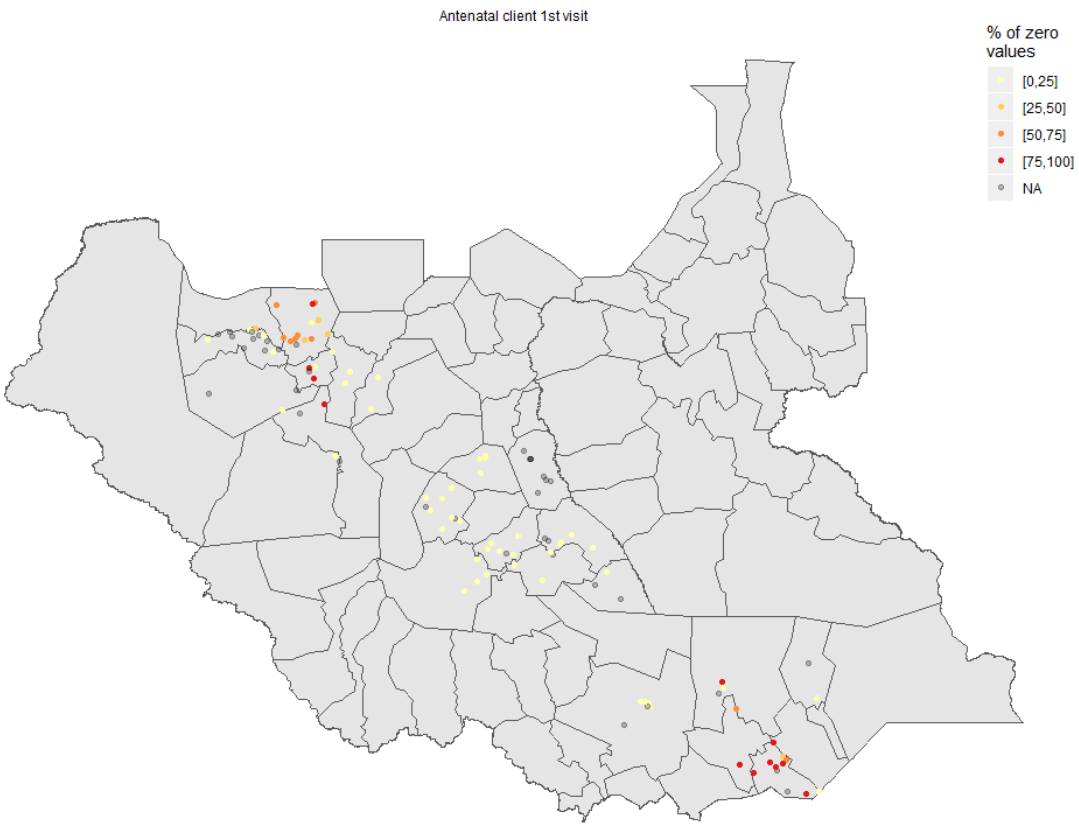
Annex A: Estimated catchment area of Health facility & CHW per county

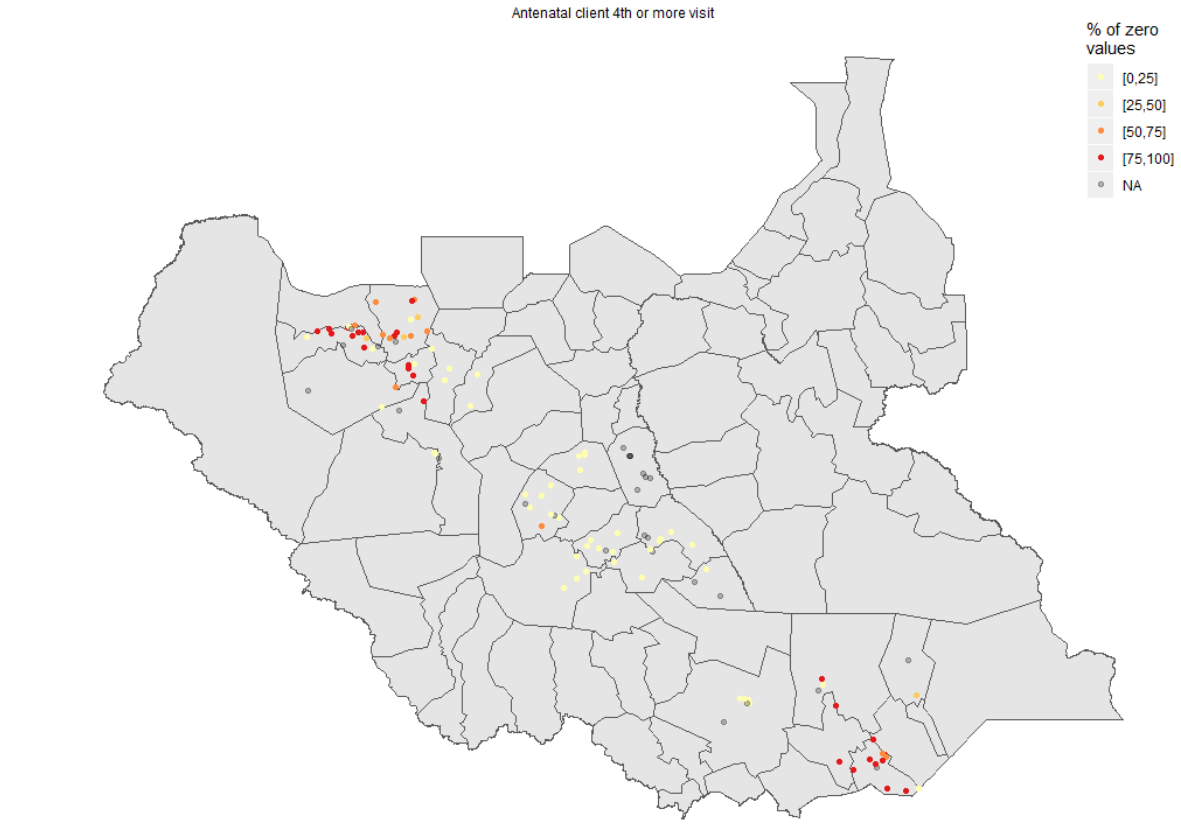


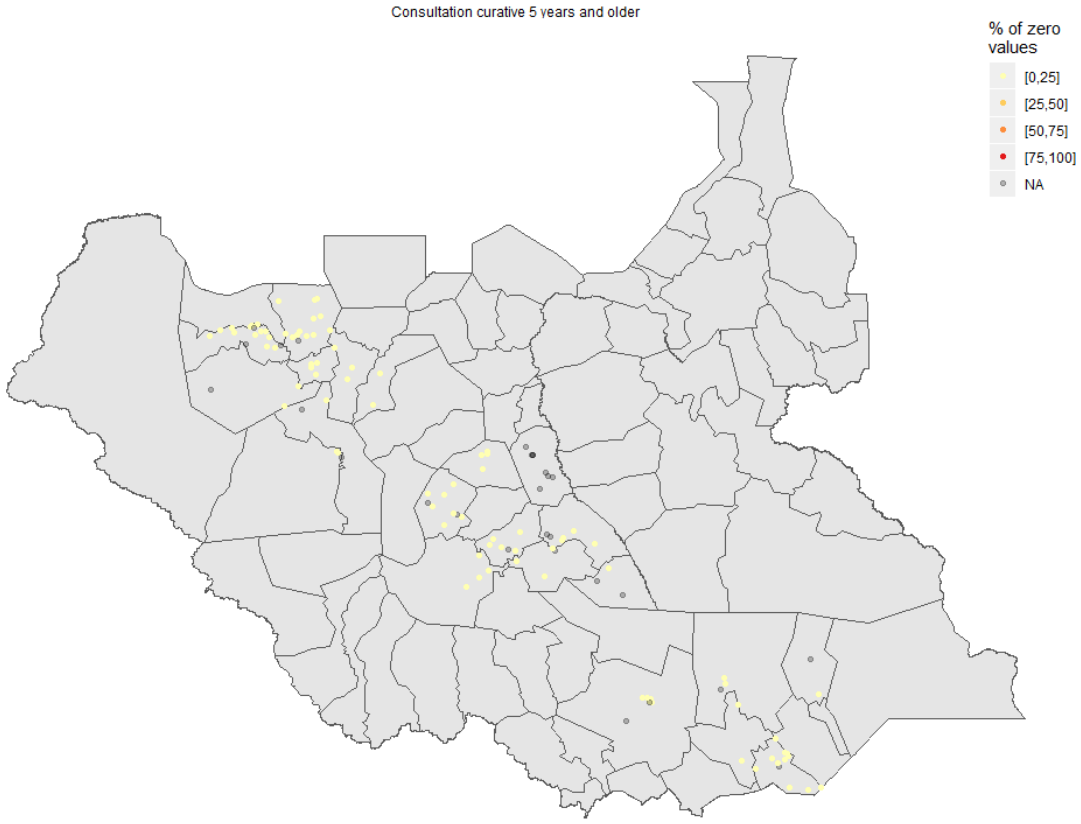
Annex B: DHIS1.4 0 reporting maps

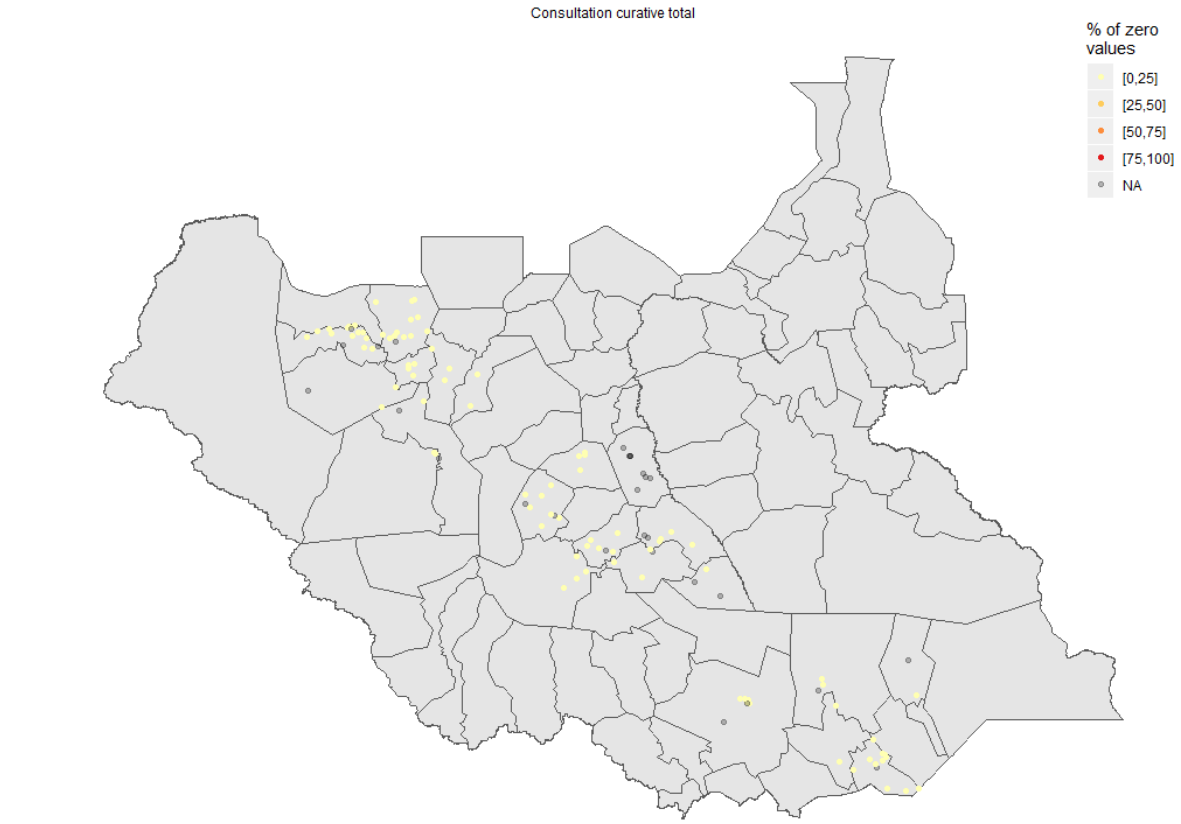
The coloured dots represent each a health facility in HPF3 supported counties. The percentages indicate the % of zero reported monthly for each indicator(map).

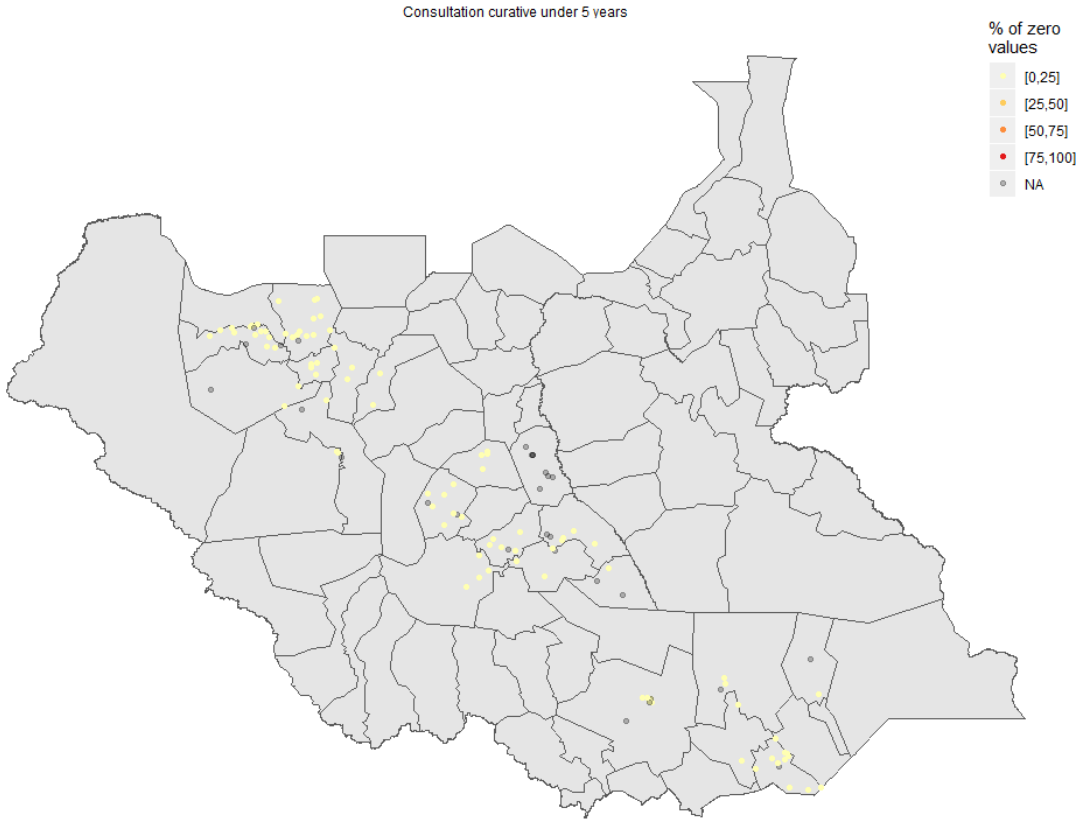


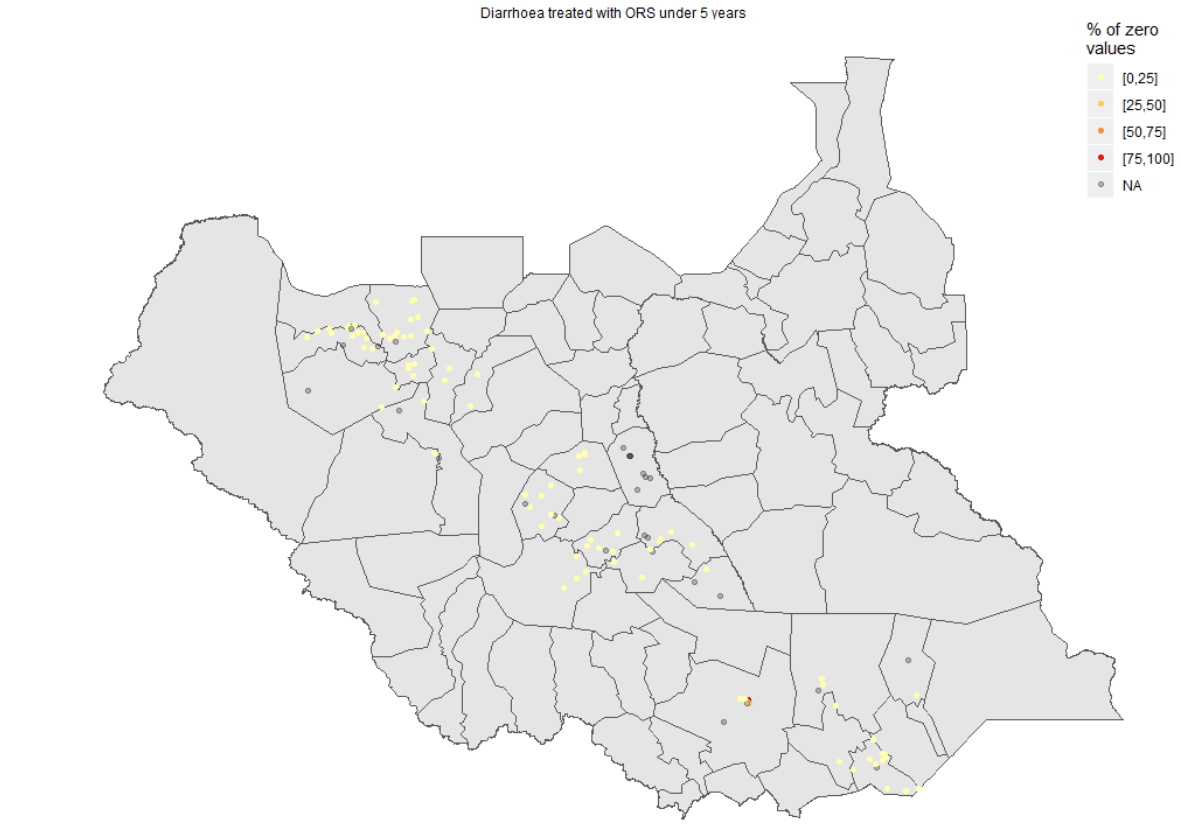

Antenatal client 1st visit
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

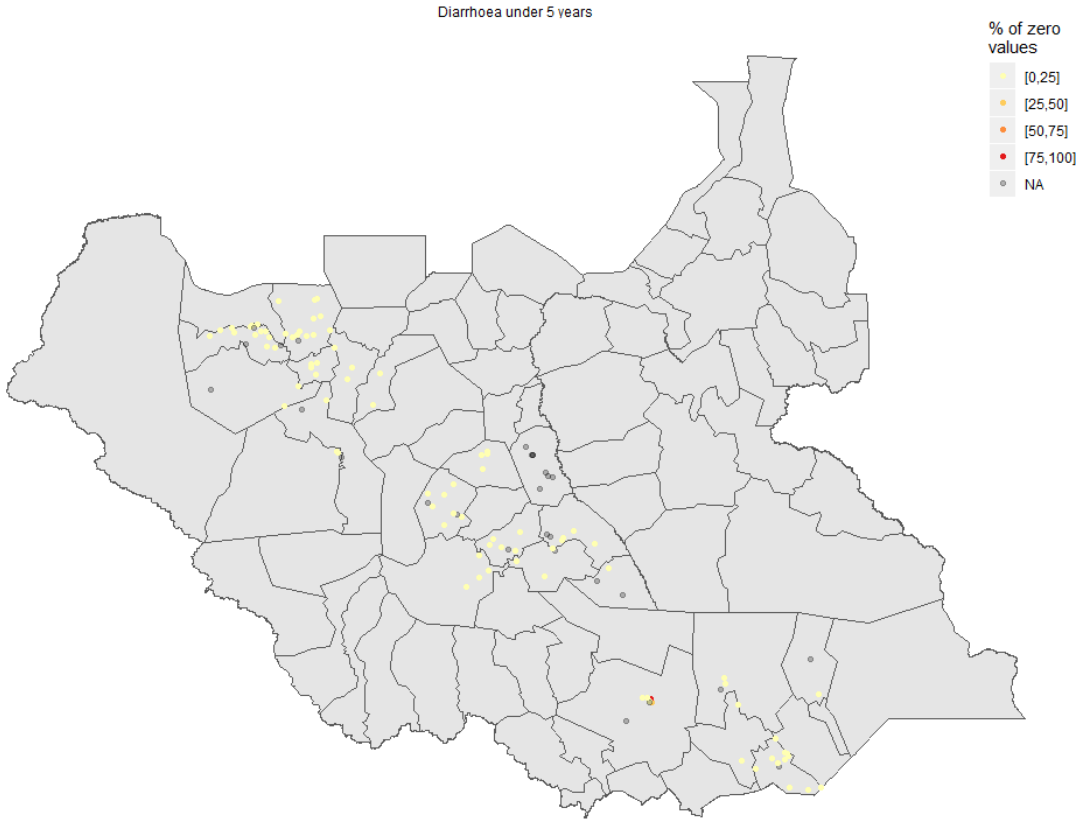

Antenatal client 4th or more visit
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

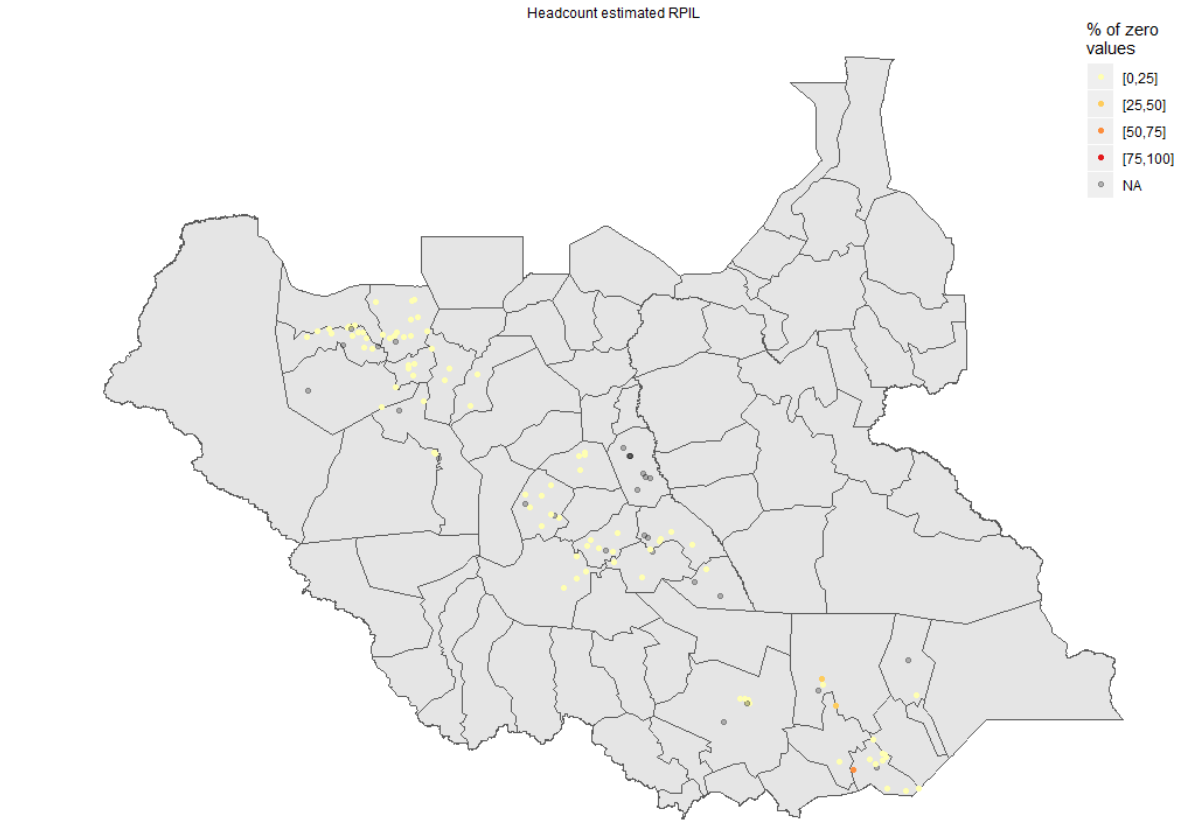

Consultation curative 5 years and older
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

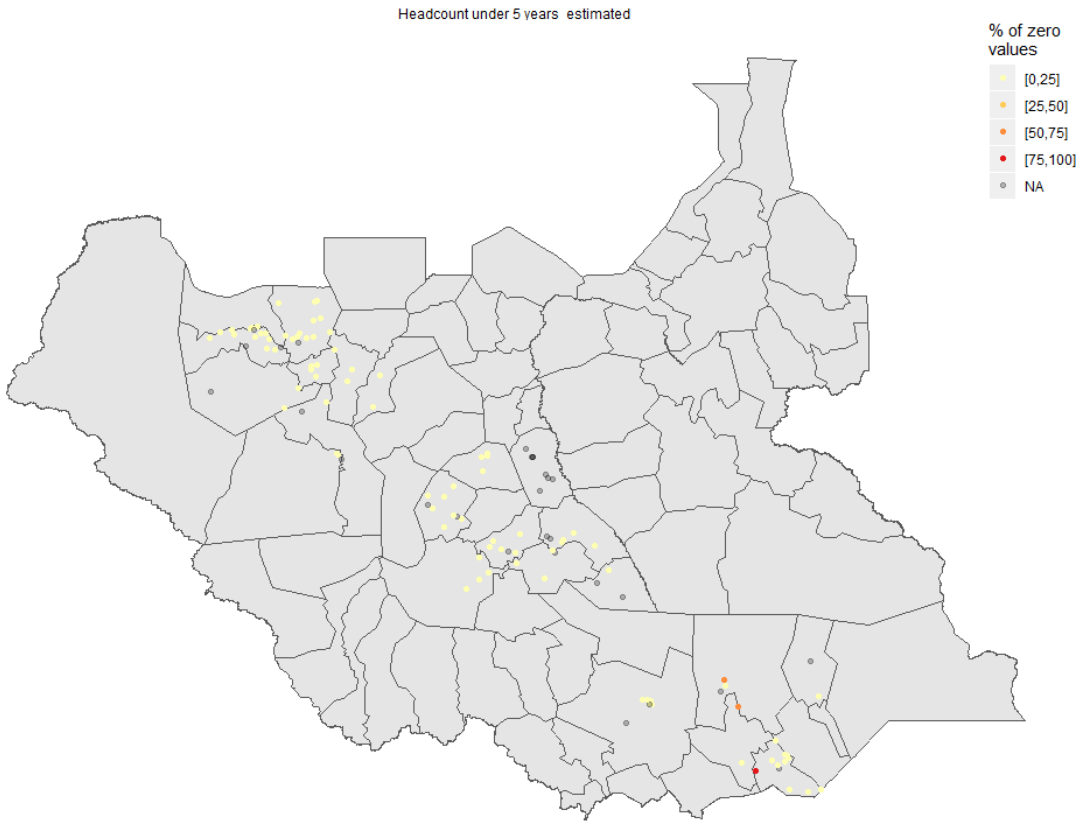

Consultation curative total
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

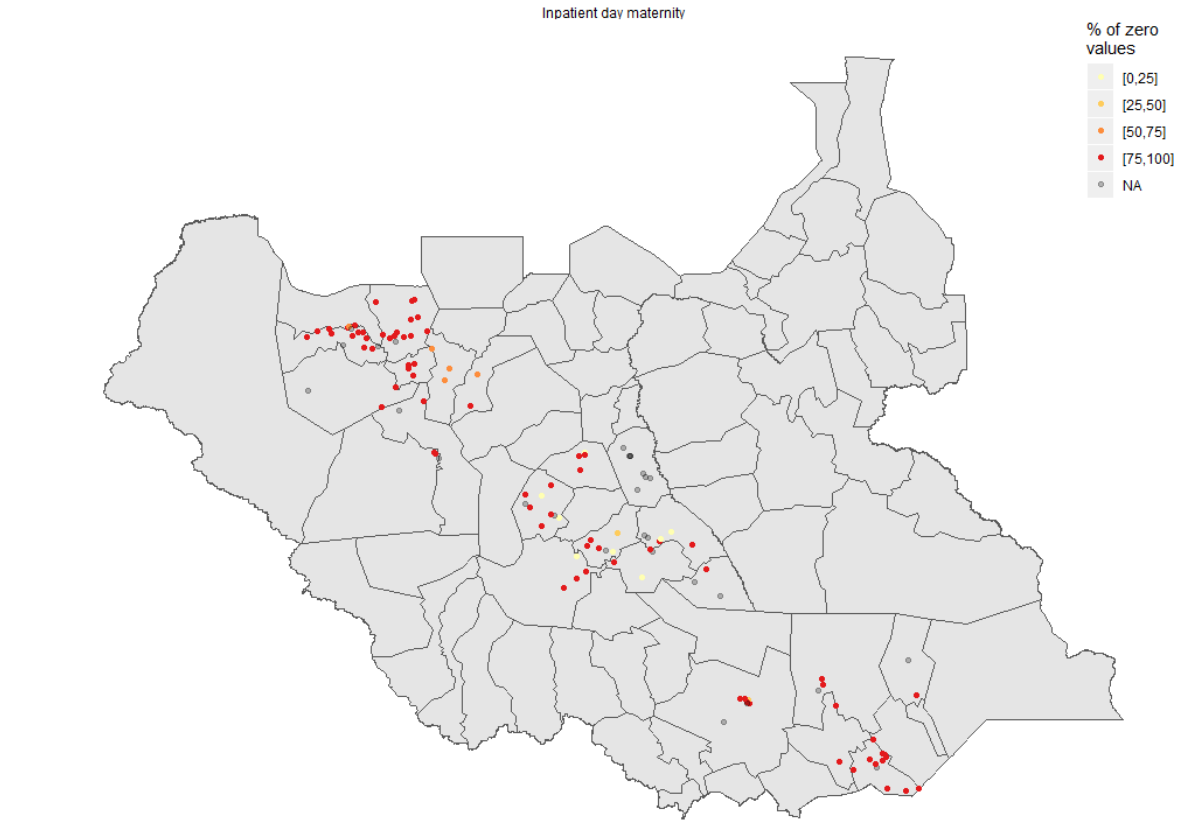

Consultation curative under 5 years
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

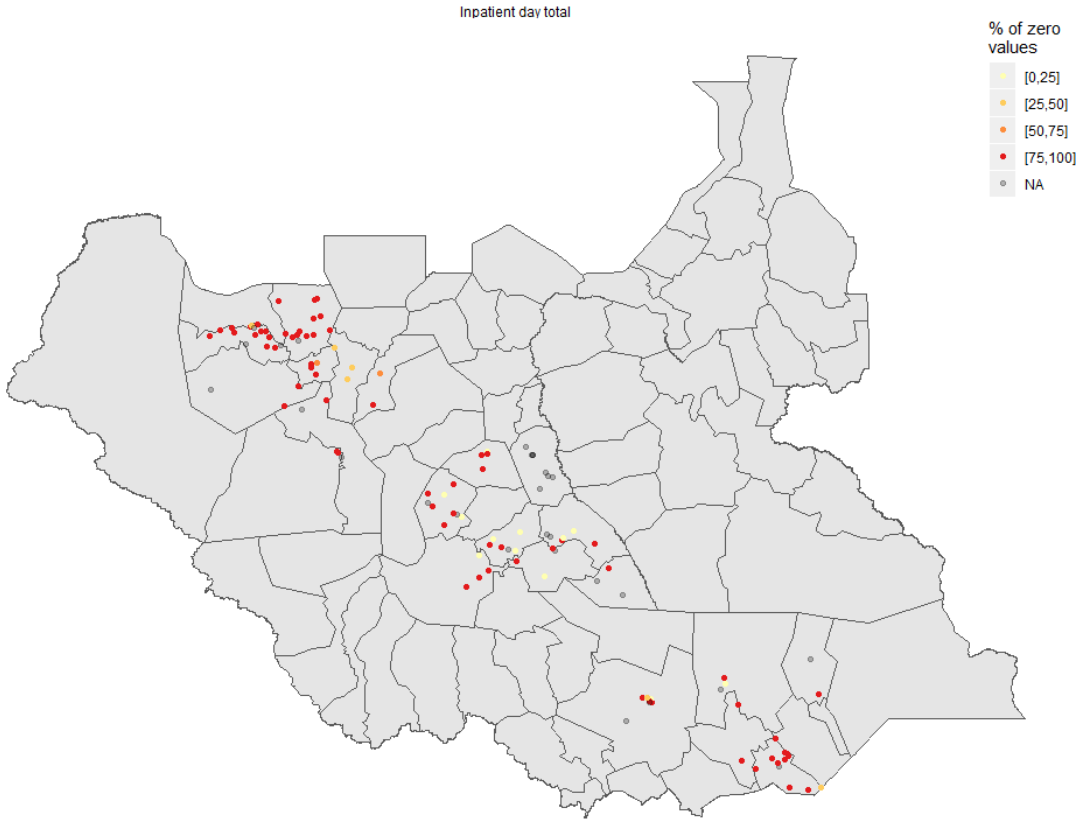

Diarrhoea treated with ORS under 5 years
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

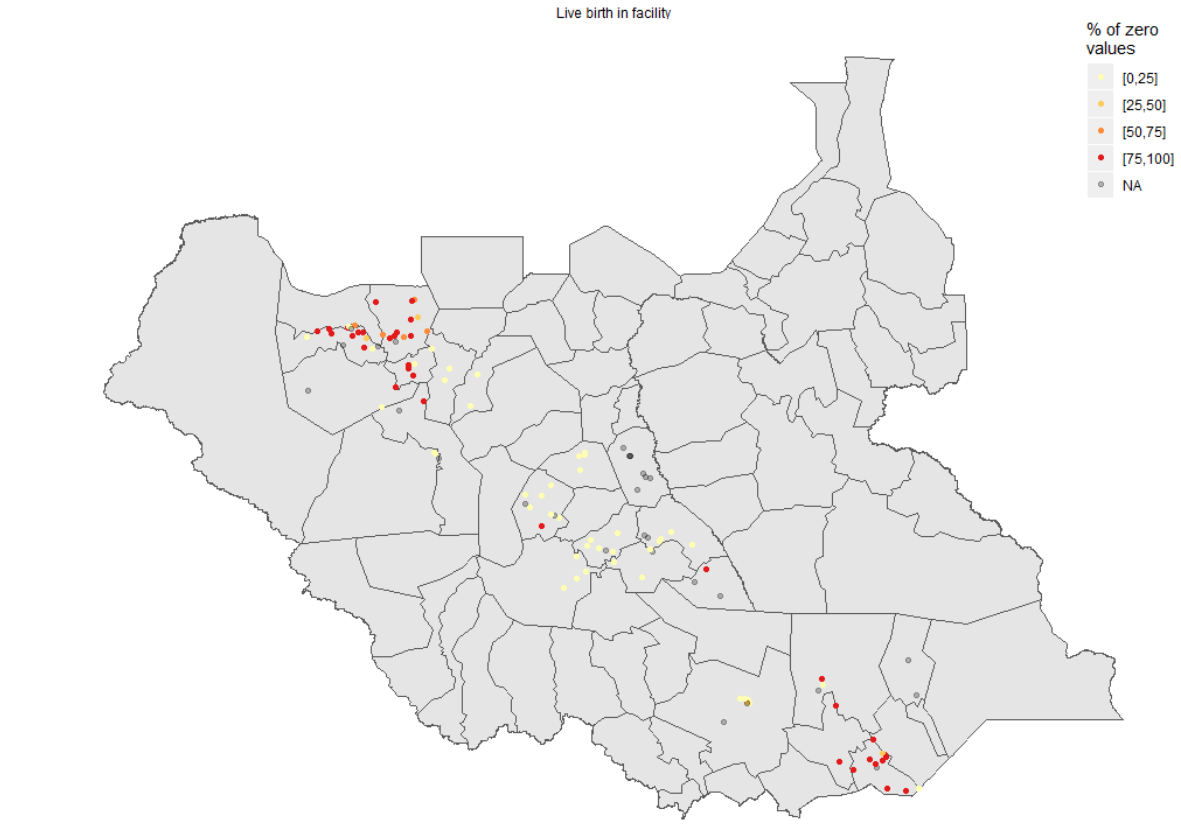

Diarrhoea under 5 years
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

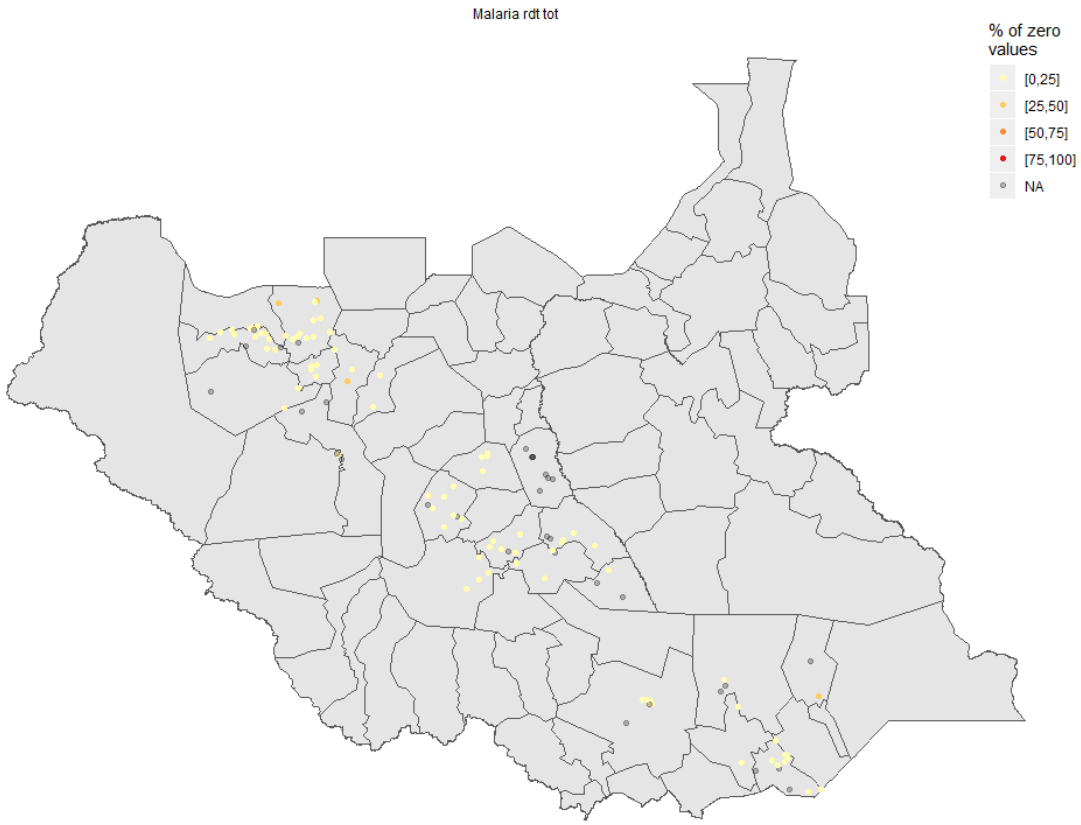

Headcount estimated RPIL
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

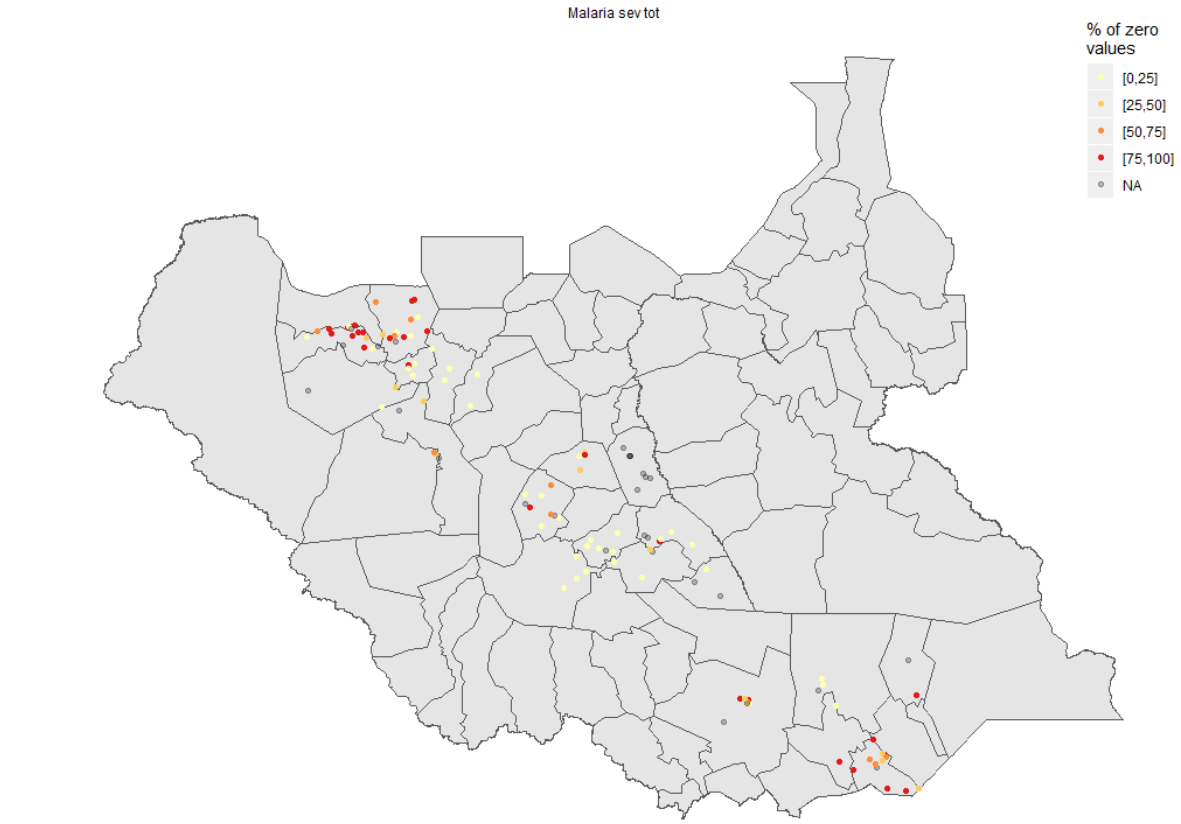

Headcount under 5 years estimated
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

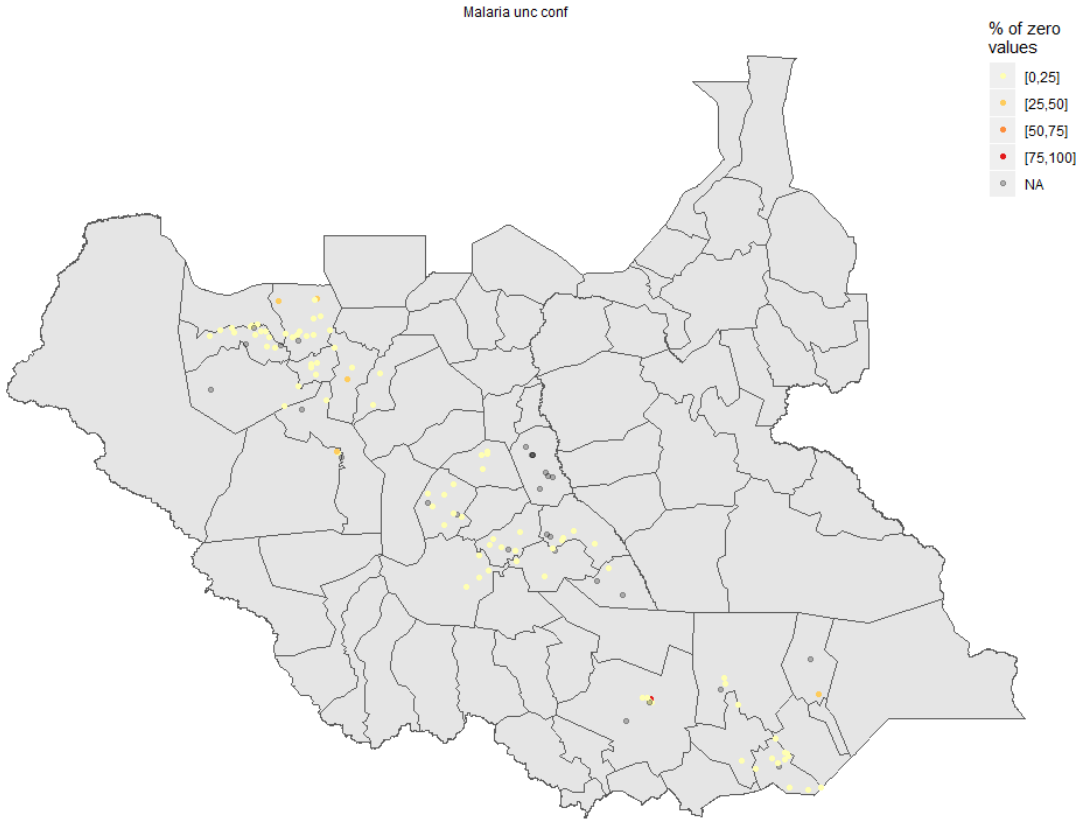

Inpatient day maternity
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

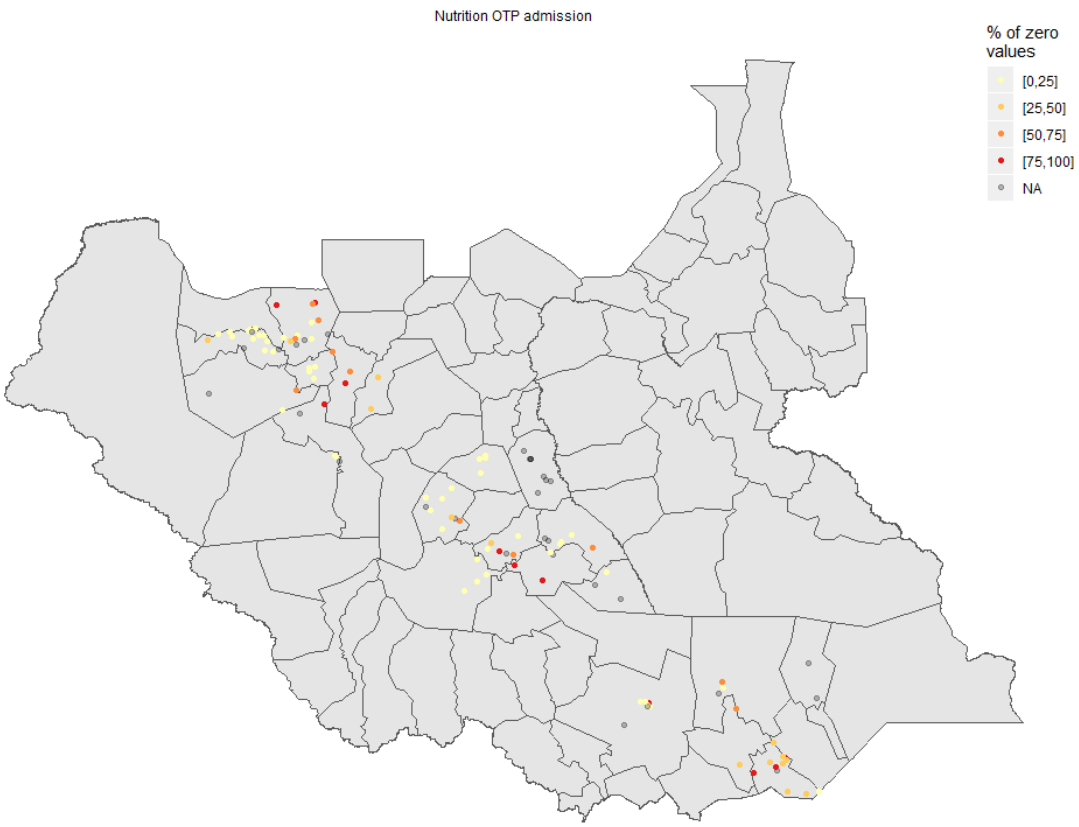

Inpatient day total
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA


Live birth in facility
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA


Malaria rdt tot
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

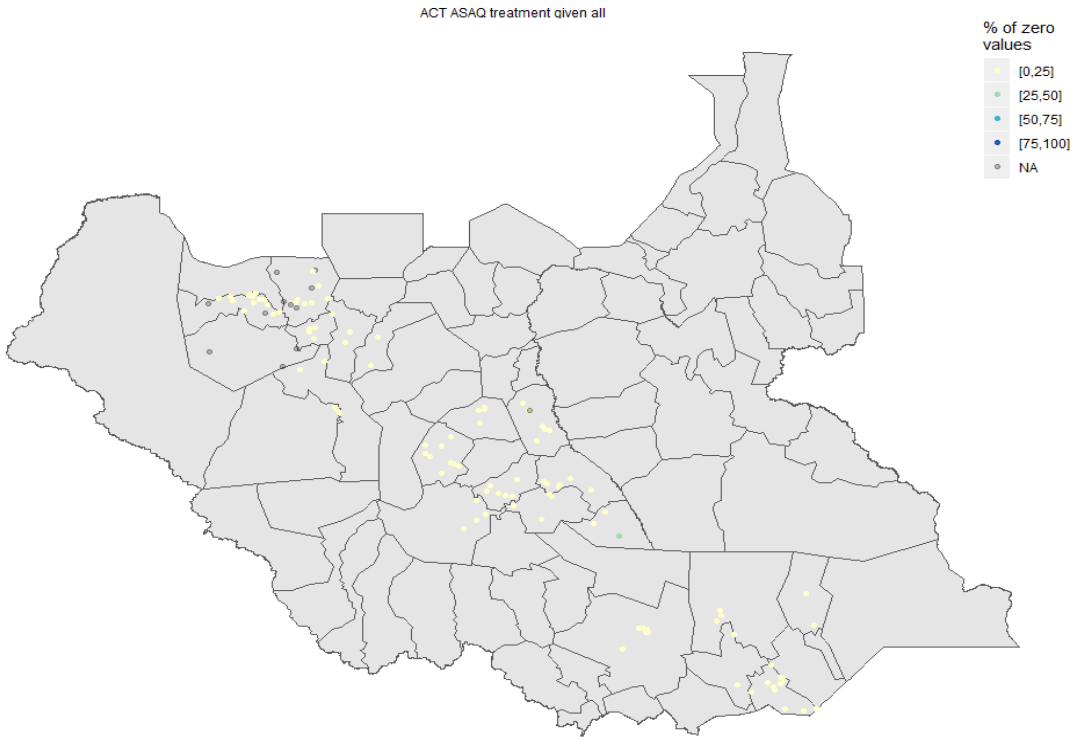

Malaria sev tot
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

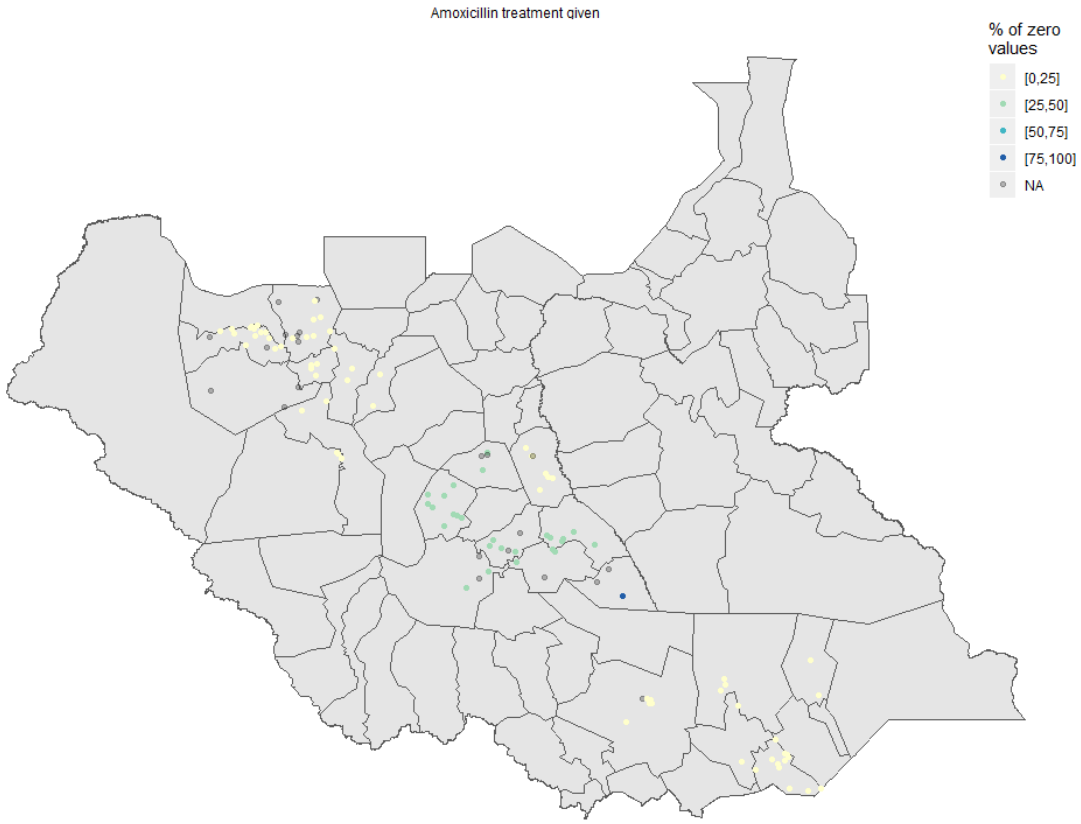

Malaria unc conf
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

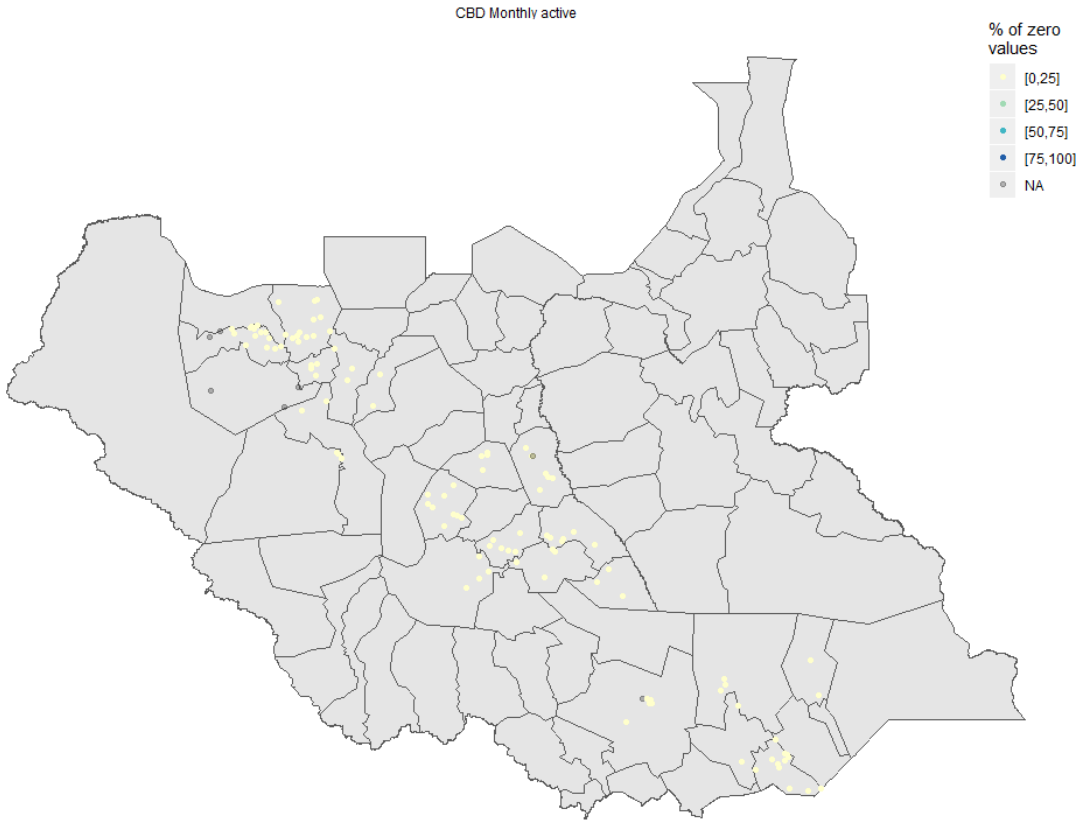

Nutrition OTP admission
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

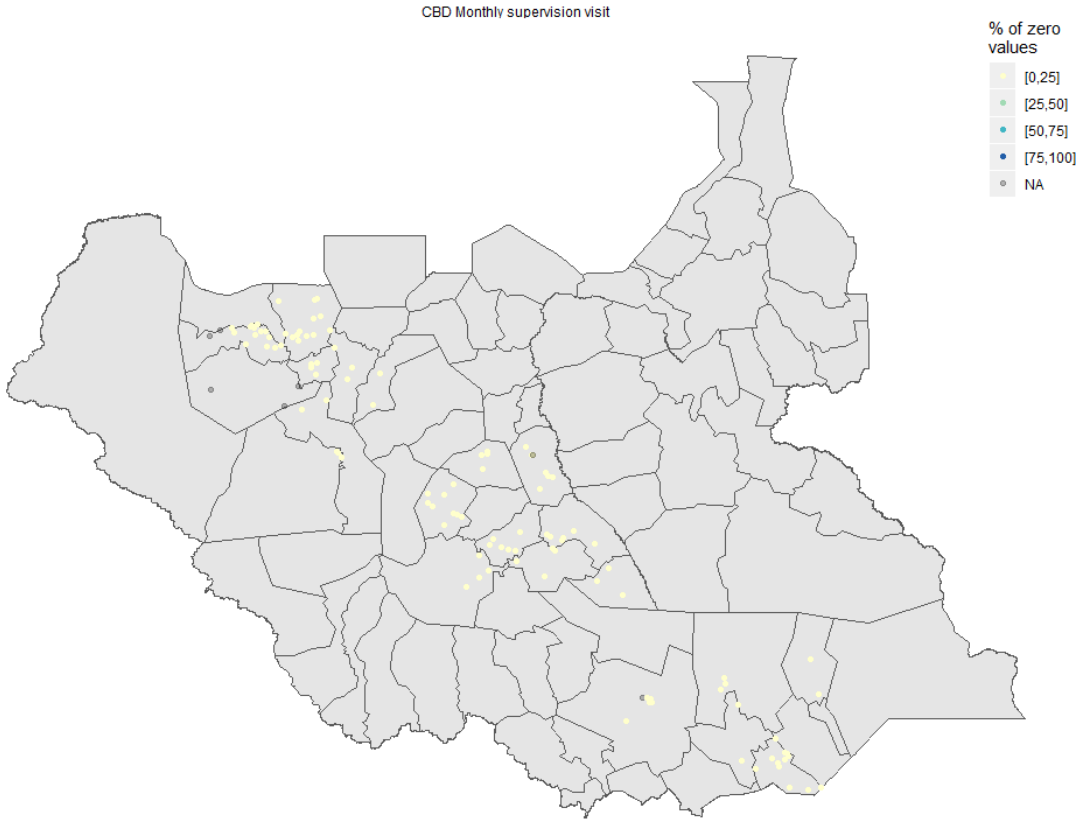
Annex C: iCCM zero reporting

The coloured dots represent each a health facility in HPF3 supported counties. The percentages indicate the % of zero reported monthly for each indicator(map).

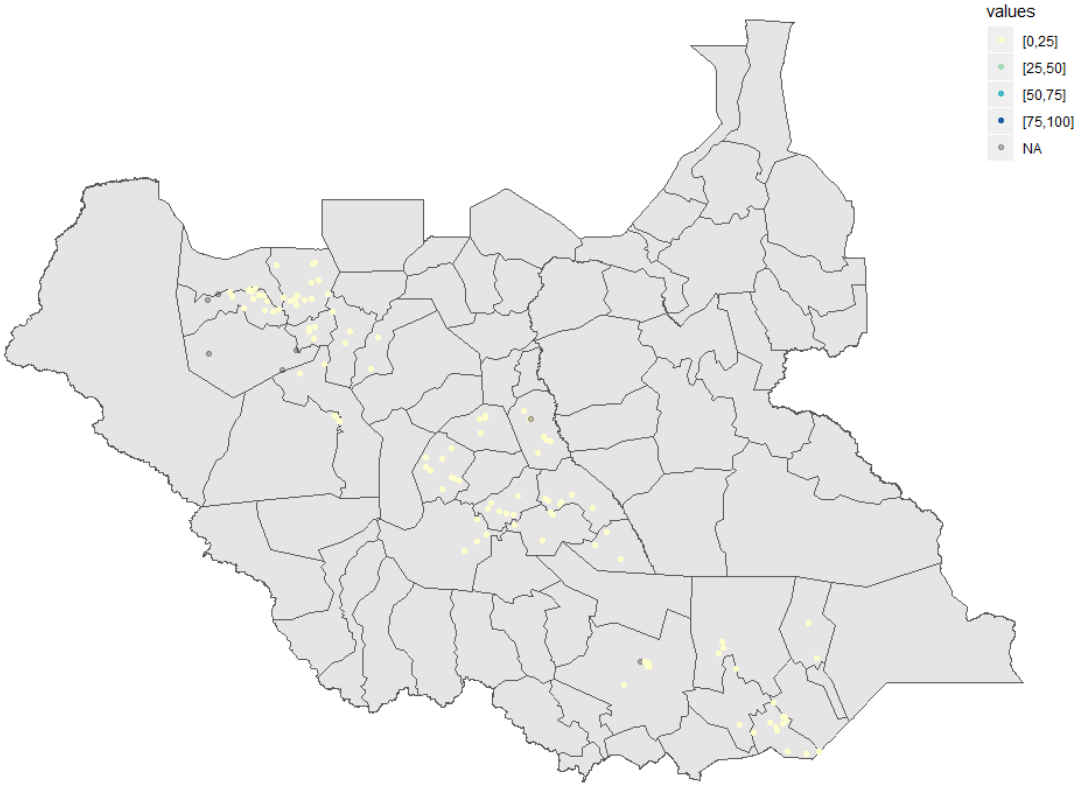

ACT ASAQ treatment given all
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA


Amoxicillin treatment given
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

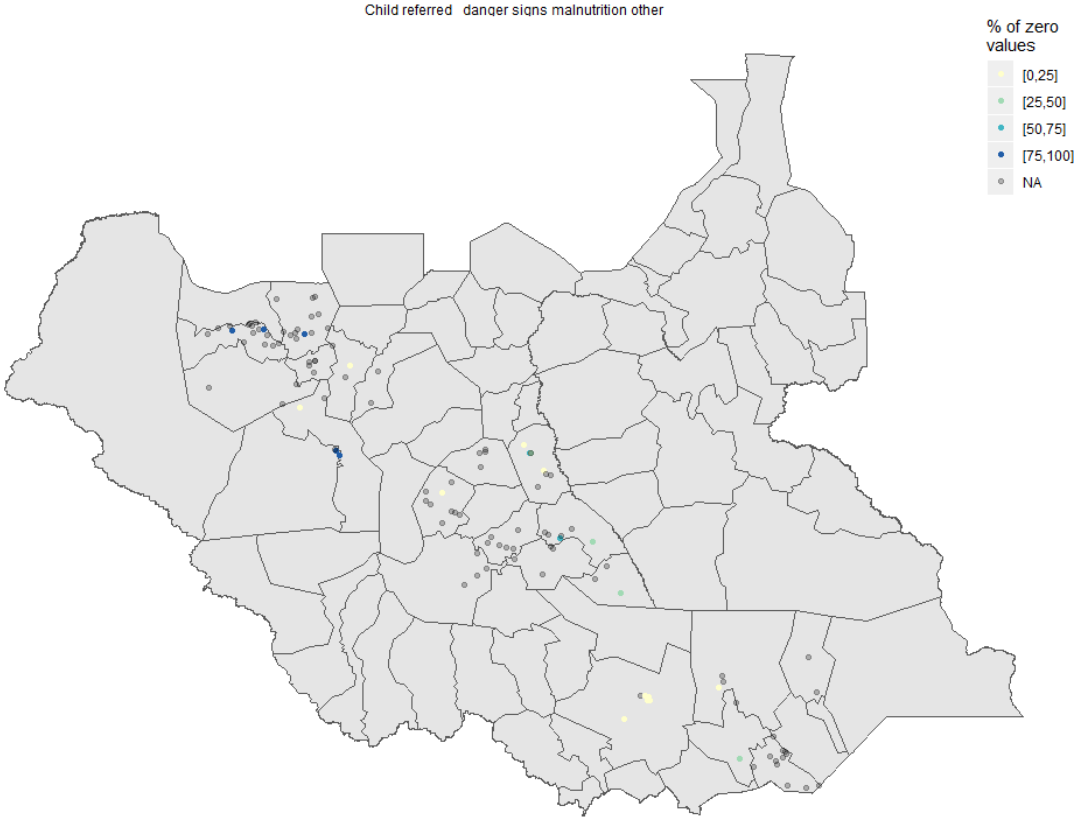

CBD Monthly active
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA


CBD Monthly supervision visit
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

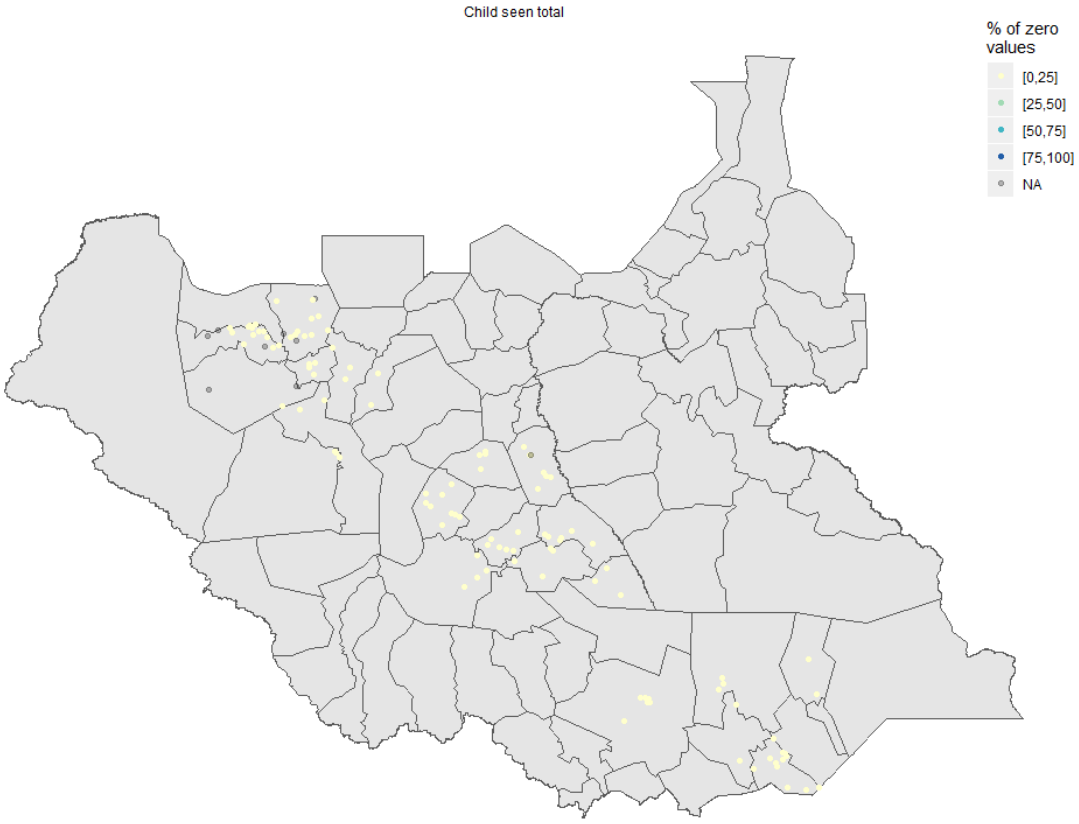
CBD Monthly timely complete report

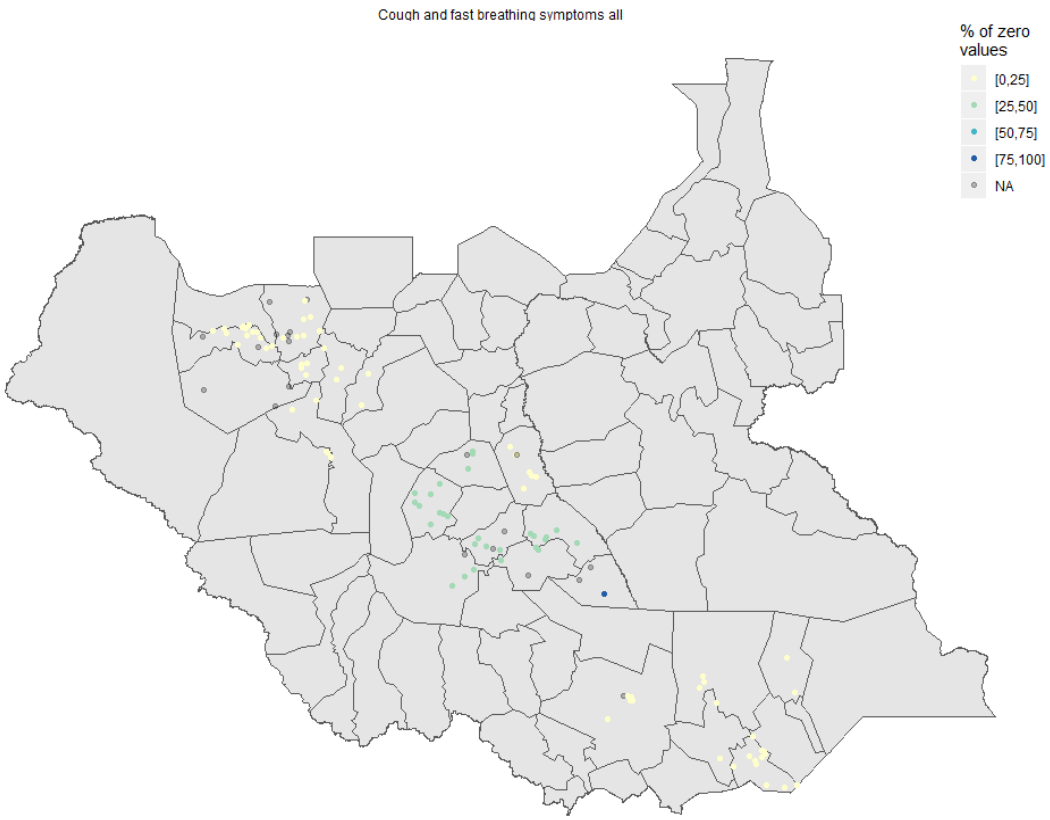


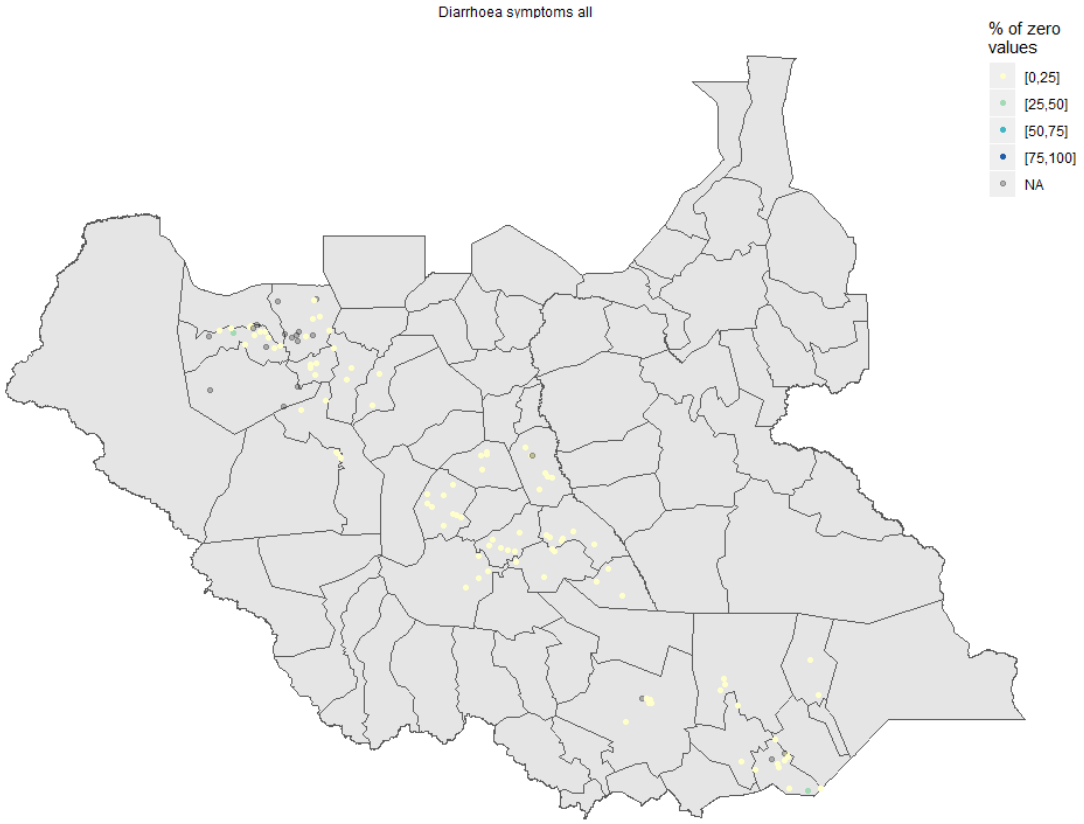
Child referred danger signs malnutrition other

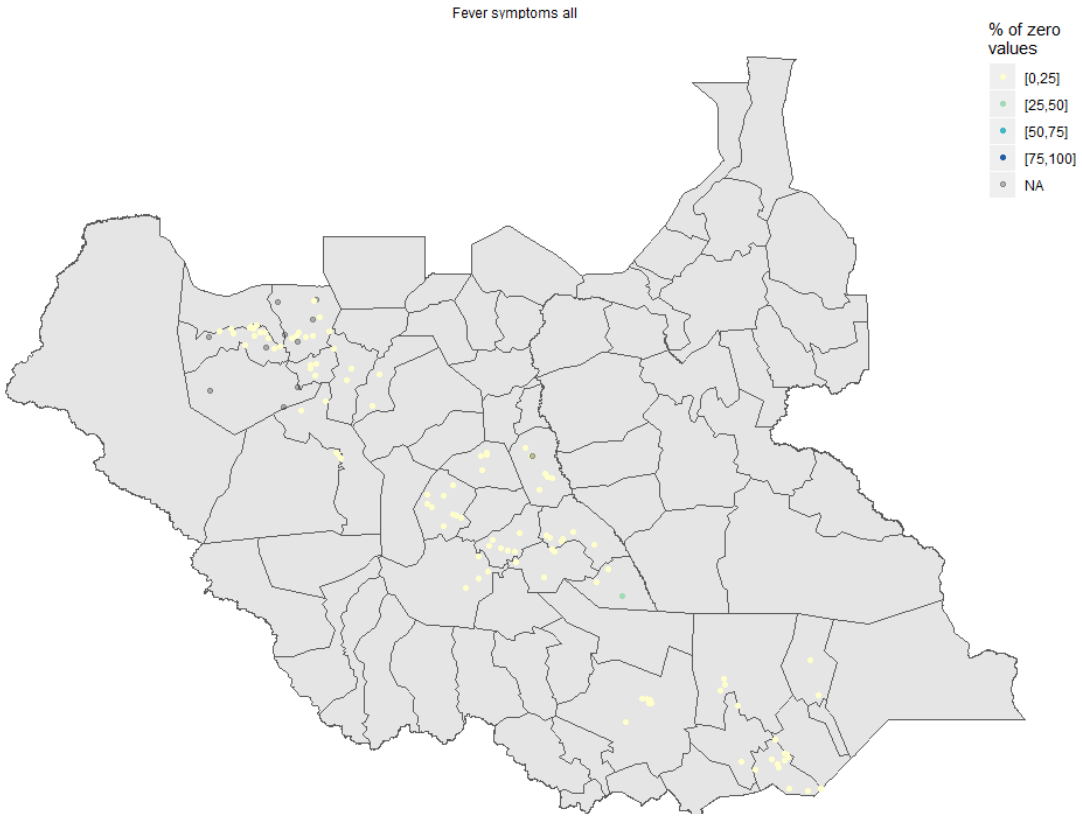


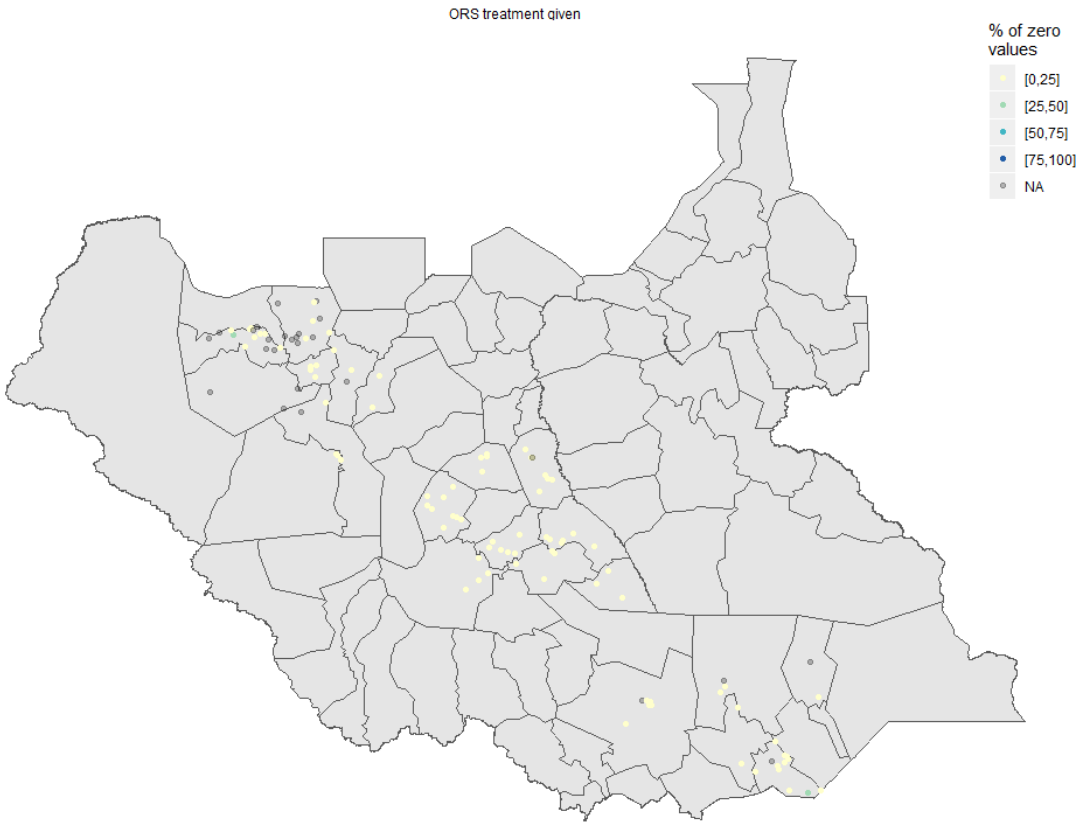

Child screened for malnutrition all
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

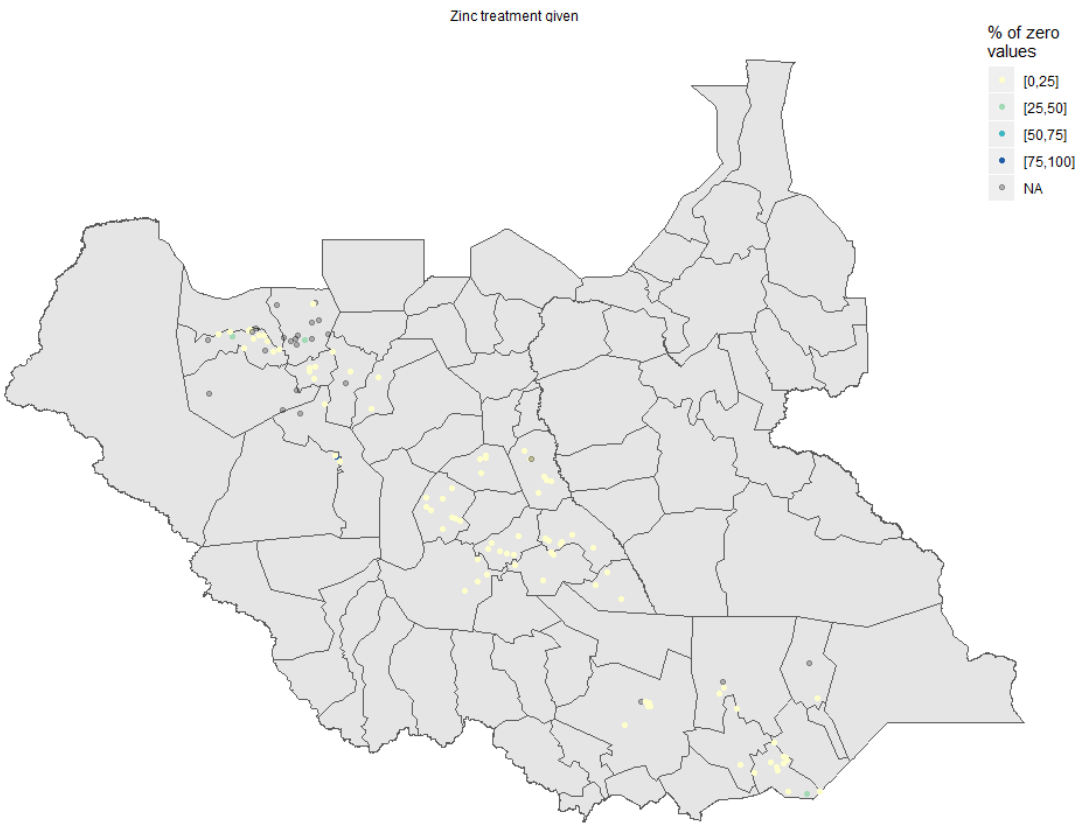

Child seen total
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA


Cough and fast breathing symptoms all
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA


Diarrhoea symptoms all
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

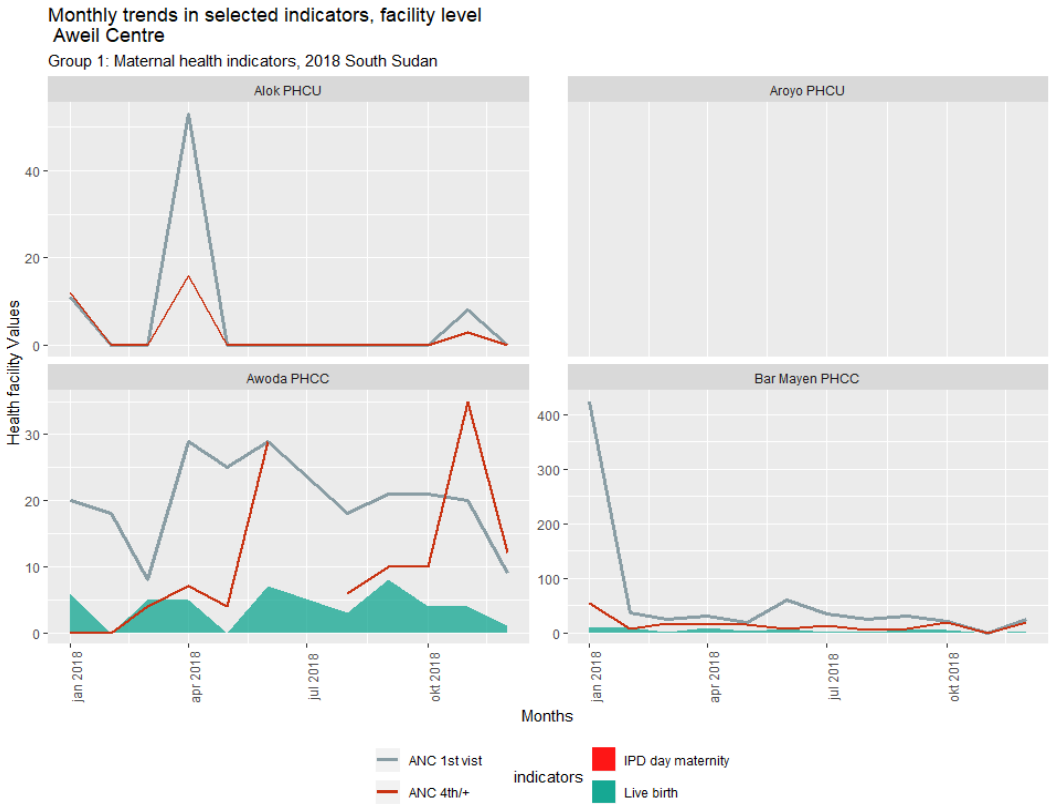

Fever symptoms all
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

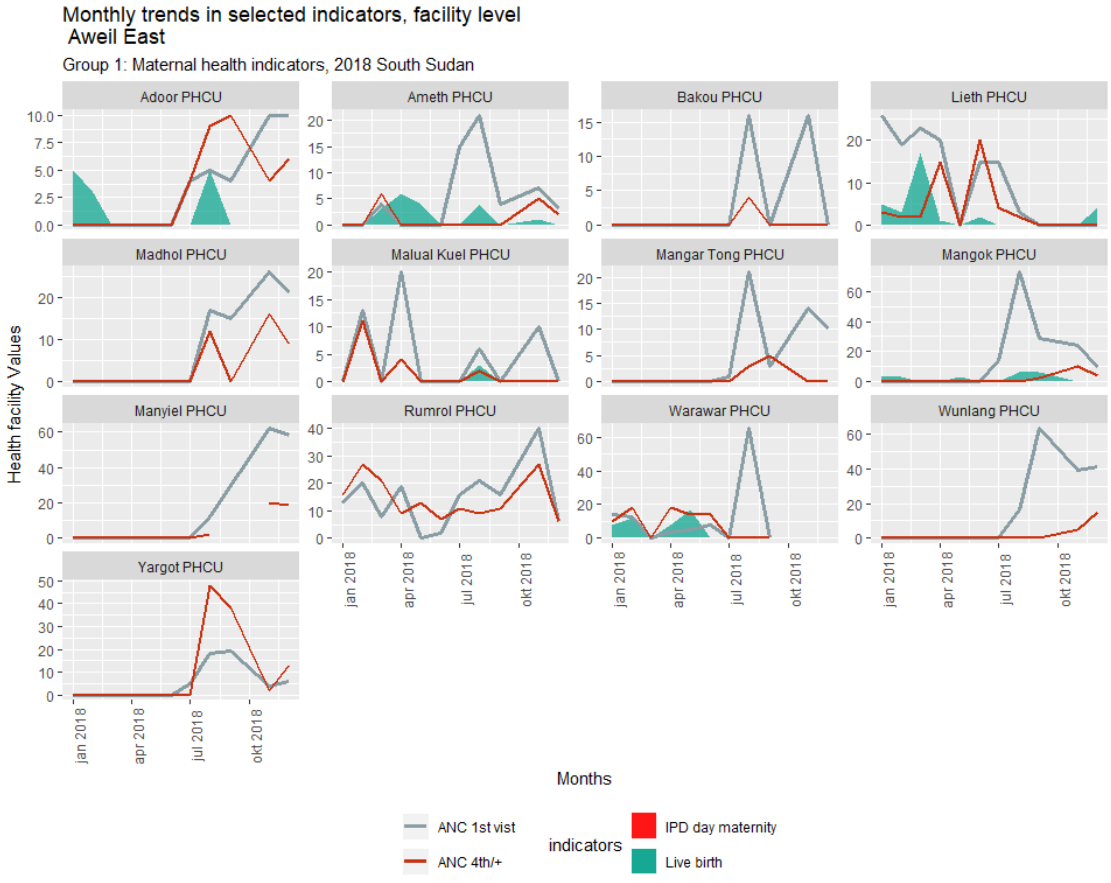

ORS treatment given
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

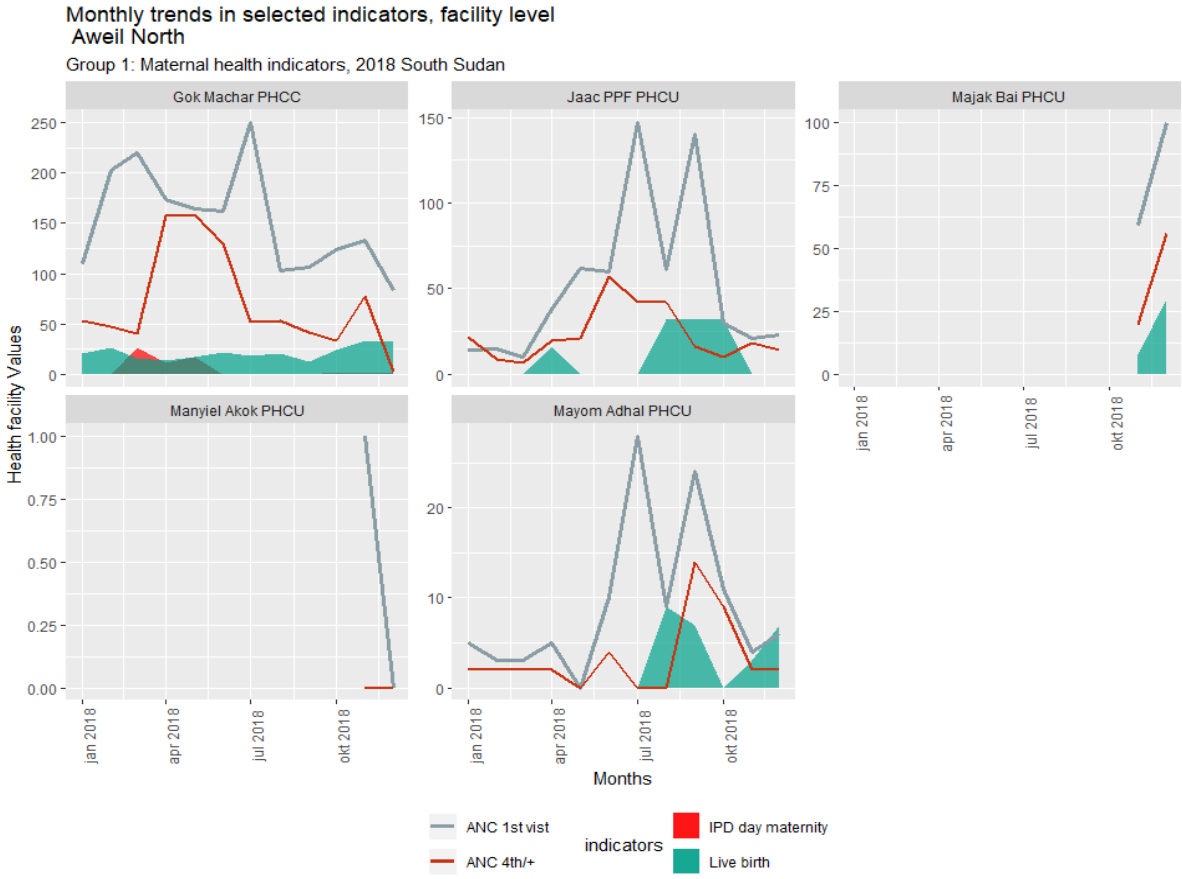

Zinc treatment given
% of zero values
[0,25]
[25,50]
[50,75]
[75,100]
NA

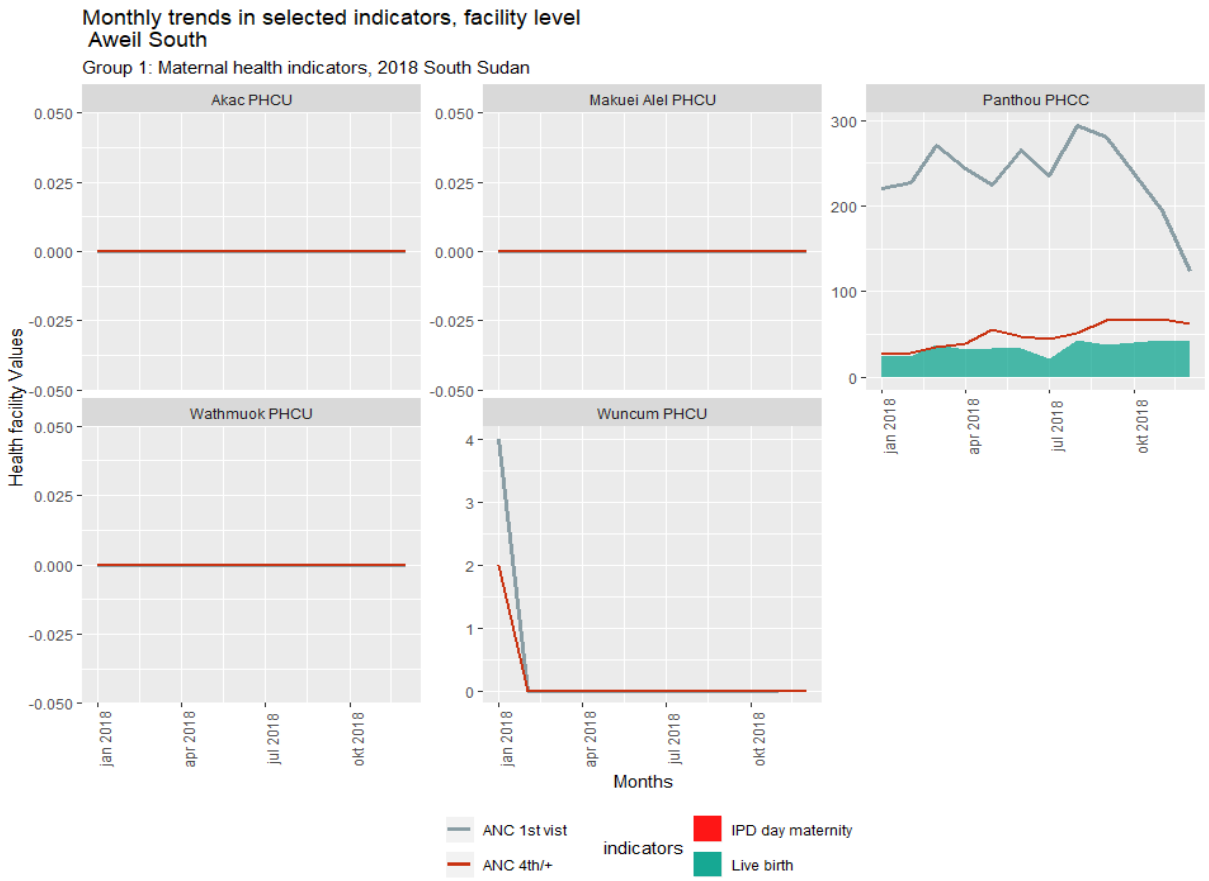
Annex D: Time series of selected indicators, monthly

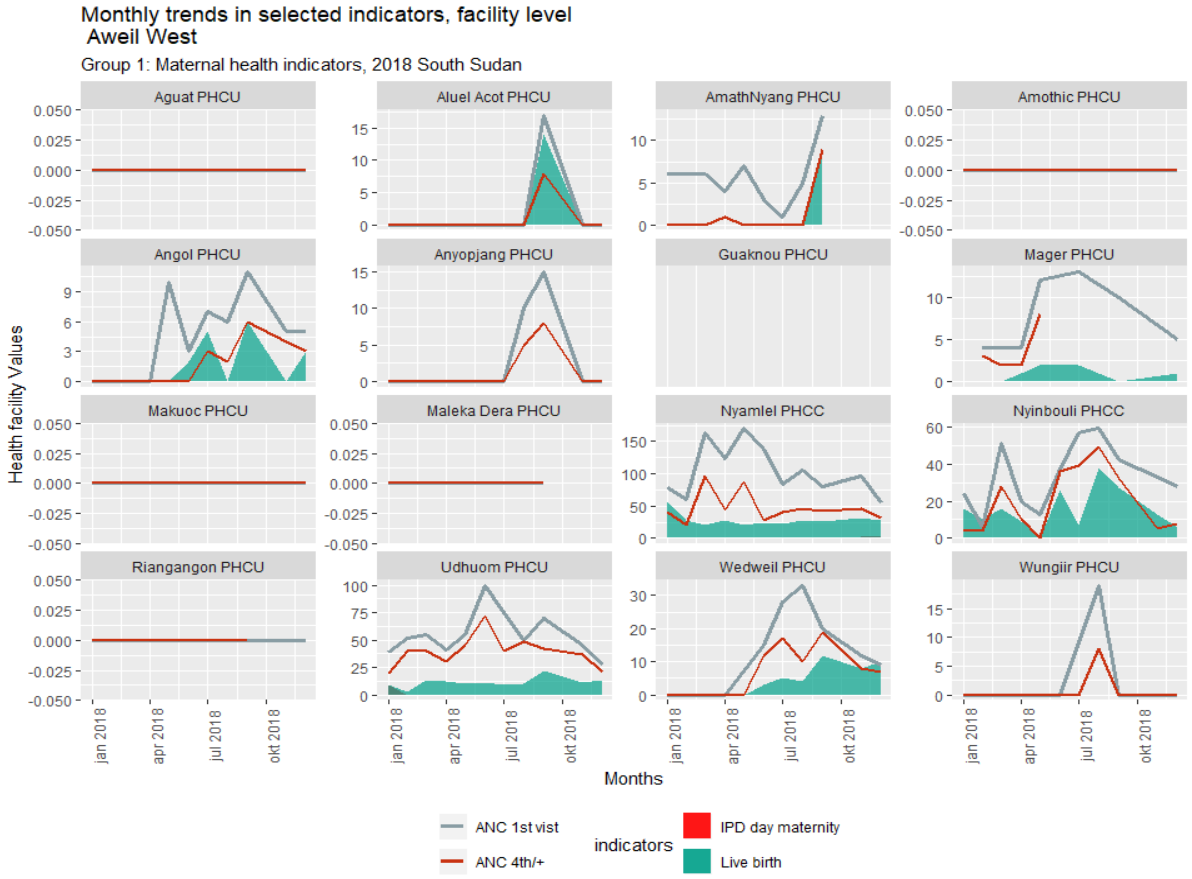
Group 1: Maternal health indicators

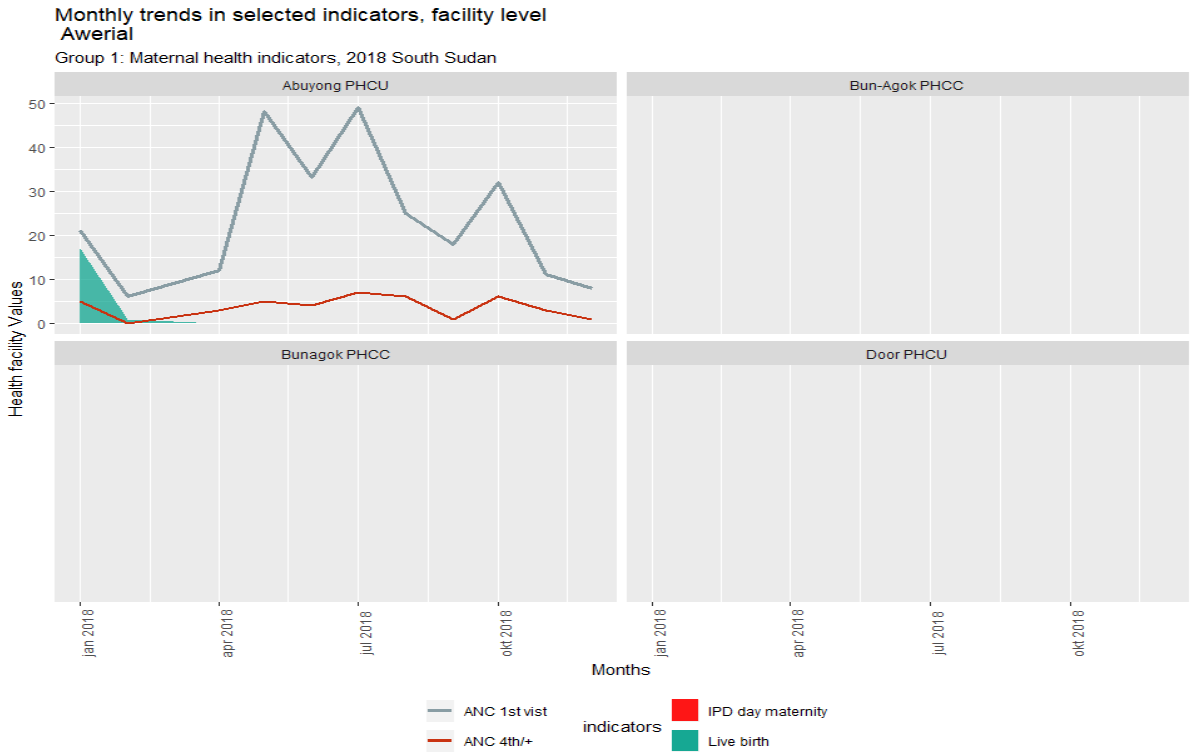

Monthly trends in selected indicators, facility level
Aweil Centre
Group 1: Maternal health indicators, 2018 South Sudan
Alok PHCU
Aroyo PHCU
Awoda PHCC
Bar Mayen PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

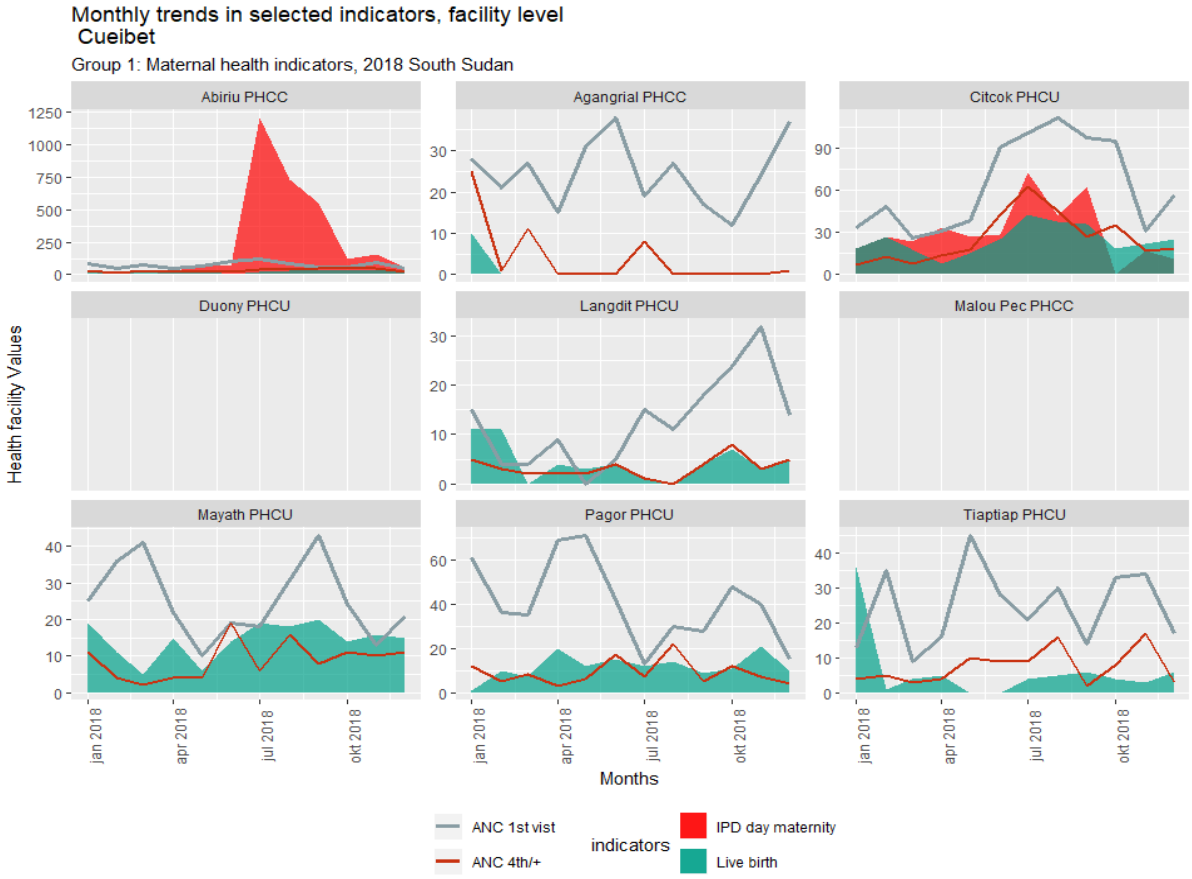

Monthly trends in selected indicators, facility level
Aweil East
Group 1: Maternal health indicators, 2018 South Sudan
Adoor PHCU
Ameth PHCU
Bakou PHCU
Lieth PHCU
Madhol PHCU
Malual Kuel PHCU
Mangar Tong PHCU
Mangok PHCU
Manyiel PHCU
Rumrol PHCU
Warawar PHCU
Wunlang PHCU
Yargot PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

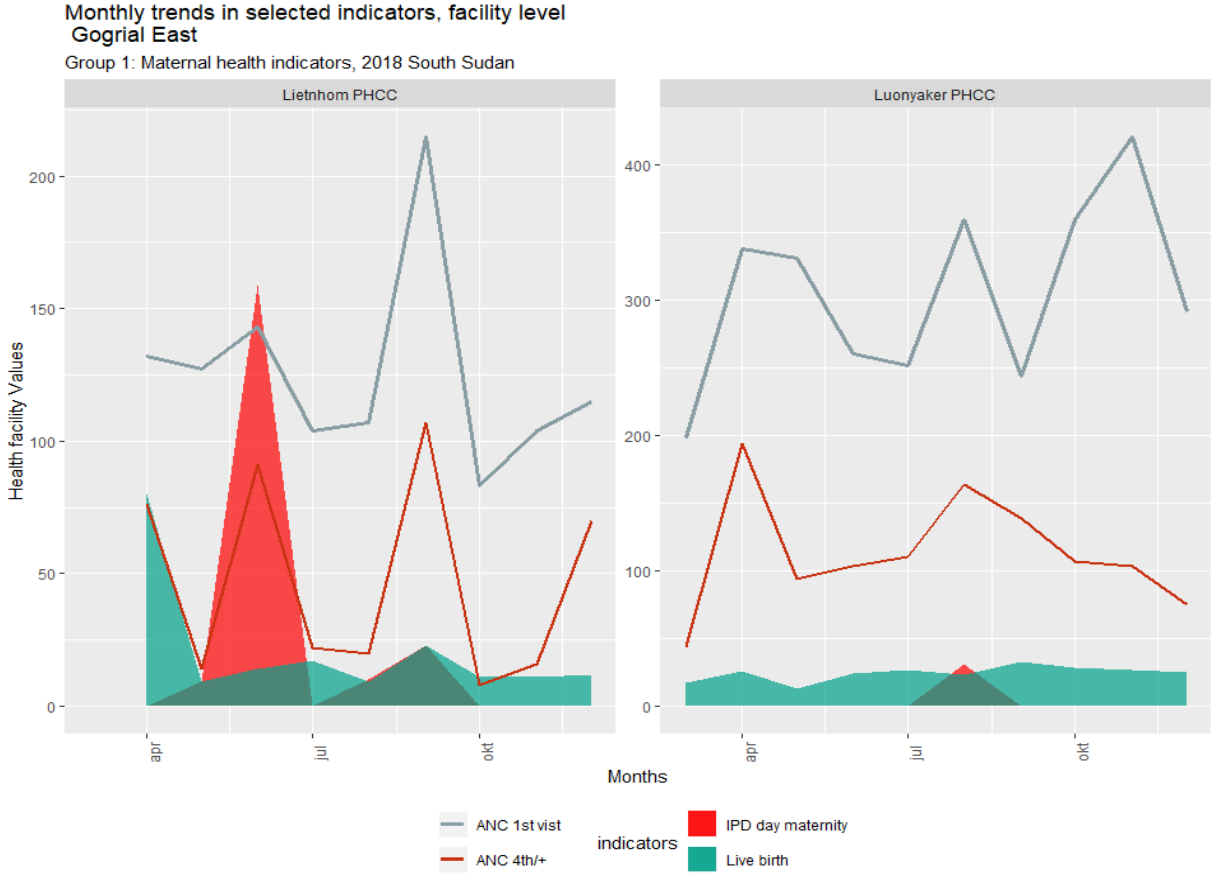

Monthly trends in selected indicators, facility level
Aweil North
Group 1: Maternal health indicators, 2018 South Sudan
Gok Machar PHCC
Jaac PPF PHCU
Majak Bai PHCU
Manyiel Akok PHCU
Mayom Adhal PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

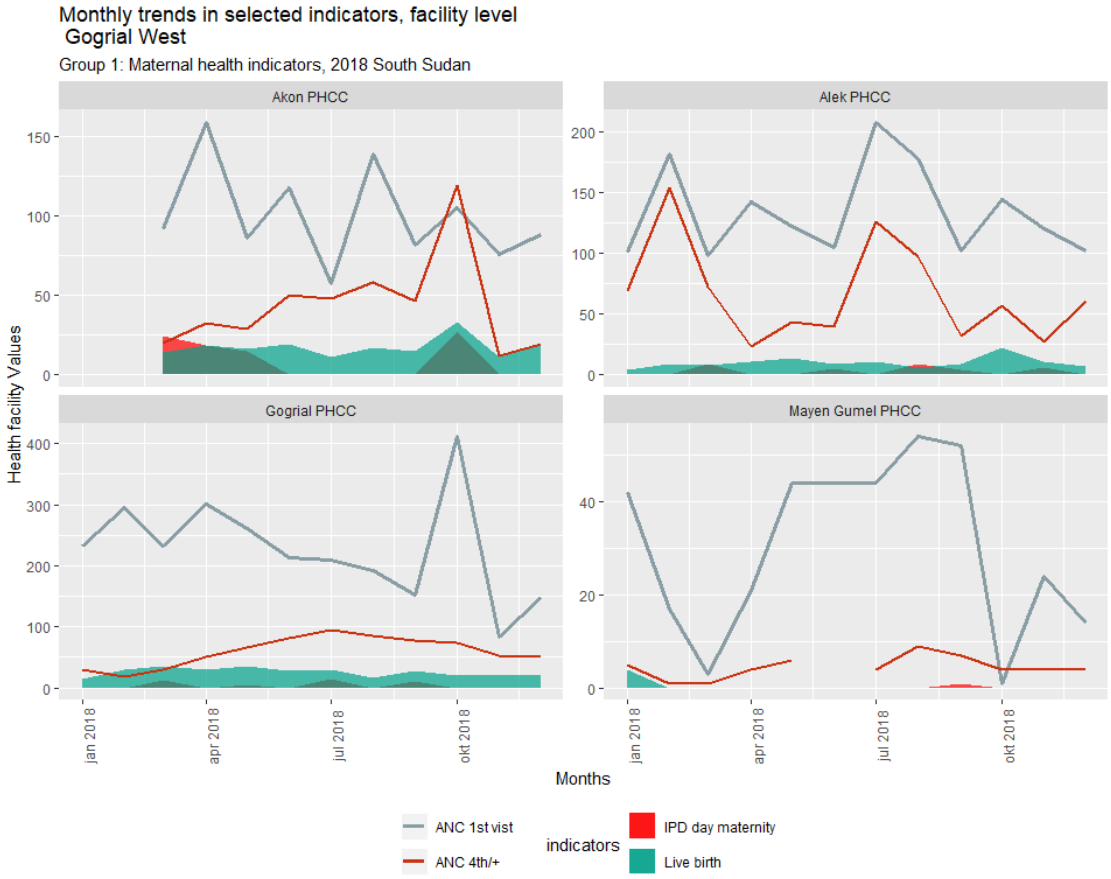

Monthly trends in selected indicators, facility level
Aweil South
Group 1: Maternal health indicators, 2018 South Sudan
Akac PHCU
Makuei Alel PHCU
Panthou PHCC
Wathmuok PHCU
Wuncum PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

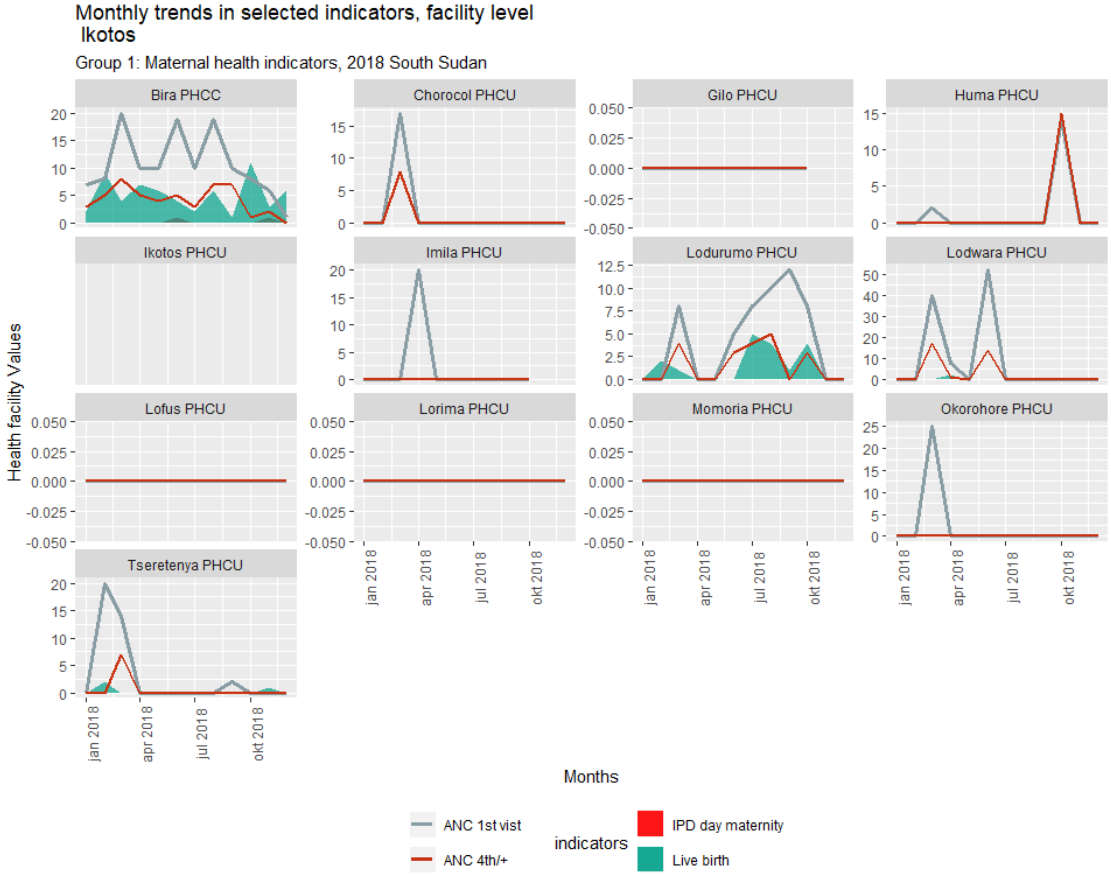

Monthly trends in selected indicators, facility level
Aweil West
Group 1: Maternal health indicators, 2018 South Sudan
Aguat PHCU
Aluel Acot PHCU
AmathNyang PHCU
Amothic PHCU
Angol PHCU
Anyopjang PHCU
Guaknou PHCU
Mager PHCU
Makuoc PHCU
Maleka Dera PHCU
Nyamlel PHCC
Nyinbouli PHCC
Riangangon PHCU
Udhuom PHCU
Wedweil PHCU
Wungiir PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

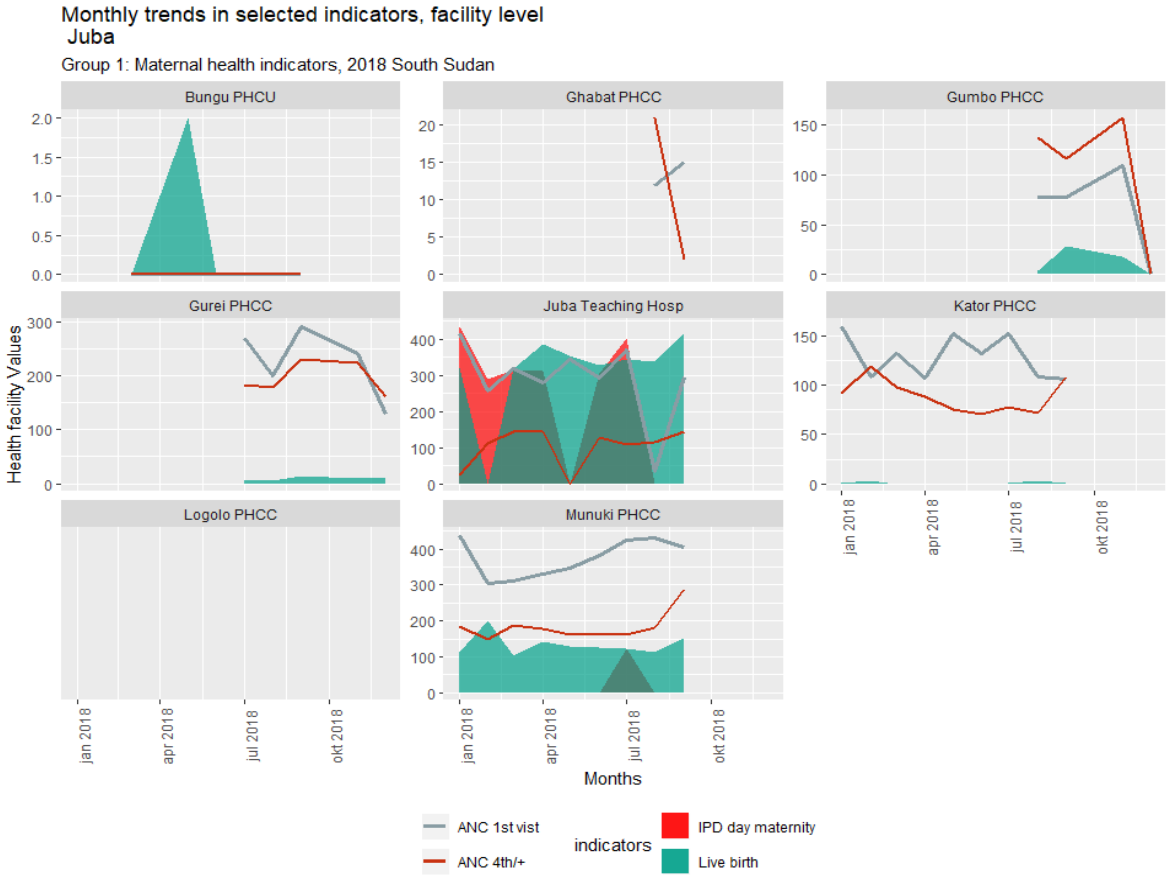

Monthly trends in selected indicators, facility level
Awerial
Group 1: Maternal health indicators, 2018 South Sudan
Abuyong PHCU
Bun-Agok PHCC
Bunagok PHCC
Door PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

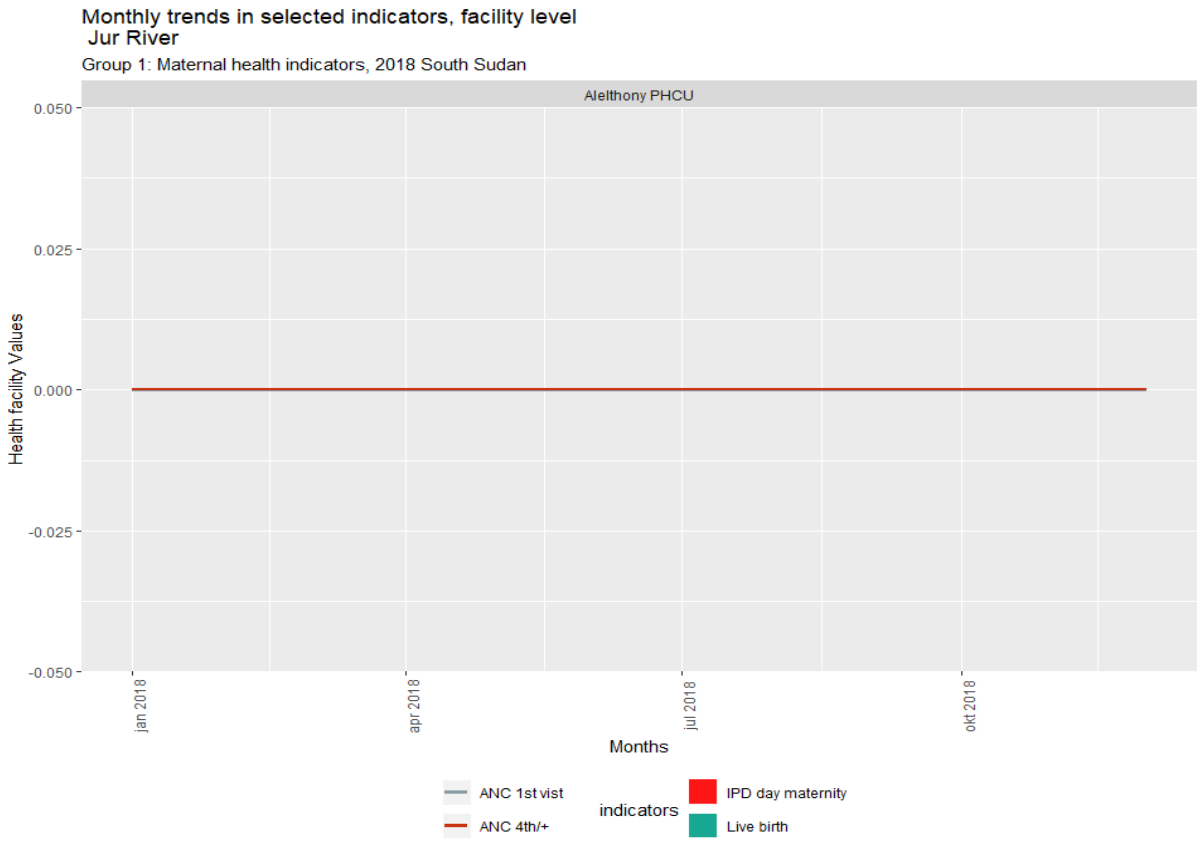

Monthly trends in selected indicators, facility level
Cueibet
Group 1: Maternal health indicators, 2018 South Sudan
Abiriu PHCC
Agangrial PHCC
Citcok PHCU
Duony PHCU
Langdit PHCU
Malou Pec PHCC
Mayath PHCU
Pagor PHCU
Tiaptiap PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

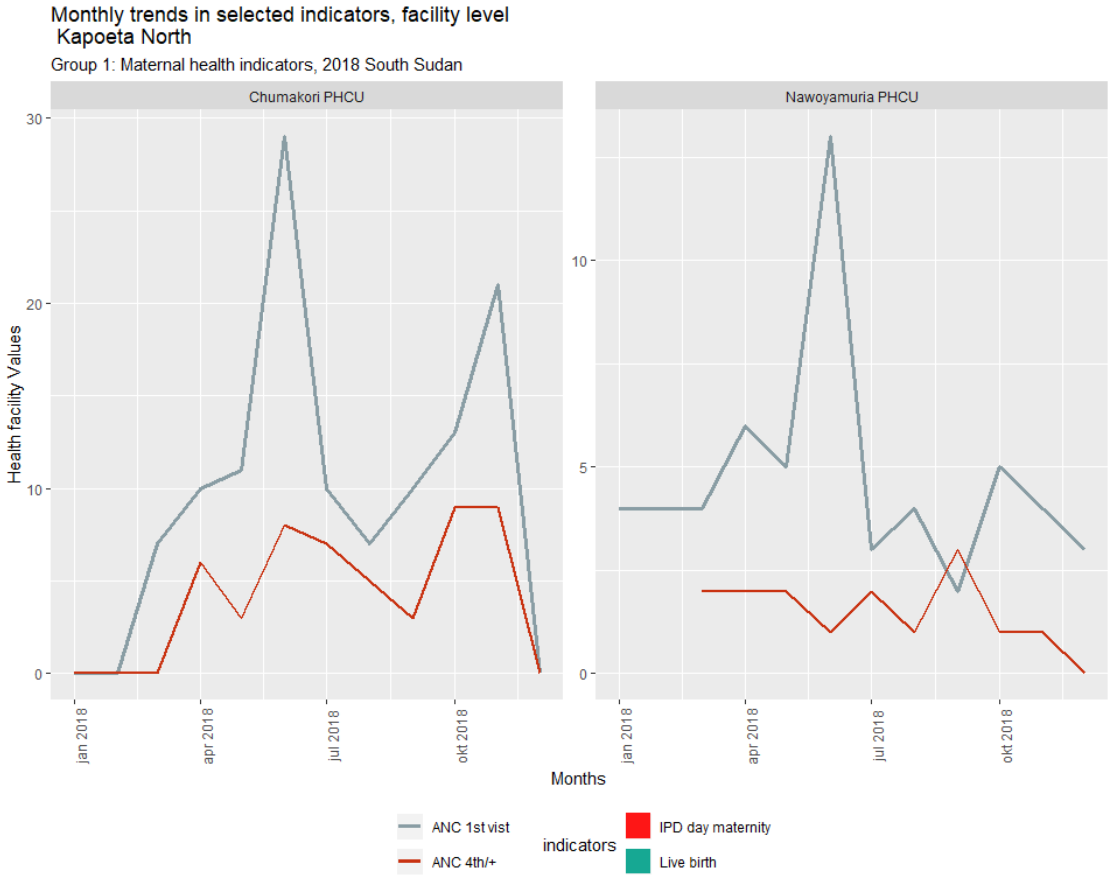

Monthly trends in selected indicators, facility level
Gogrial East
Group 1: Maternal health indicators, 2018 South Sudan
Lietnhom PHCC
Luonyaker PHCC
Health facility Values
apr
jul
okt
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

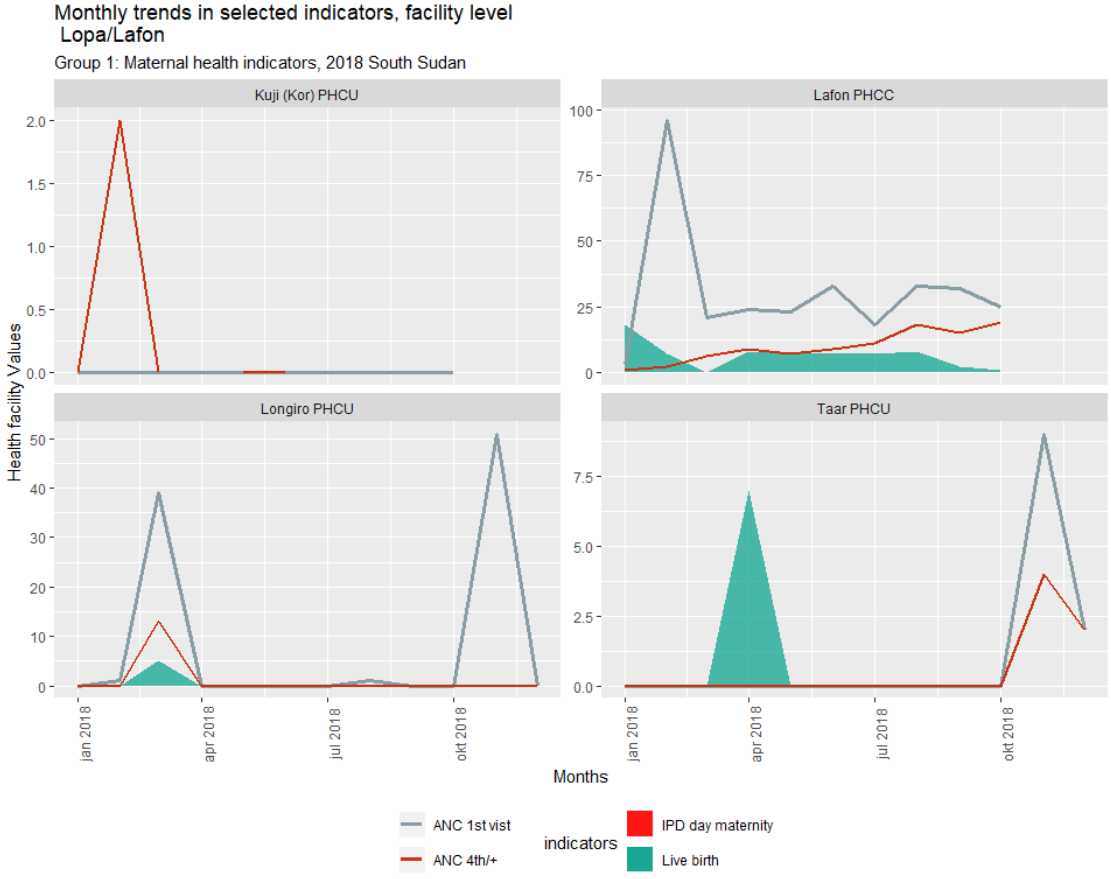

Monthly trends in selected indicators, facility level
Gogrial West
Group 1: Maternal health indicators, 2018 South Sudan
Akon PHCC
Alek PHCC
Gogrial PHCC
Mayen Gumel PHCC
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth


Monthly trends in selected indicators, facility level
Ikotos
Group 1: Maternal health indicators, 2018 South Sudan
Bira PHCC
Chorocol PHCU
Gilo PHCU
Huma PHCU
Ikotos PHCU
Imila PHCU
Lodurumo PHCU
Lodwara PHCU
Lofus PHCU
Lorima PHCU
Momoria PHCU
Okorohore PHCU
Tseretenya PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth


Monthly trends in selected indicators, facility level
Juba
Group 1: Maternal health indicators, 2018 South Sudan
Bungu PHCU
Ghabat PHCC
Gumbo PHCC
Gurei PHCC
Juba Teaching Hosp
Kator PHCC
Logolo PHCC
Munuki PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth


Monthly trends in selected indicators, facility level
Jur River
Group 1: Maternal health indicators, 2018 South Sudan
Alelthony PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth


Monthly trends in selected indicators, facility level
Kapoeta North
Group 1: Maternal health indicators, 2018 South Sudan
Chumakori PHCU
Nawoyamuria PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

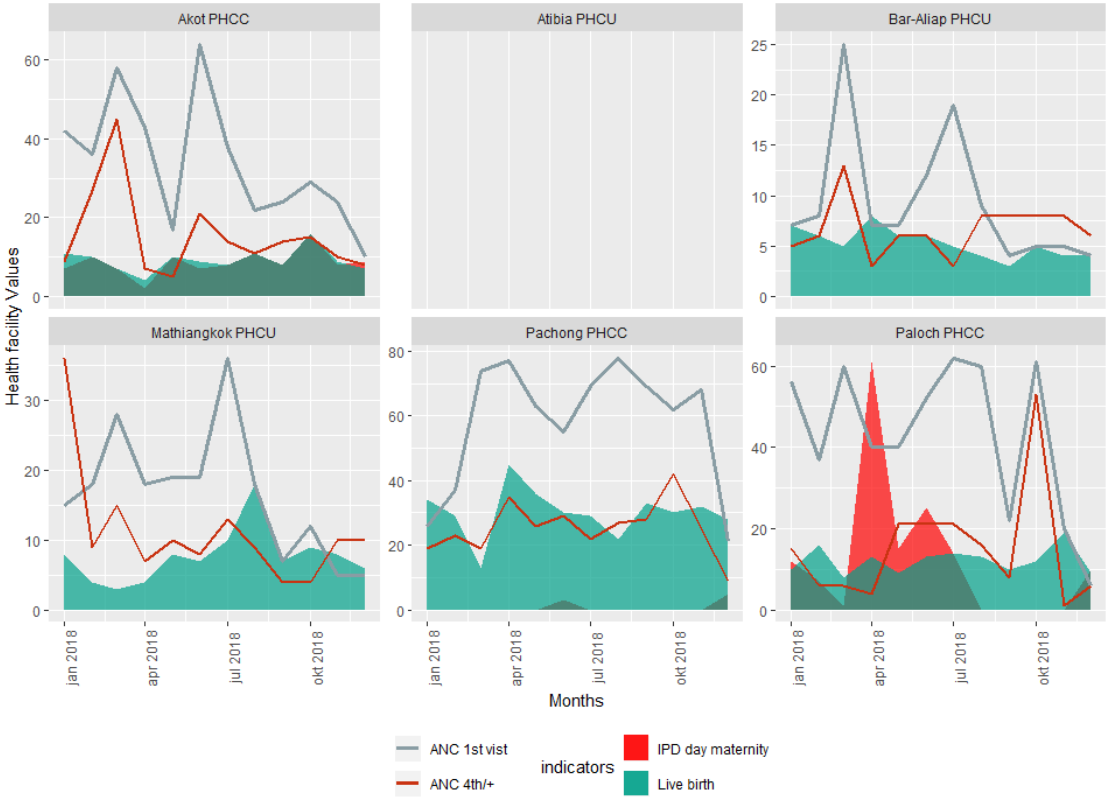

Monthly trends in selected indicators, facility level
Lopa/Lafon
Group 1: Maternal health indicators, 2018 South Sudan
Kuji (Kor) PHCU
Lafon PHCC
Longiro PHCU
Taar PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

Monthly trends in selected indicators, facility level
Payinjiar

Group 1: Maternal health indicators, 2018 South Sudan

Monthly trends in selected indicators, facility level
Rumbek East

Group 1: Maternal health indicators, 2018 South Sudan

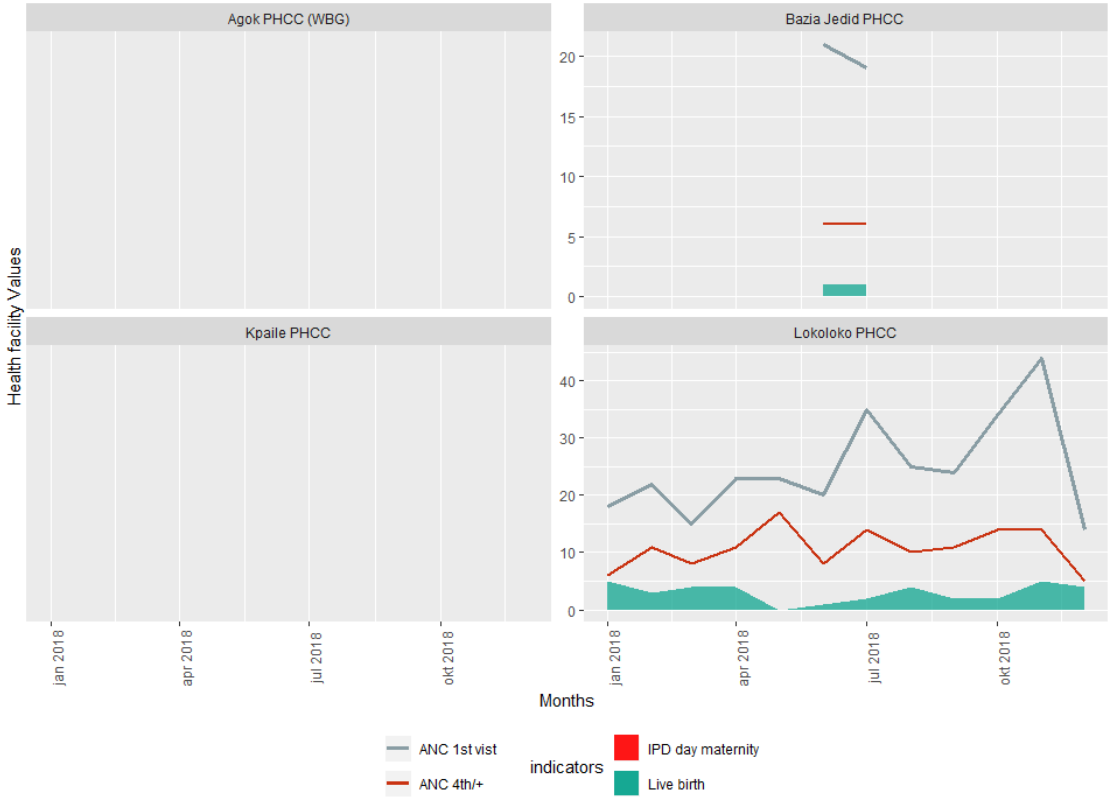


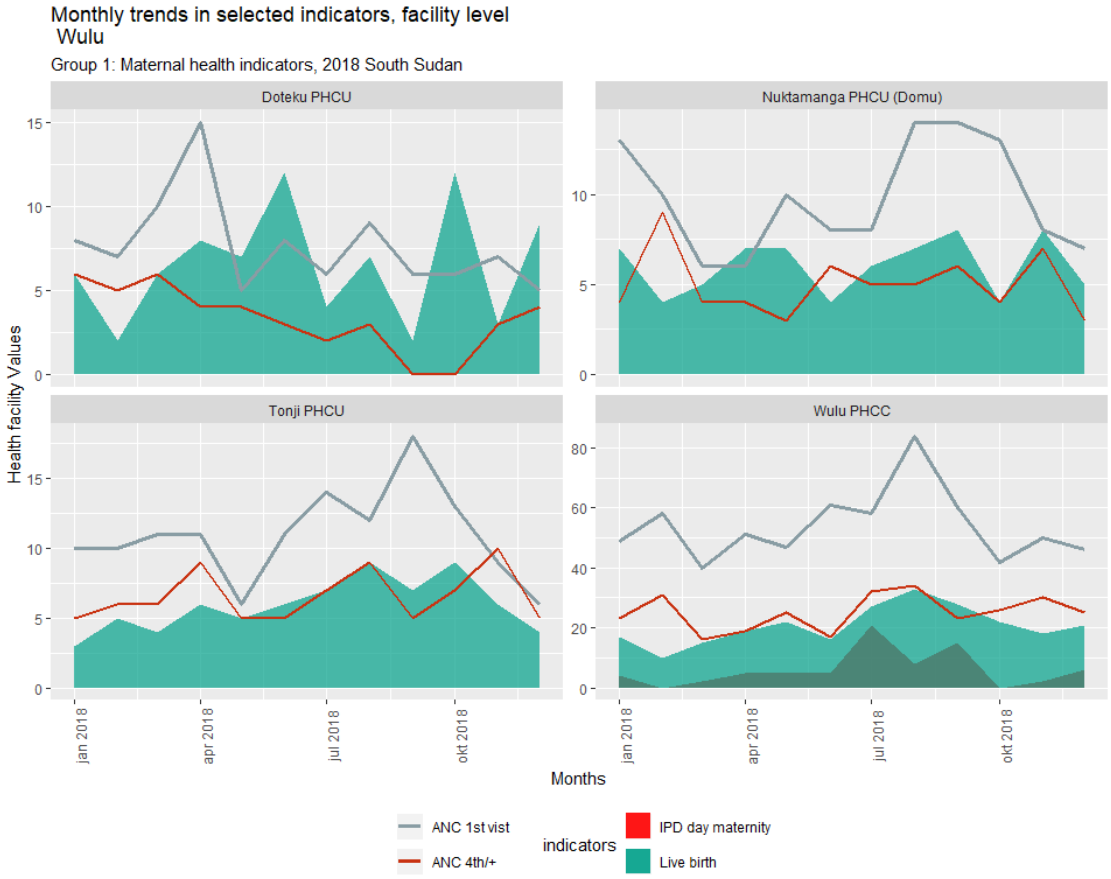
Monthly trends in selected indicators, facility level
Rumbek North

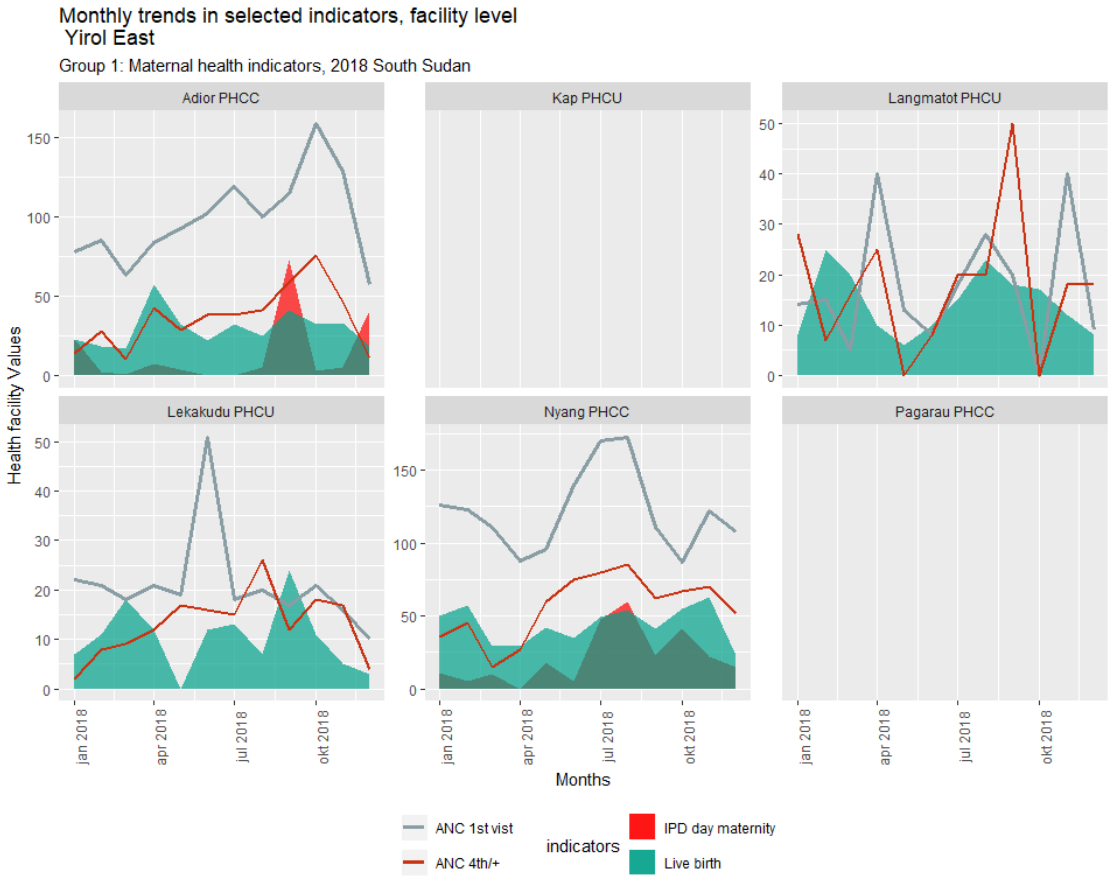
Group 1: Maternal health indicators, 2018 South Sudan

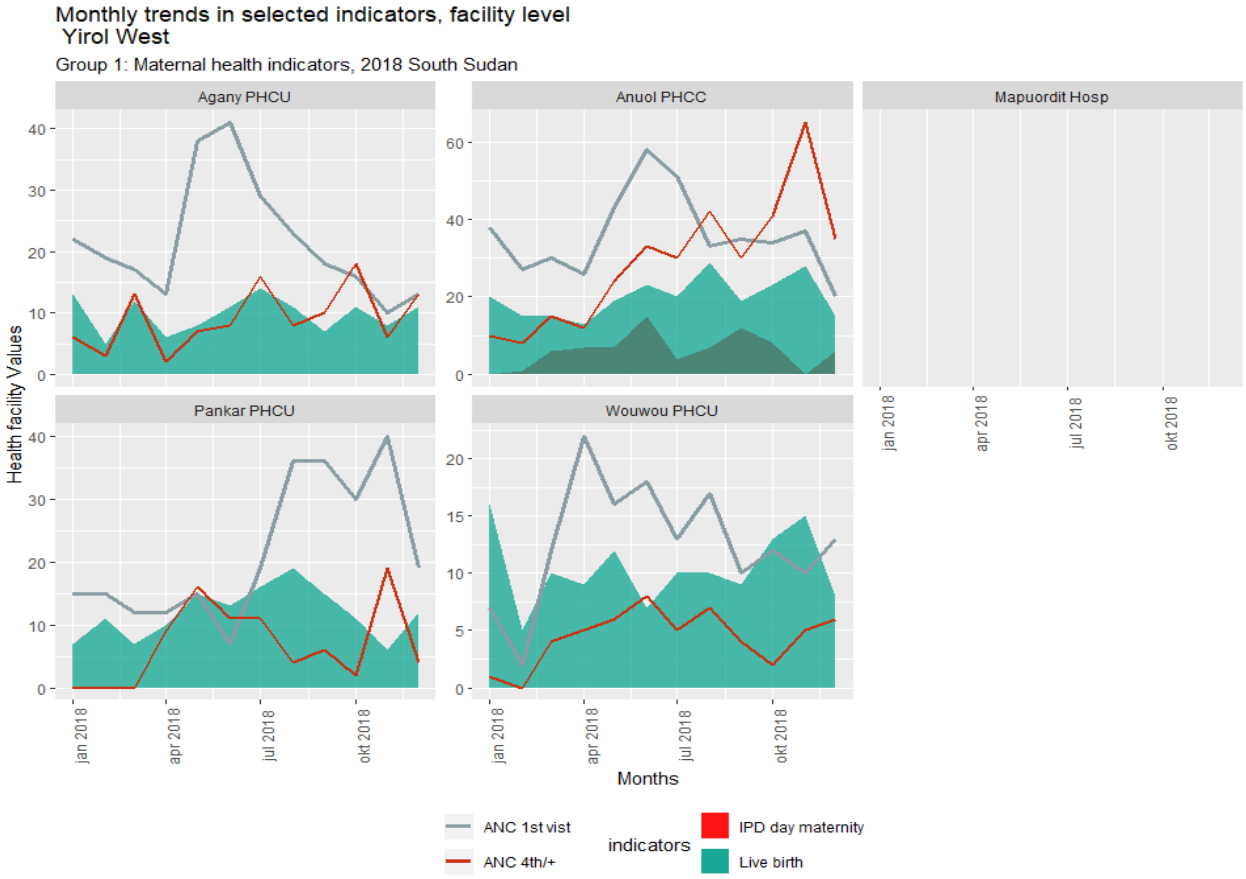
Monthly trends in selected indicators, facility level
Wau

Group 1: Maternal health indicators, 2018 South Sudan




Monthly trends in selected indicators, facility level
Wulu
Group 1: Maternal health indicators, 2018 South Sudan
Doteku PHCU
Nuktamanga PHCU (Domu)
Tonji PHCU
Wulu PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth

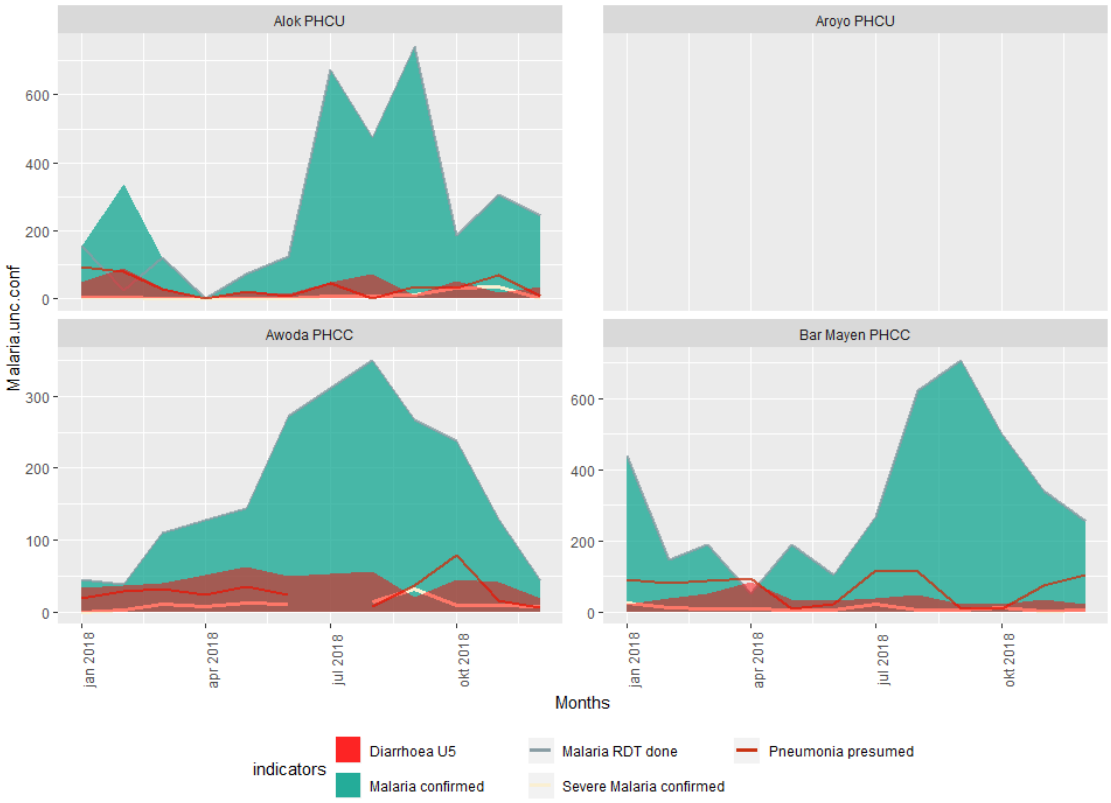

Monthly trends in selected indicators, facility level
Yirol East
Group 1: Maternal health indicators, 2018 South Sudan
Adior PHCC
Kap PHCU
Langmatot PHCU
Lekakudu PHCU
Nyang PHCC
Pagarau PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
ANC 1st vist
ANC 4th/+
indicators
IPD day maternity
Live birth



Group 2: Major infectious conditions

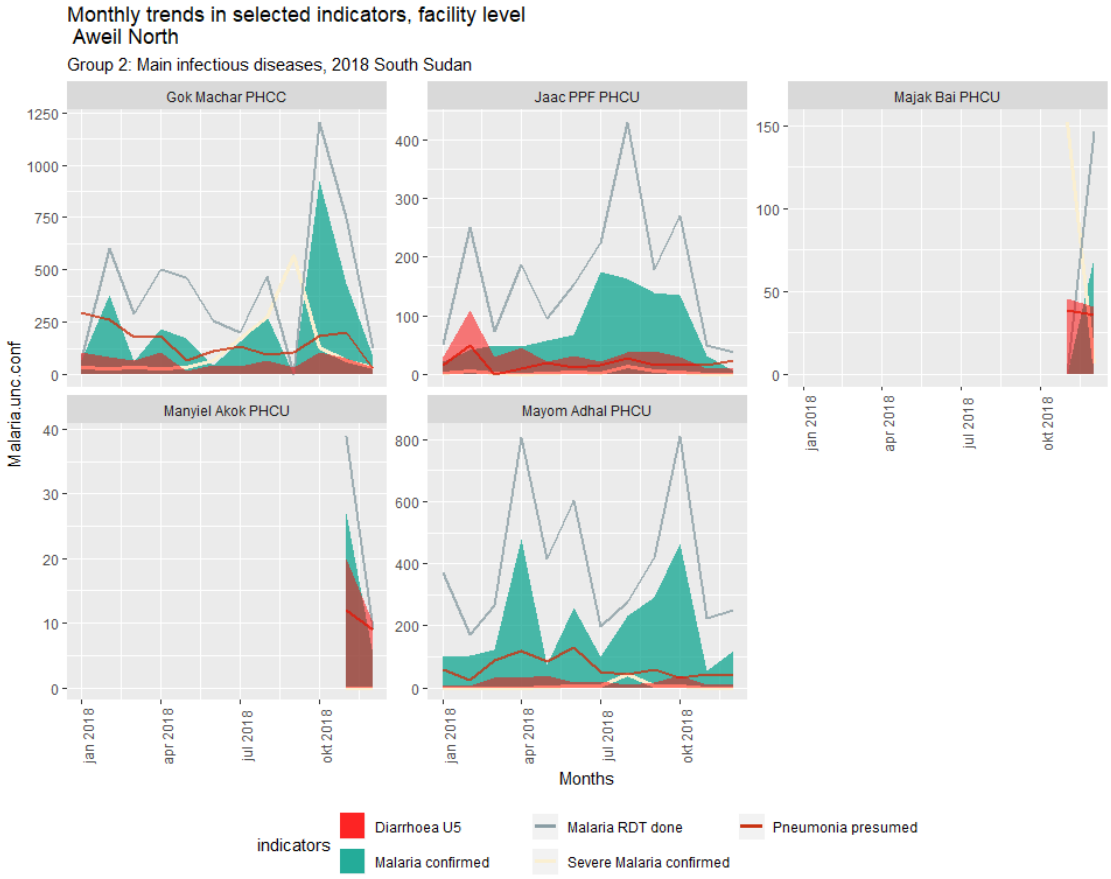
Monthly trends in selected indicators, facility level
Aweil Centre

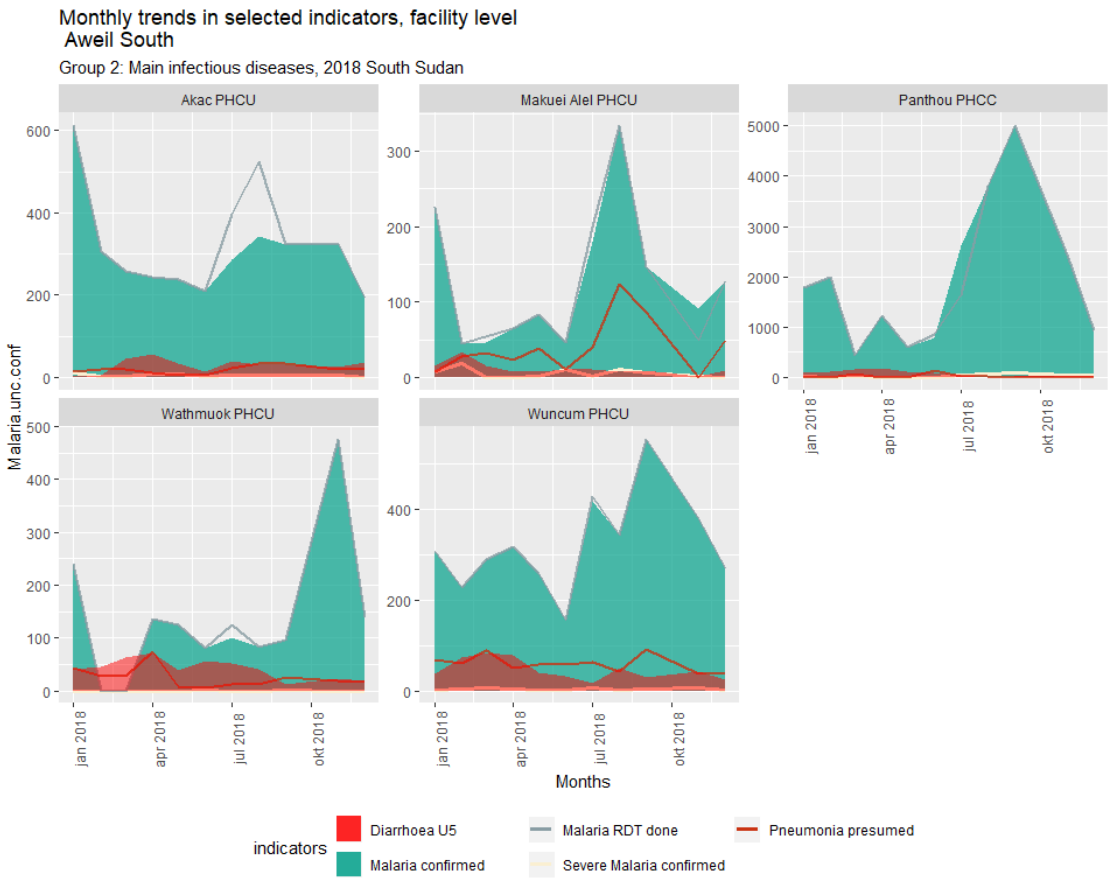
Group 2: Main infectious diseases, 2018 South Sudan

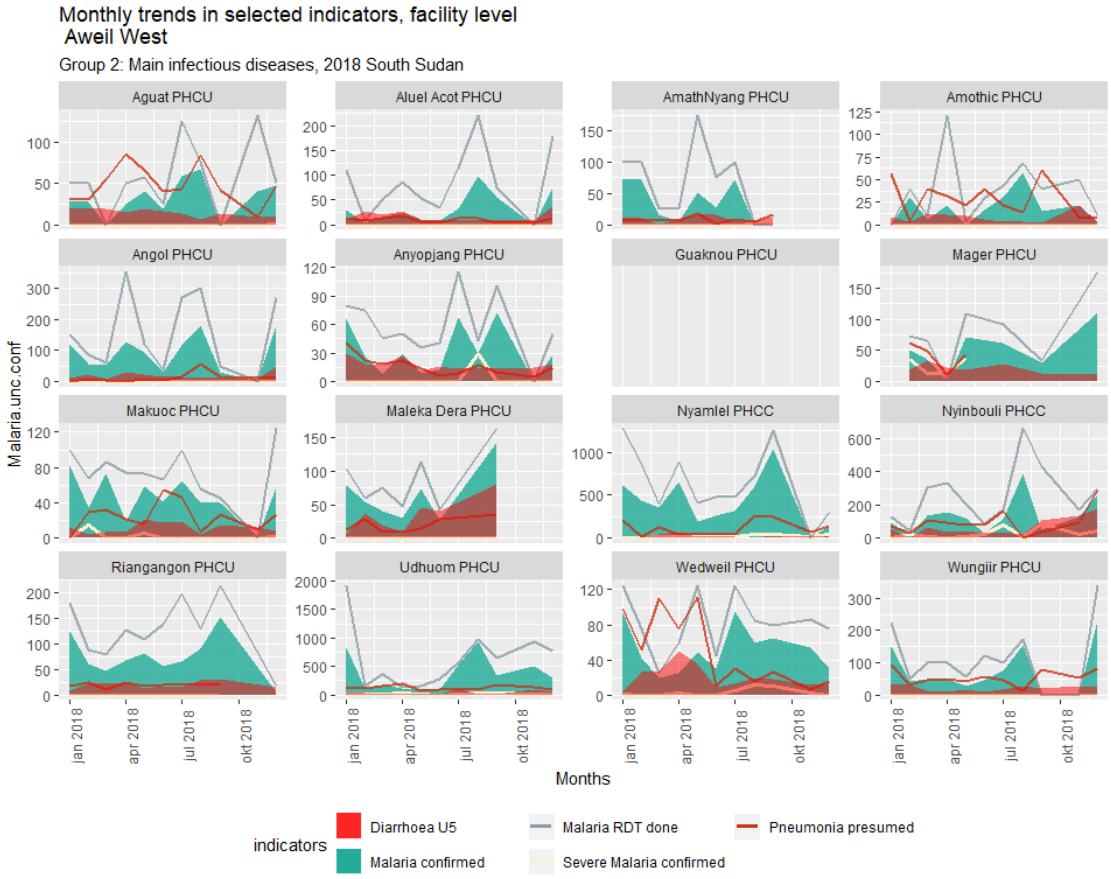


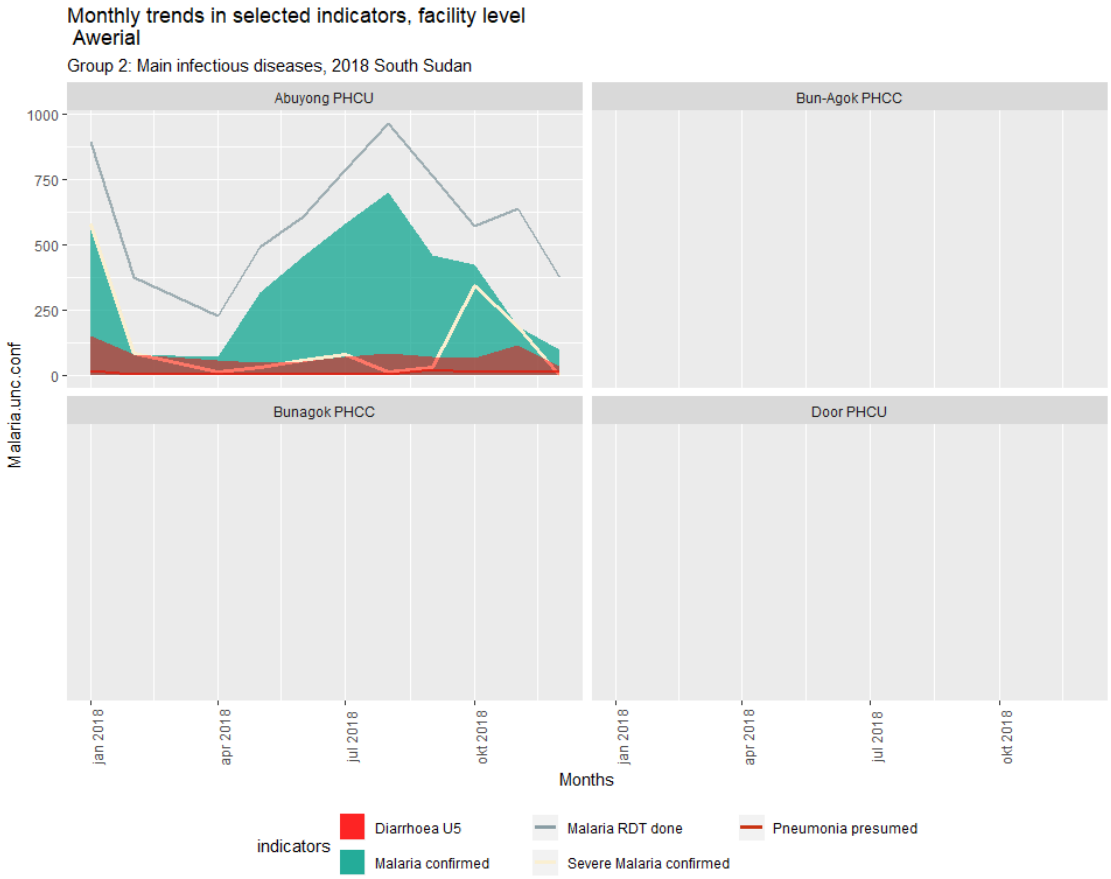
Monthly trends in selected indicators, facility level
Aweil East

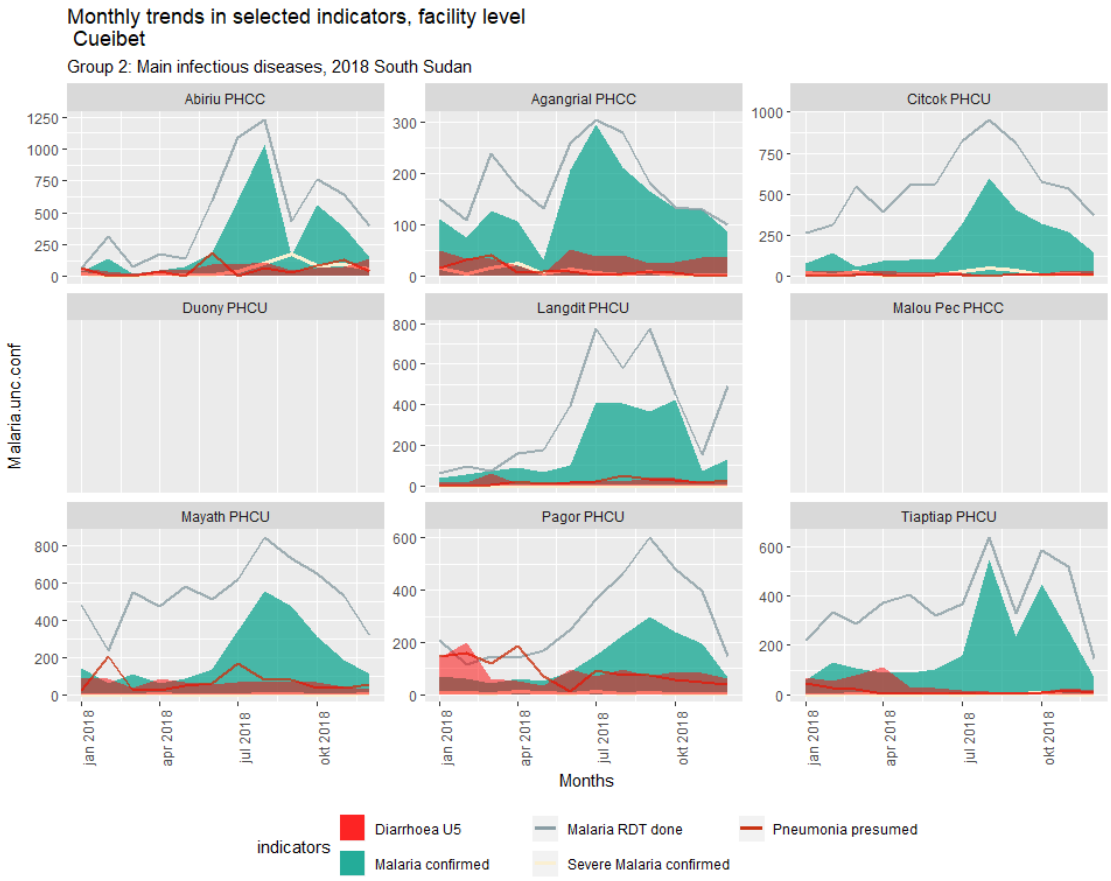
Group 2: Main infectious diseases, 2018 South Sudan

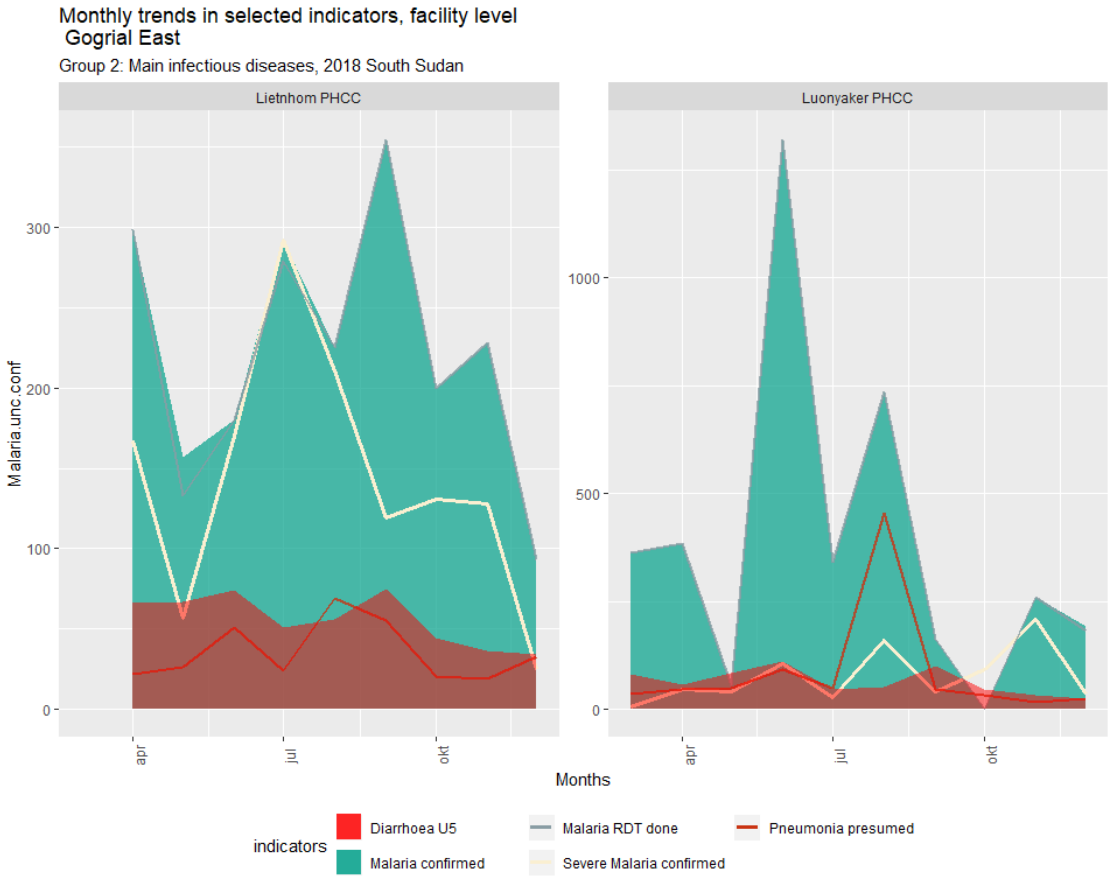

Monthly trends in selected indicators, facility level
Aweil North
Group 2: Main infectious diseases, 2018 South Sudan
Gok Machar PHCC
Jaac PPF PHCU
Majak Bai PHCU
Manyiel Akok PHCU
Mayom Adhal PHCU
Malaria.unc.conf
jan 2018
apr 2018
jul 2018
okt 2018
Months
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed


Monthly trends in selected indicators, facility level
Aweil South
Group 2: Main infectious diseases, 2018 South Sudan
Akac PHCU
Makuei Alel PHCU
Panthou PHCC
Wathmuok PHCU
Wuncum PHCU
Malaria.unc.conf
jan 2018
apr 2018
jul 2018
okt 2018
Months
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed


Monthly trends in selected indicators, facility level
Aweil West
Group 2: Main infectious diseases, 2018 South Sudan
Aguat PHCU
Aluel Acot PHCU
AmathNyang PHCU
Amothic PHCU
Angol PHCU
Anyopjang PHCU
Guaknou PHCU
Mager PHCU
Makuoc PHCU
Maleka Dera PHCU
Nyamlel PHCC
Nyinbouli PHCC
Riangangon PHCU
Udhuom PHCU
Wedweil PHCU
Wungiir PHCU
Malaria.unc.conf
jan 2018
apr 2018
jul 2018
okt 2018
Months
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed

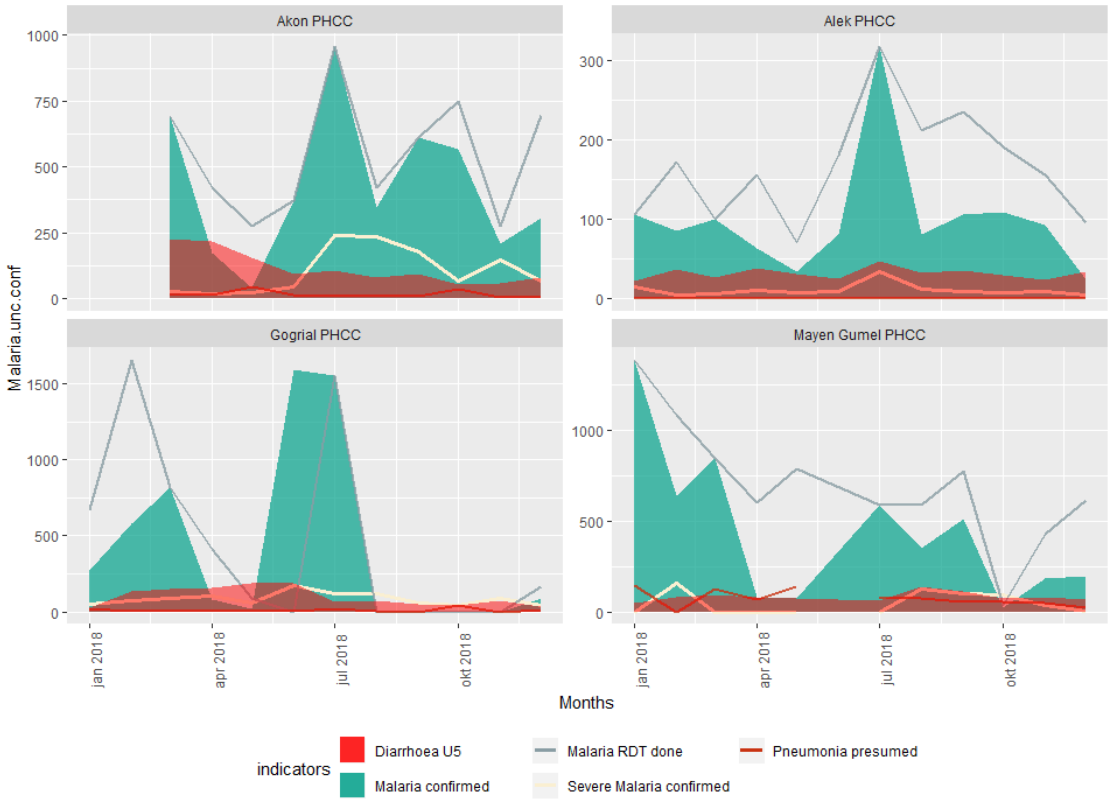

Monthly trends in selected indicators, facility level
Awerial
Group 2: Main infectious diseases, 2018 South Sudan
Abuyong PHCU
Bun-Agok PHCC
Bunagok PHCC
Door PHCU
Malaria.unc.conf
jan 2018
apr 2018
jul 2018
okt 2018
Months
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed


Monthly trends in selected indicators, facility level
Cueibet
Group 2: Main infectious diseases, 2018 South Sudan
Abiriu PHCC
Agangrial PHCC
Citcok PHCU
Duony PHCU
Langdit PHCU
Malou Pec PHCC
Mayath PHCU
Pagor PHCU
Tiaptiap PHCU
Malaria.unc.conf
jan 2018
apr 2018
jul 2018
okt 2018
Months
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed


Monthly trends in selected indicators, facility level
Gogrial East
Group 2: Main infectious diseases, 2018 South Sudan
Lietnhom PHCC
Luonyaker PHCC
Malaria.unc.conf
apr
jul
okt
Months
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed

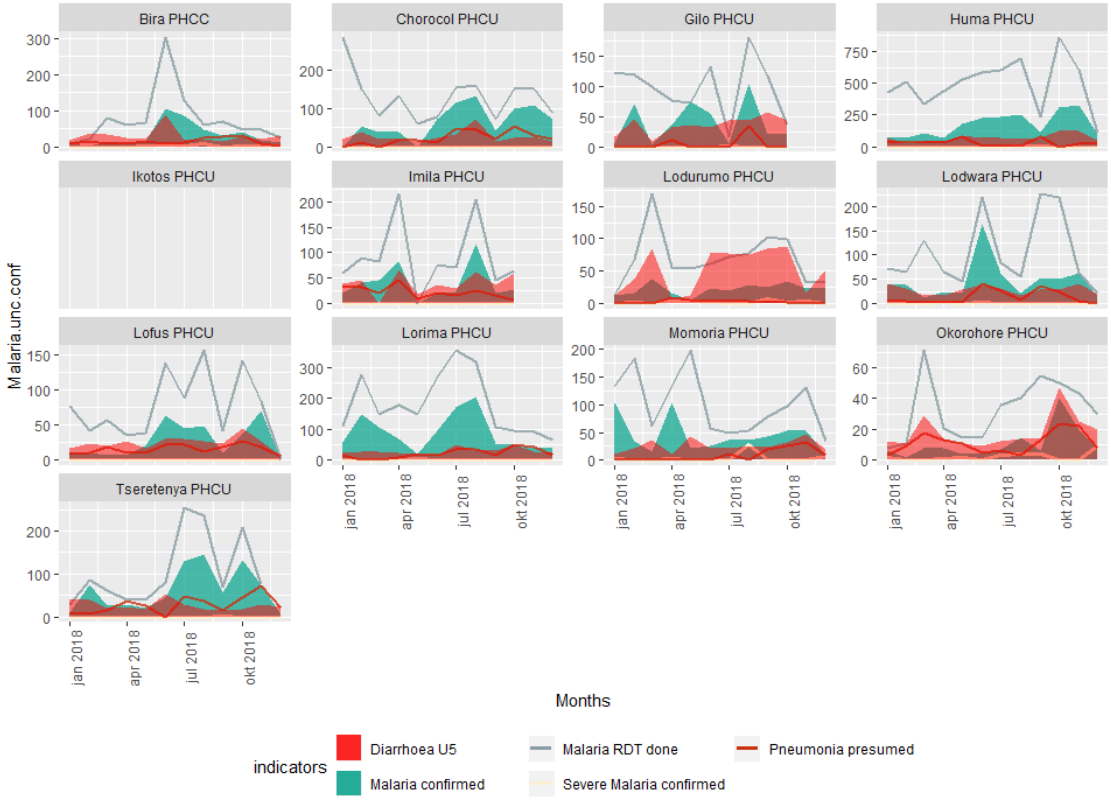
Monthly trends in selected indicators, facility level
Gogrial West

Group 2: Main infectious diseases, 2018 South Sudan



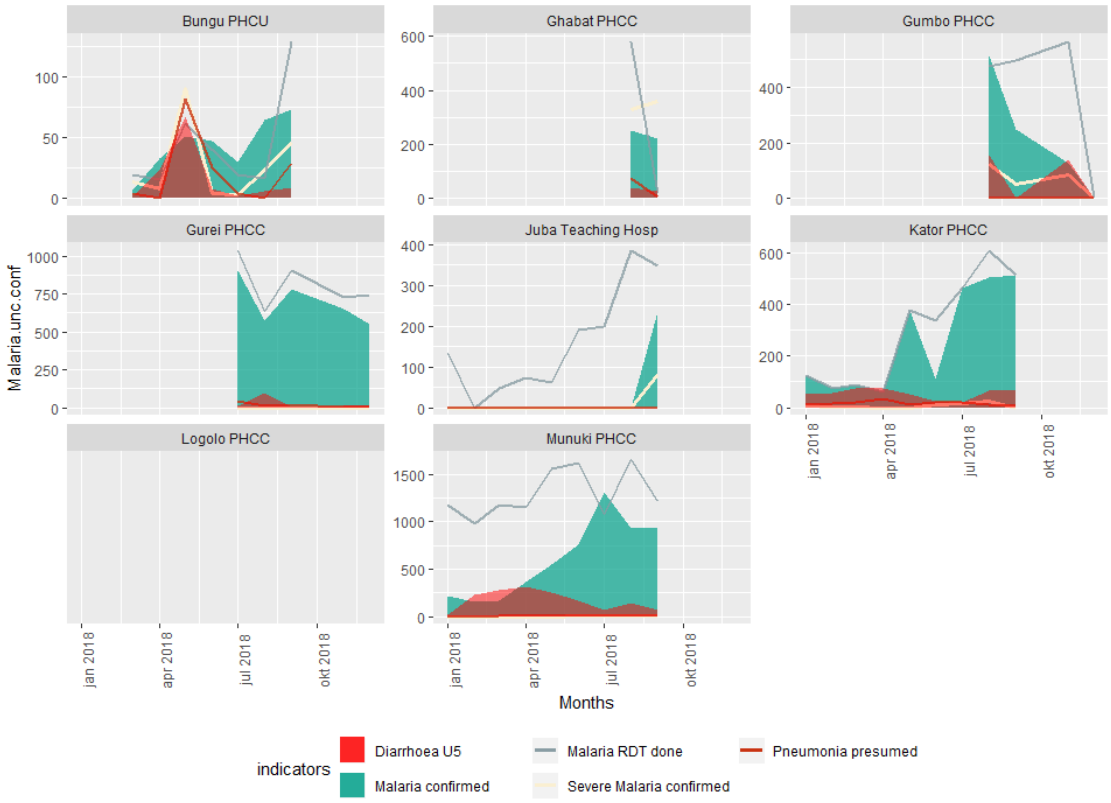
Monthly trends in selected indicators, facility level
Ikotos

Group 2: Main infectious diseases, 2018 South Sudan



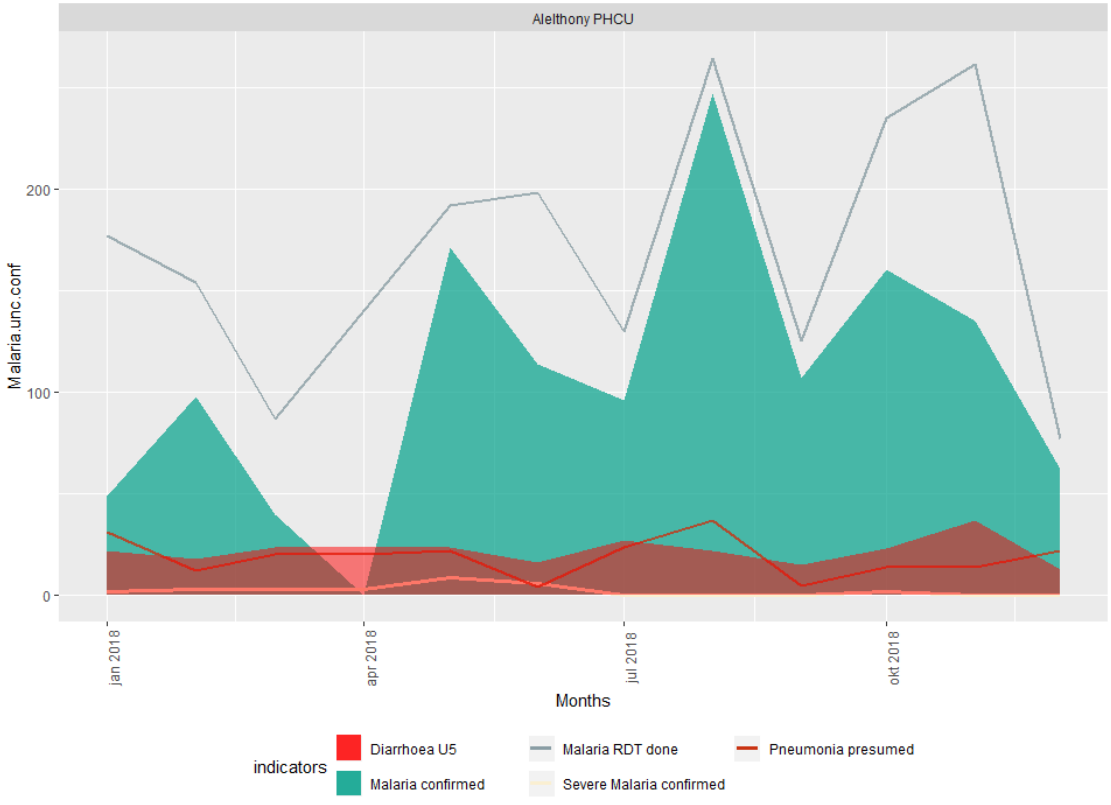
Monthly trends in selected indicators, facility level
Juba

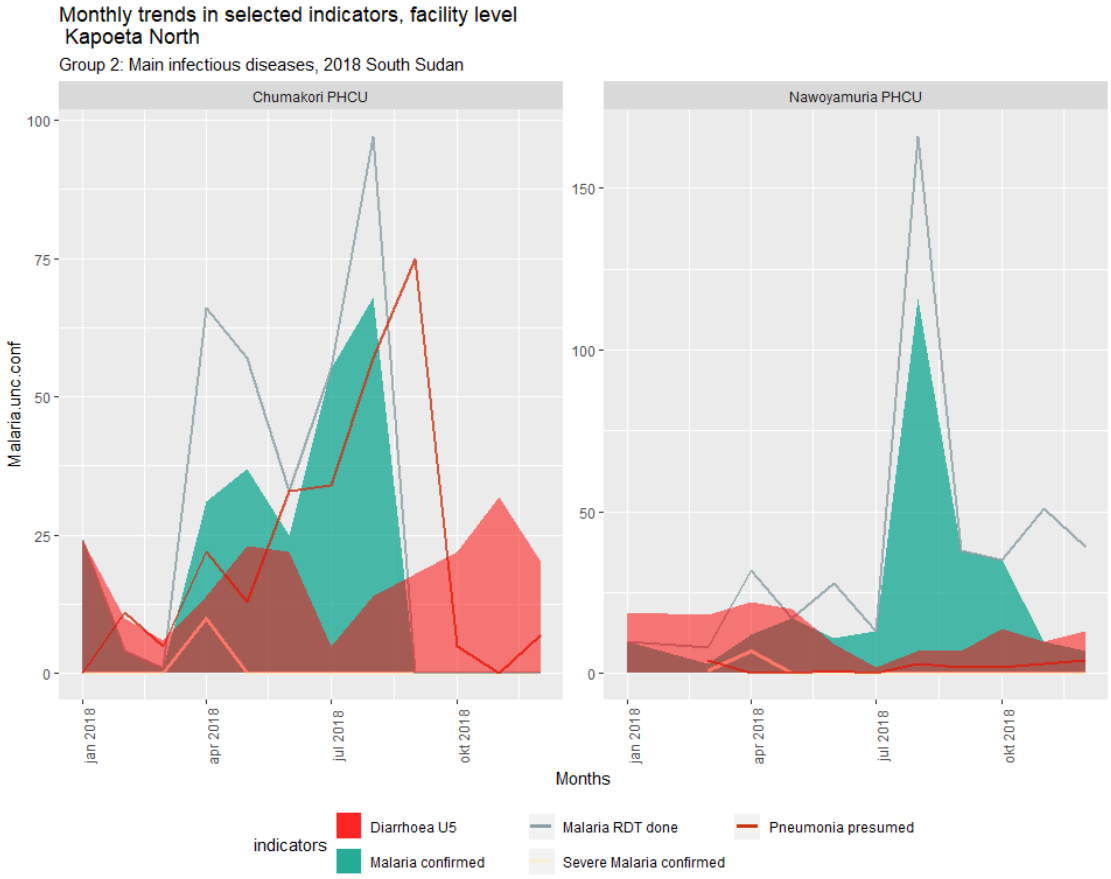
Group 2: Main infectious diseases, 2018 South Sudan

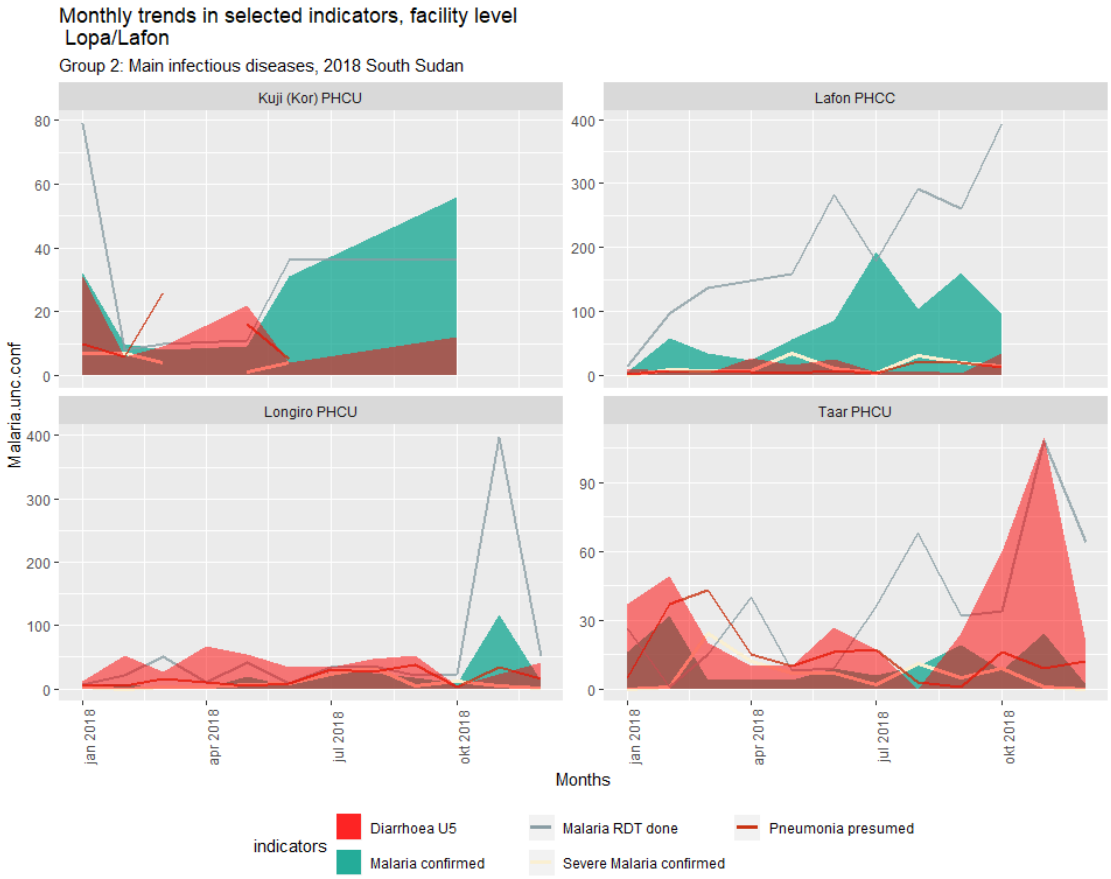


Monthly trends in selected indicators, facility level
Jur River

Group 2: Main infectious diseases, 2018 South Sudan

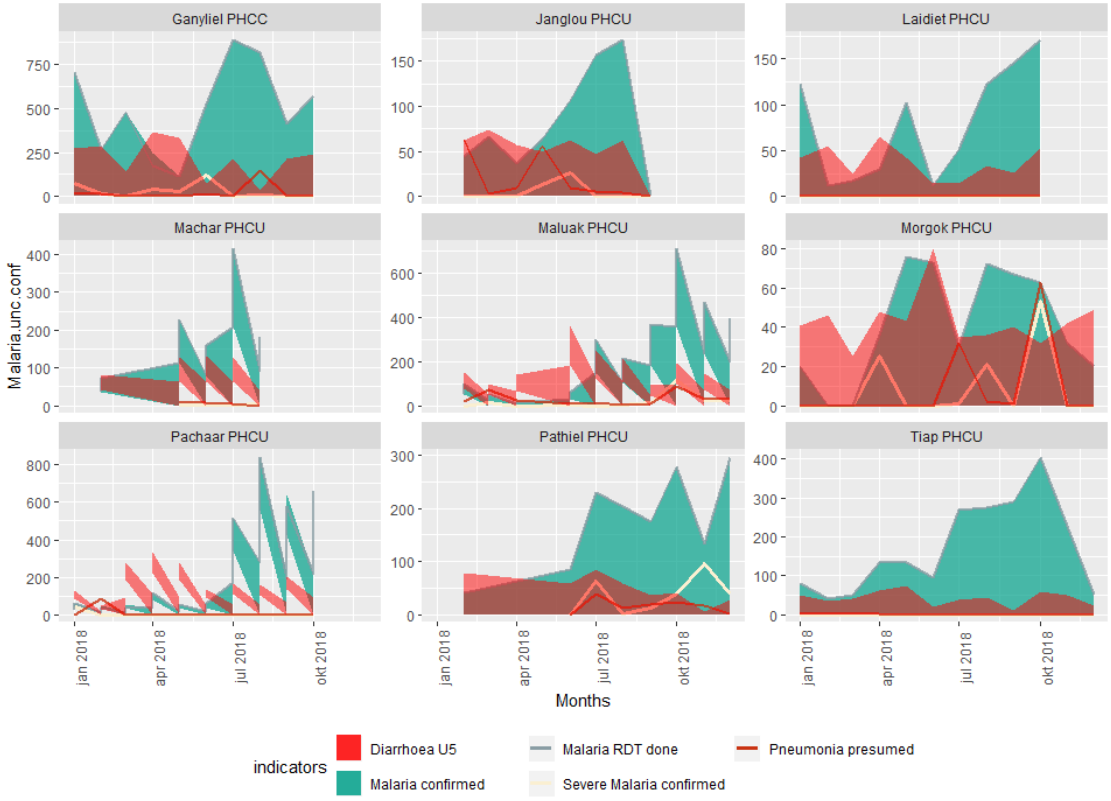



Monthly trends in selected indicators, facility level
Kapoeta North
Group 2: Main infectious diseases, 2018 South Sudan
Chumakori PHCU
Nawoyamuria PHCU
Malaria.unc.conf
Months
jan 2018
apr 2018
jul 2018
okt 2018
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed


Monthly trends in selected indicators, facility level
Lopa/Lafon
Group 2: Main infectious diseases, 2018 South Sudan
Kuji (Kor) PHCU
Lafon PHCC
Longiro PHCU
Taar PHCU
Malaria.unc.conf
Months
jan 2018
apr 2018
jul 2018
okt 2018
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed

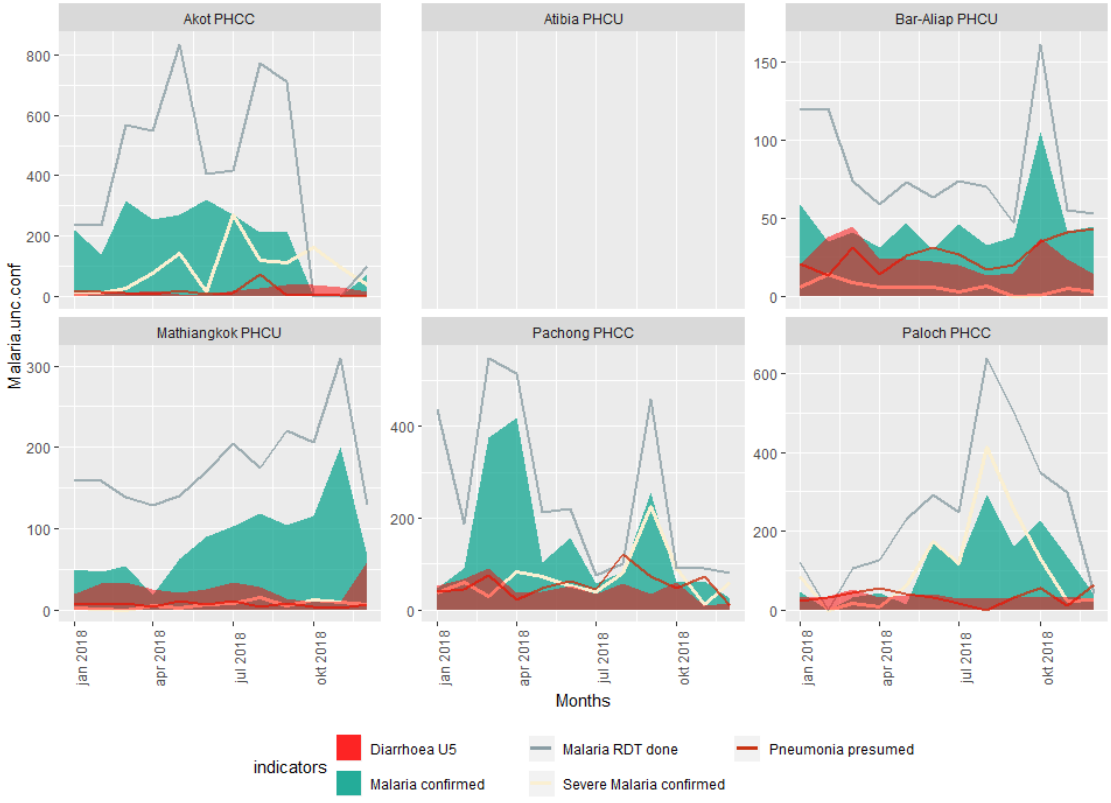
Monthly trends in selected indicators, facility level
Payinjiar

Group 2: Main infectious diseases, 2018 South Sudan



Monthly trends in selected indicators, facility level
Rumbek East

Group 2: Main infectious diseases, 2018 South Sudan

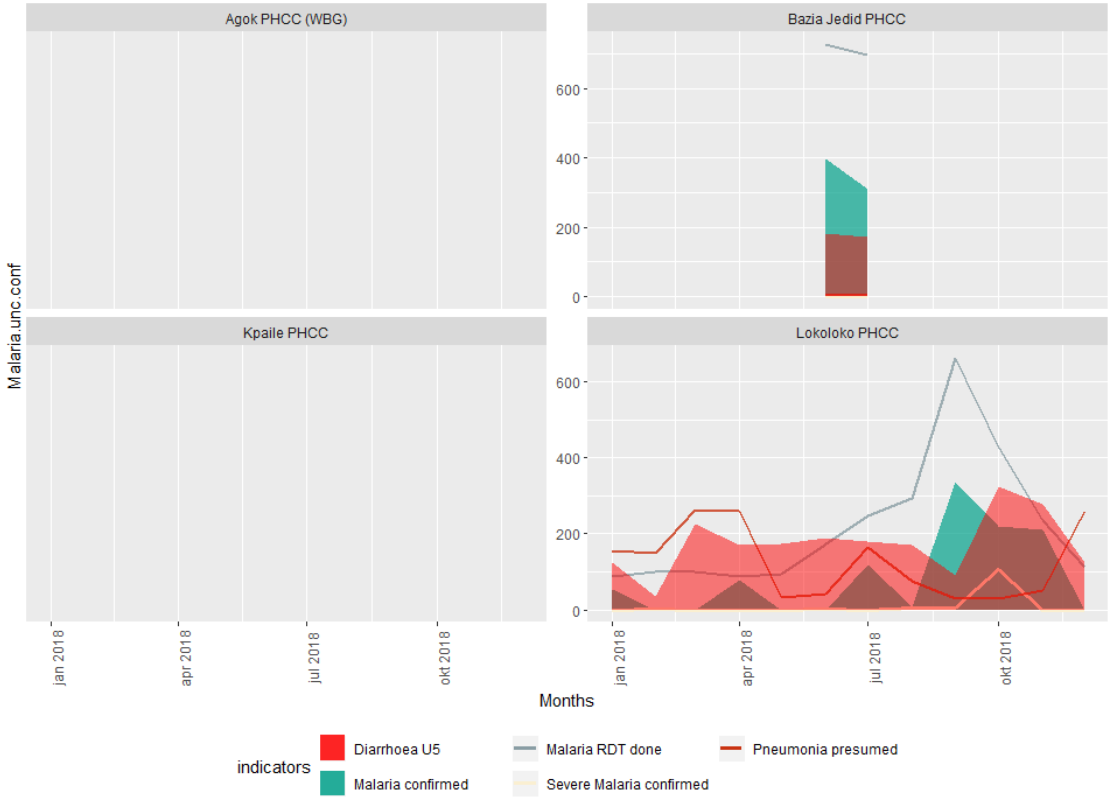


Monthly trends in selected indicators, facility level
Rumbek North

Group 2: Main infectious diseases, 2018 South Sudan

Monthly trends in selected indicators, facility level
Wau

Group 2: Main infectious diseases, 2018 South Sudan

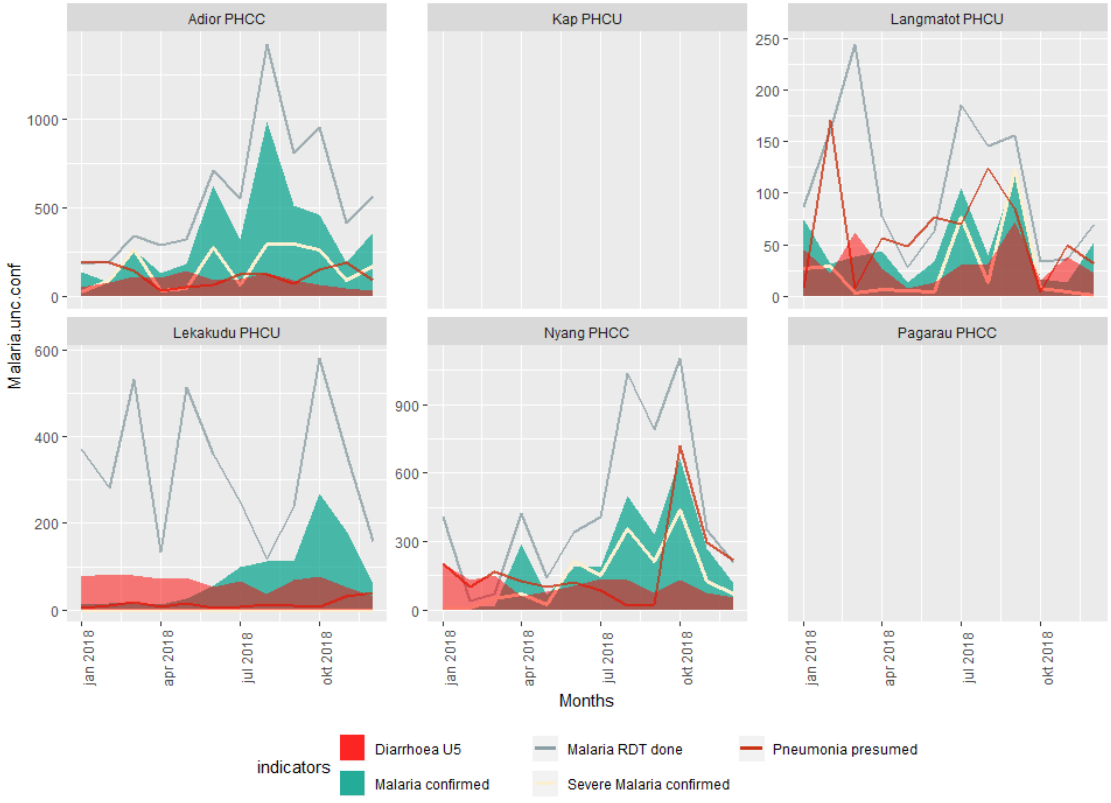


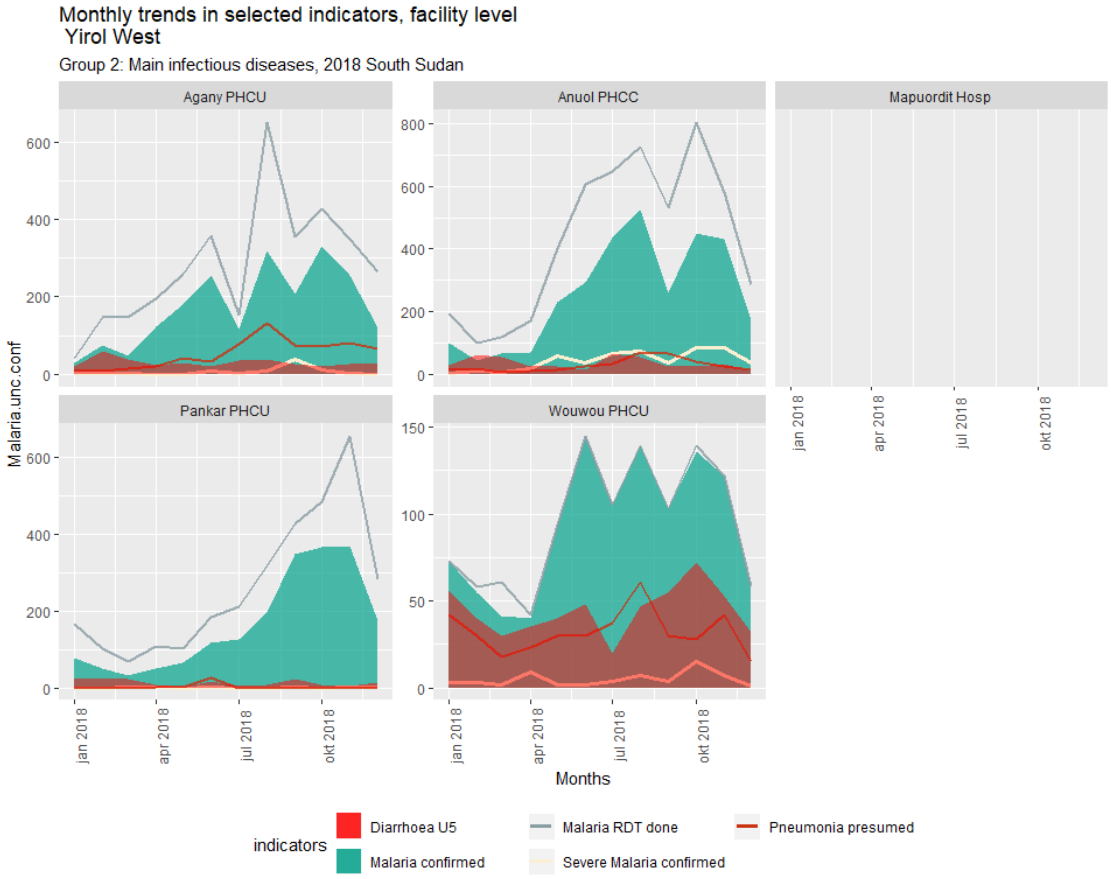
Monthly trends in selected indicators, facility level
Wulu

Group 2: Main infectious diseases, 2018 South Sudan

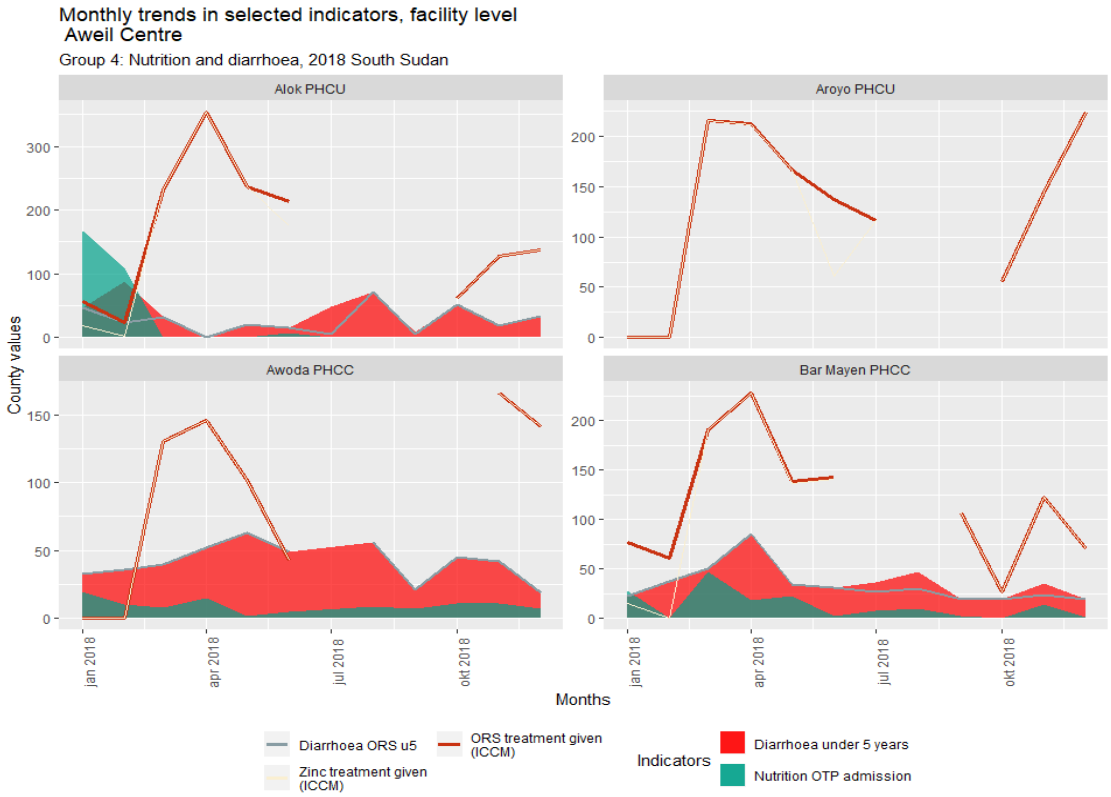
Monthly trends in selected indicators, facility level
Yirol East

Group 2: Main infectious diseases, 2018 South Sudan

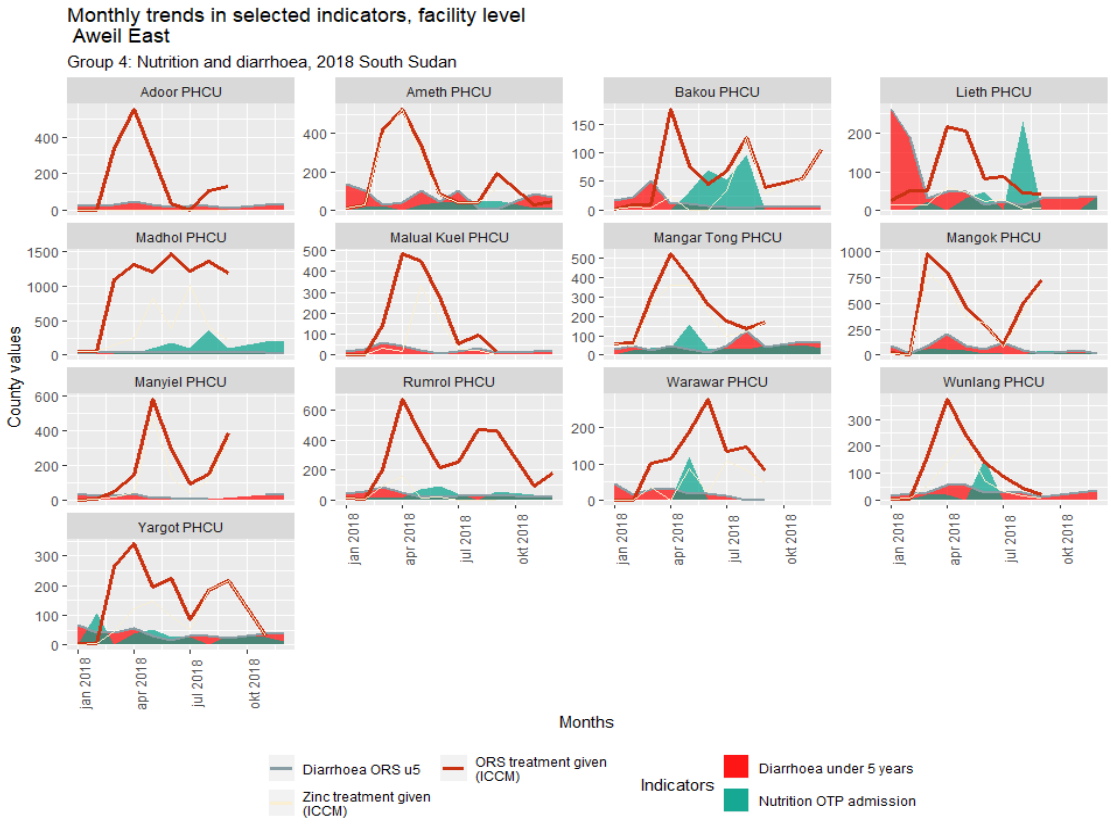



Monthly trends in selected indicators, facility level
Yirol West
Group 2: Main infectious diseases, 2018 South Sudan
Agany PHCU
Anuol PHCC
Mapuordit Hosp
Pankar PHCU
Wouwou PHCU
Malaria.unc.conf
Months
jan 2018
apr 2018
jul 2018
okt 2018
indicators
Diarrhoea U5
Malaria confirmed
Malaria RDT done
Severe Malaria confirmed
Pneumonia presumed

Group 3:

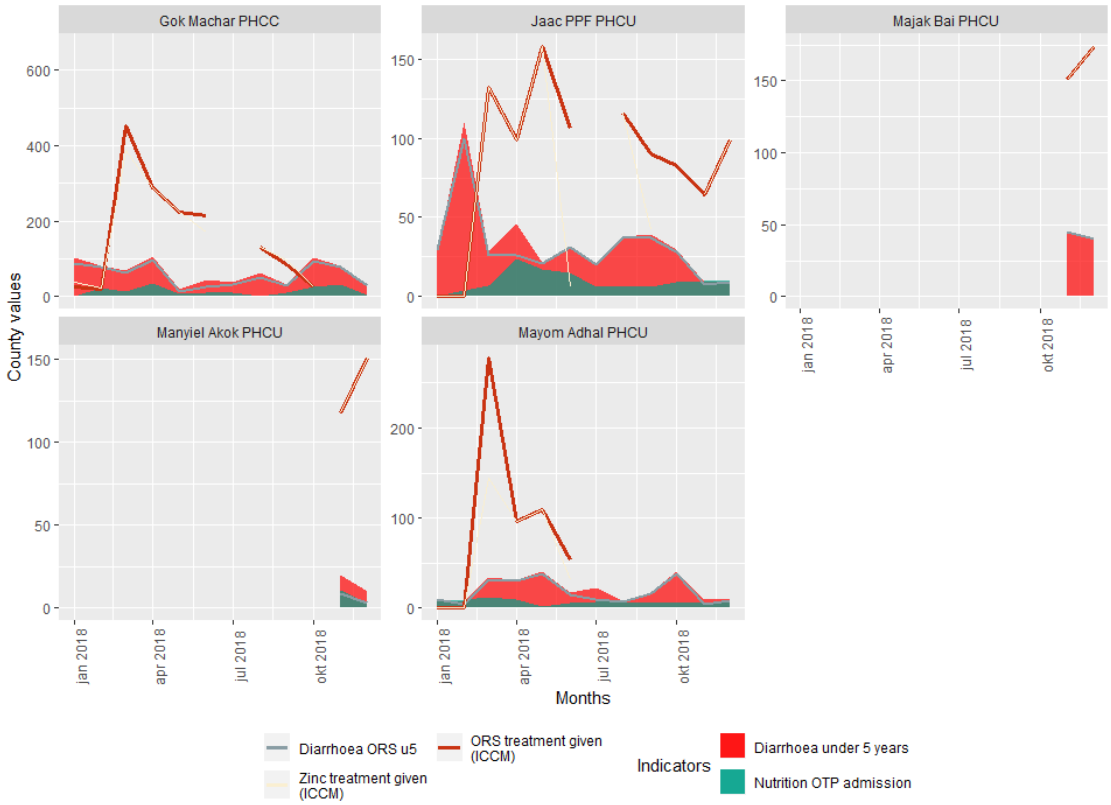


Diarrhoea and Nutrition indicators



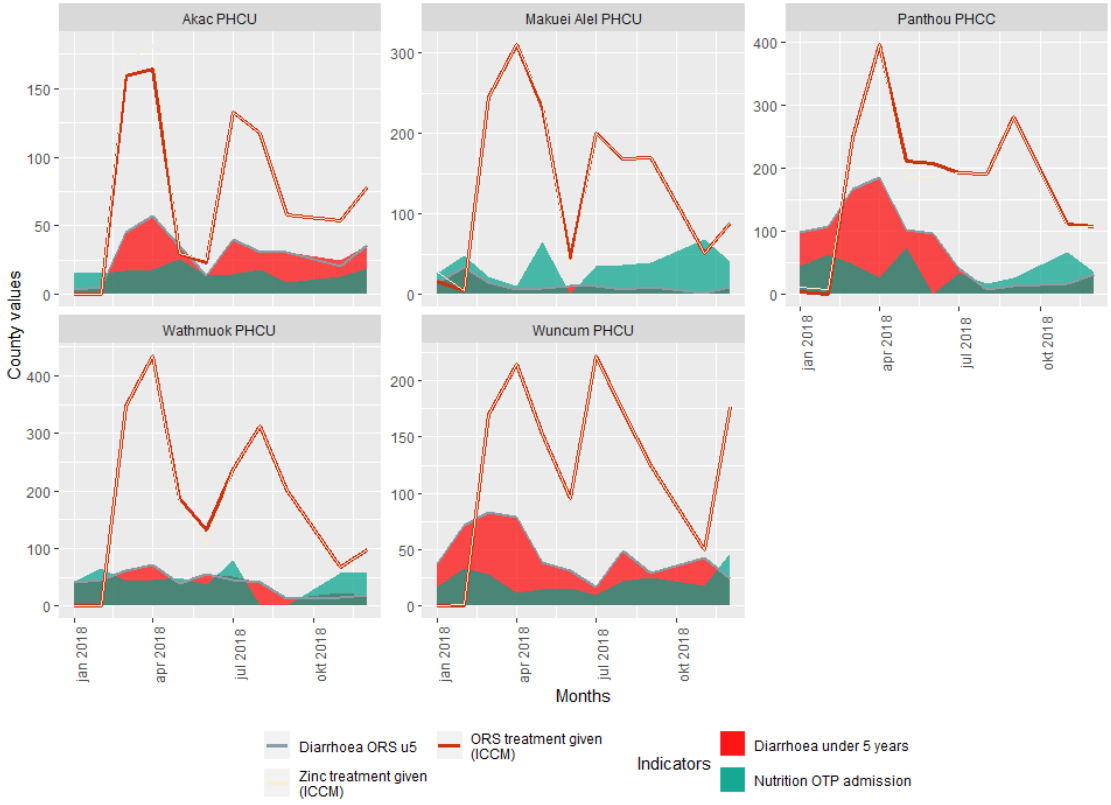
Monthly trends in selected indicators, facility level
Aweil North

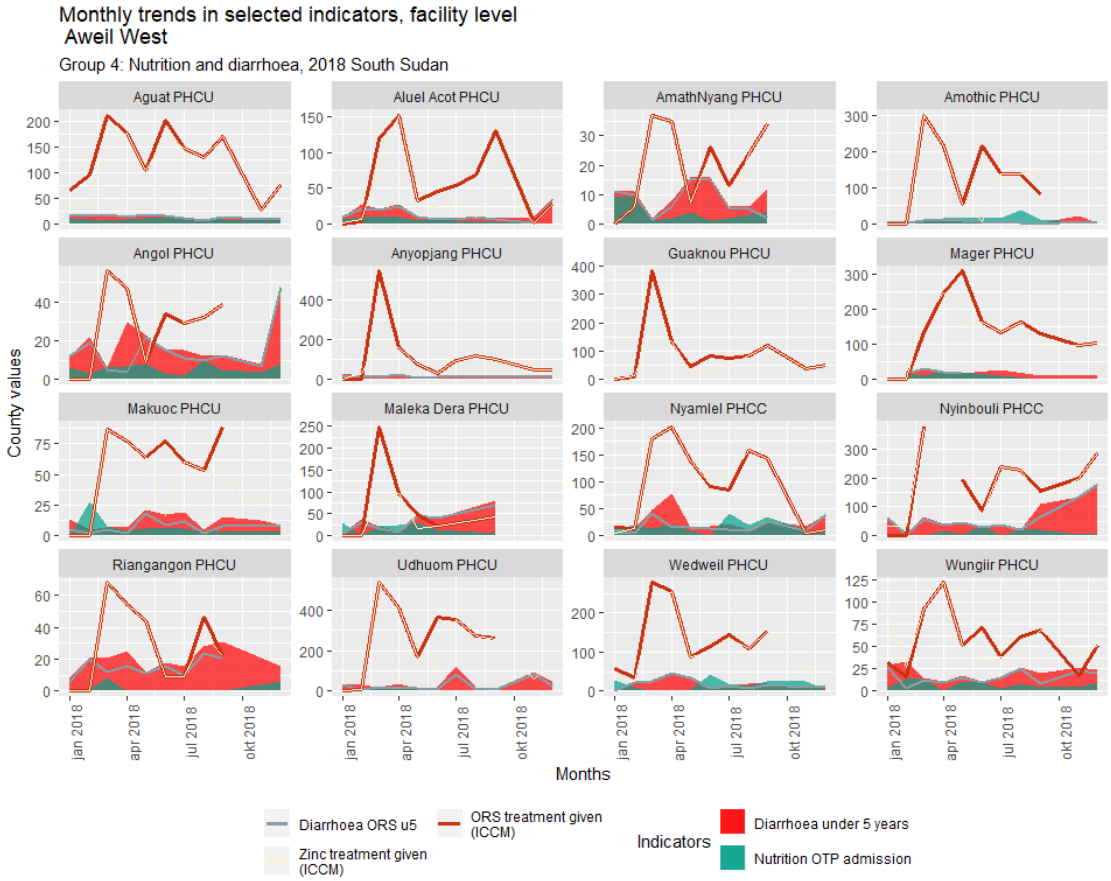
Group 4: Nutrition and diarrhoea, 2018 South Sudan



Monthly trends in selected indicators, facility level
Aweil South

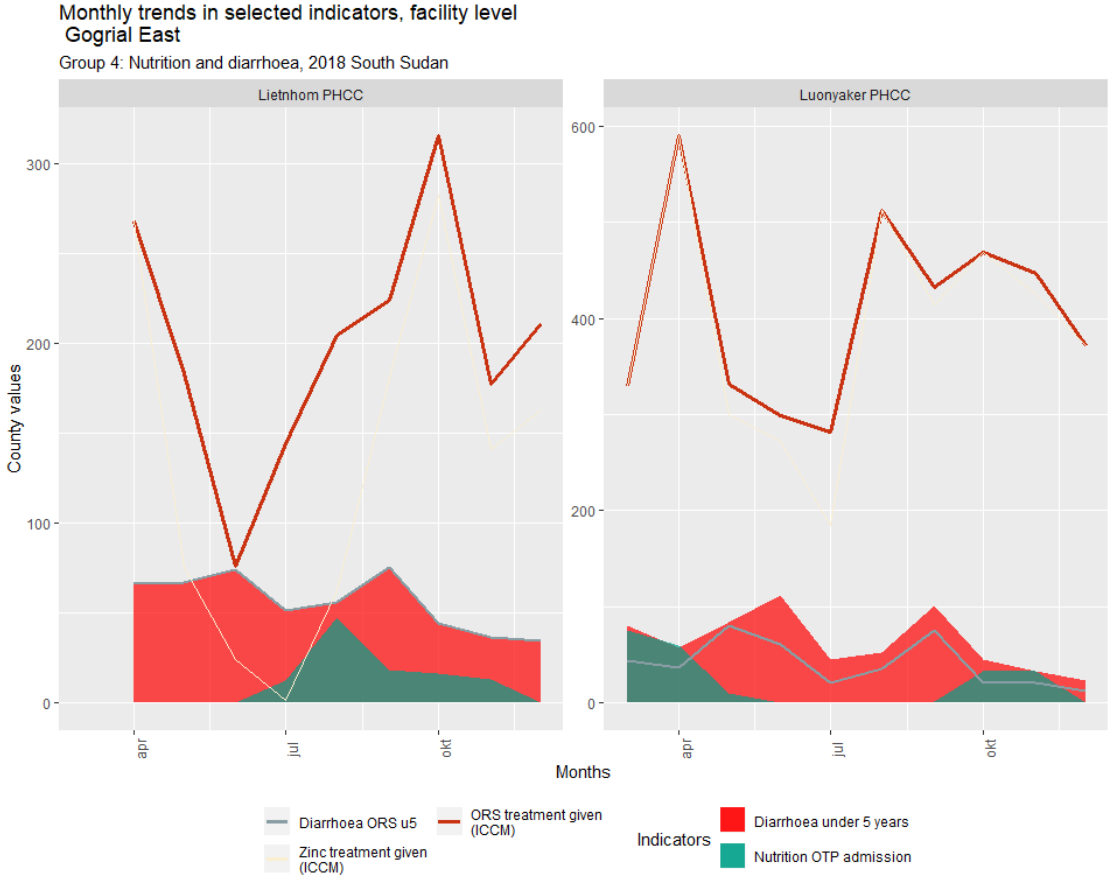
Group 4: Nutrition and diarrhoea, 2018 South Sudan

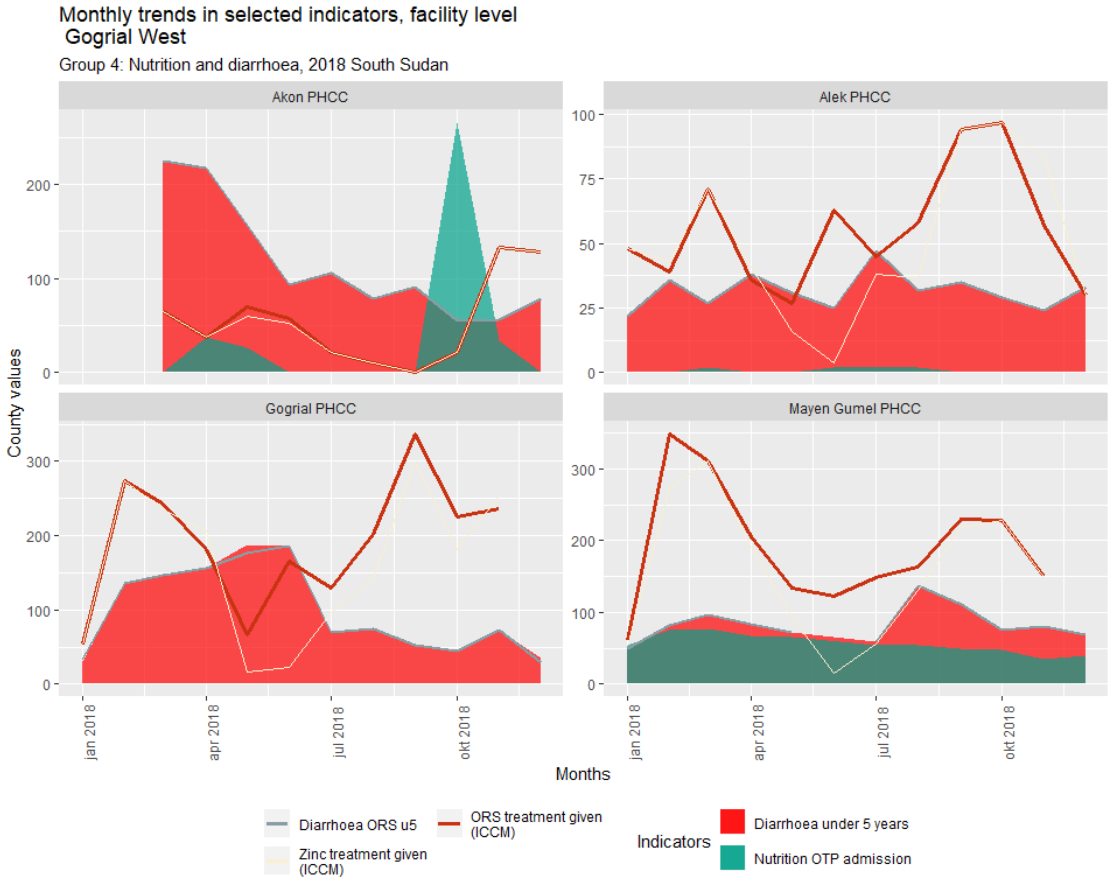


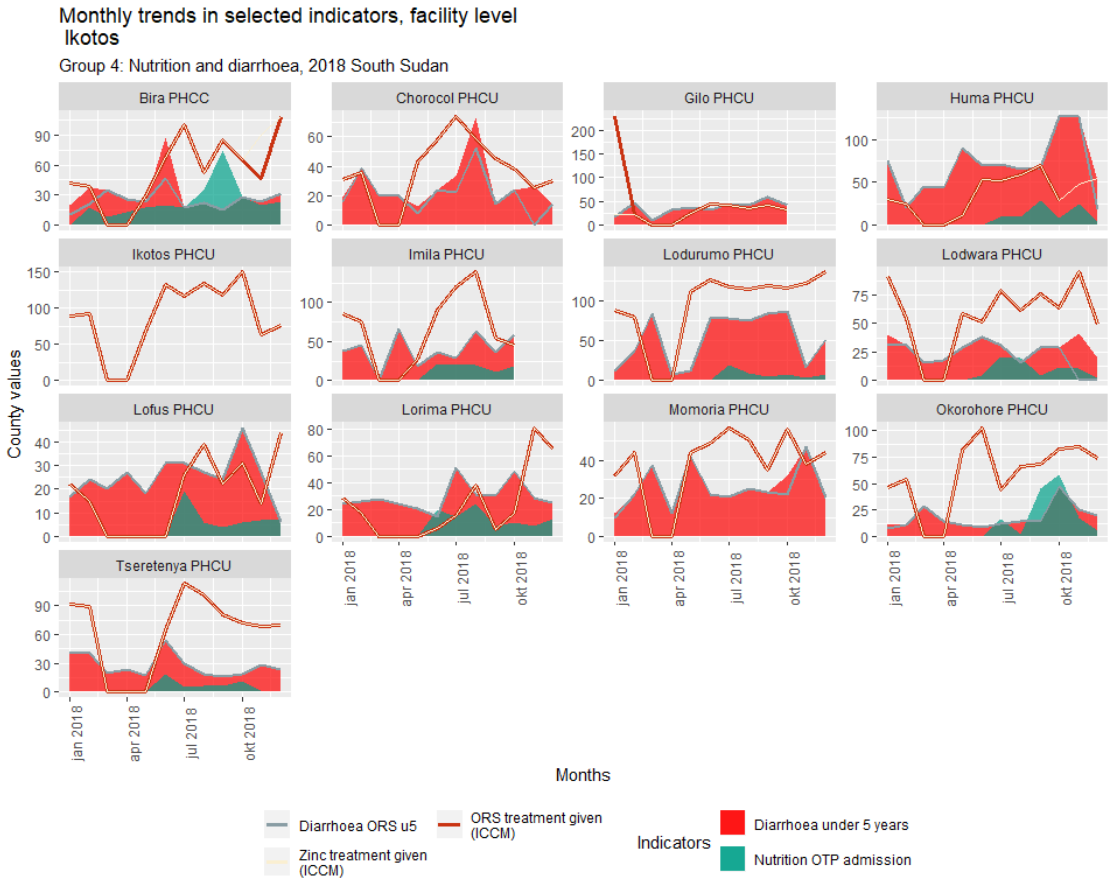

Monthly trends in selected indicators, facility level
Aweil West
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Aguat PHCU
Aluel Acot PHCU
AmathNyang PHCU
Amothic PHCU
Angol PHCU
Anyopjang PHCU
Guaknou PHCU
Mager PHCU
Makuoc PHCU
Maleka Dera PHCU
Nyamlel PHCC
Nyinbouli PHCC
Riangangon PHCU
Udhuom PHCU
Wedweil PHCU
Wungiir PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission


Monthly trends in selected indicators, facility level
Awerial
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Abuyong PHCU
Bun-Agok PHCC
Bunagok PHCC
Door PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission


Monthly trends in selected indicators, facility level
Cueibet
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Abiriu PHCC
Agangrial PHCC
Citcok PHCU
Duony PHCU
Langdit PHCU
Malou Pec PHCC
Mayath PHCU
Pagor PHCU
Tiaptiap PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission

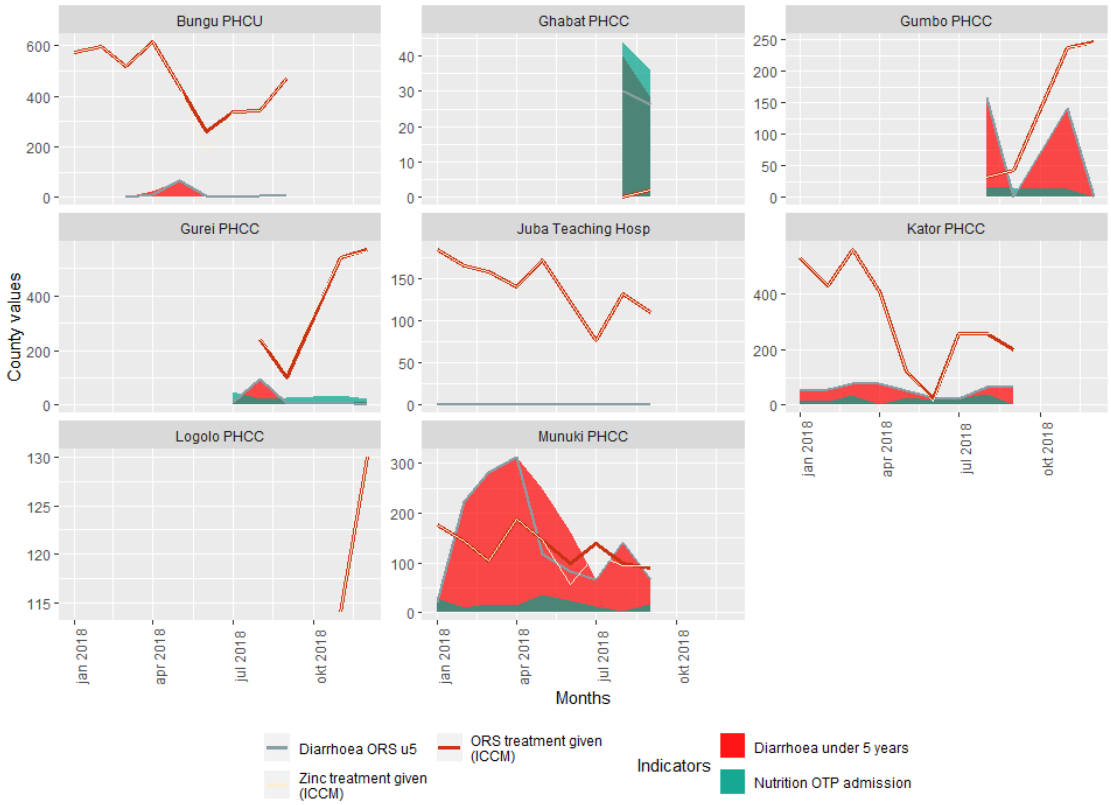

Monthly trends in selected indicators, facility level
Gogrial East
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Lietnhom PHCC
Luonyaker PHCC
County values
apr
jul
okt
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission


Monthly trends in selected indicators, facility level
Gogrial West
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Akon PHCC
Alek PHCC
Gogrial PHCC
Mayen Gumel PHCC
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission


Monthly trends in selected indicators, facility level
Ikotos
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Bira PHCC
Chorocol PHCU
Gilo PHCU
Huma PHCU
Ikotos PHCU
Imila PHCU
Lodurumo PHCU
Lodwara PHCU
Lofus PHCU
Lorima PHCU
Momoria PHCU
Okorohore PHCU
Tseretenya PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission

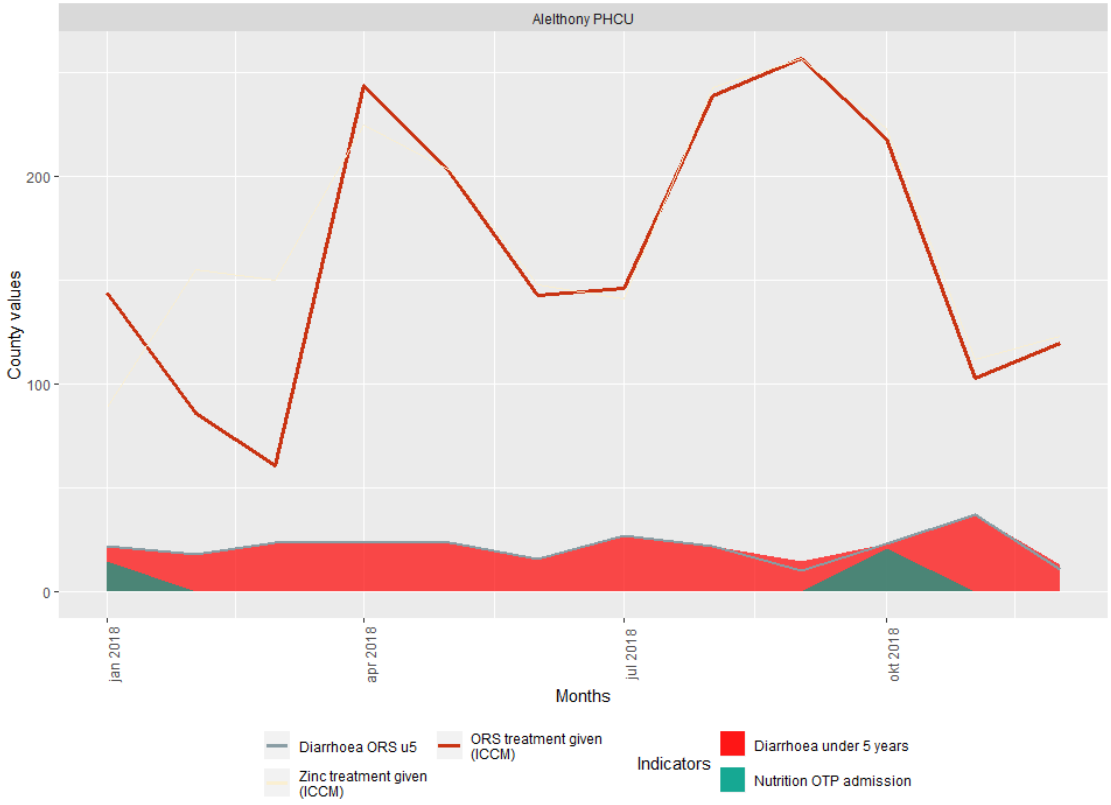
Monthly trends in selected indicators, facility level
Juba

Group 4: Nutrition and diarrhoea, 2018 South Sudan



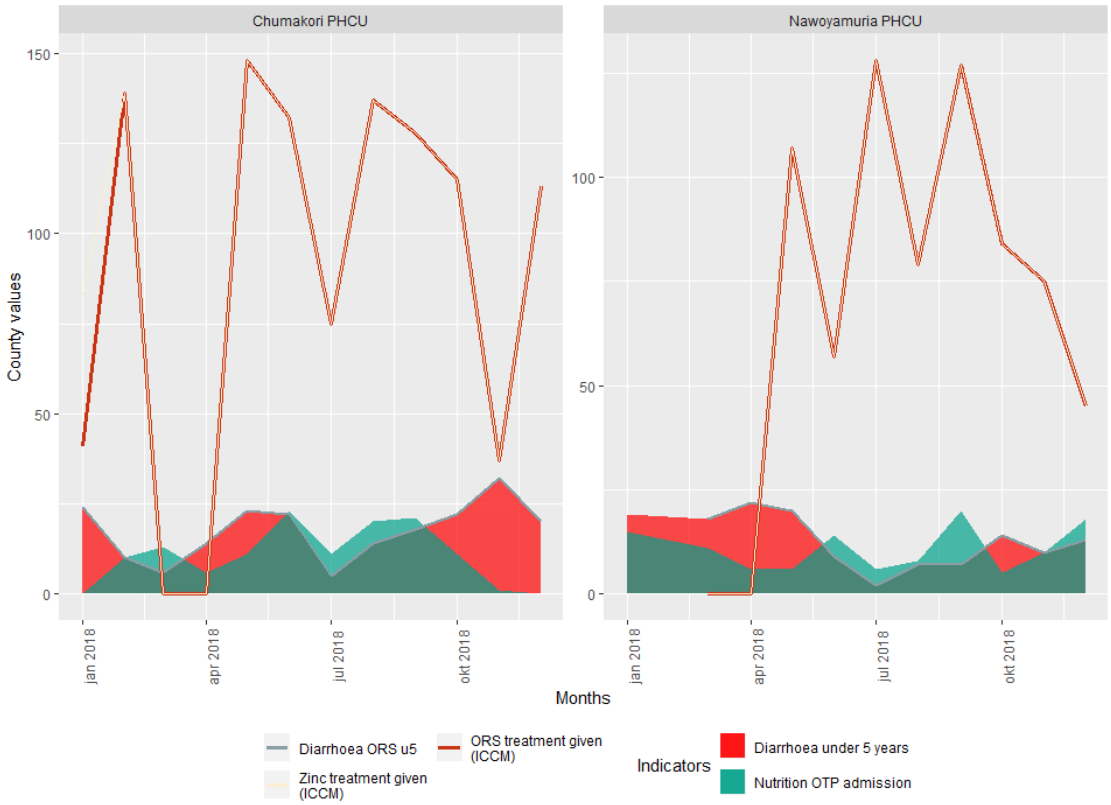
Monthly trends in selected indicators, facility level
Jur River

Group 4: Nutrition and diarrhoea, 2018 South Sudan



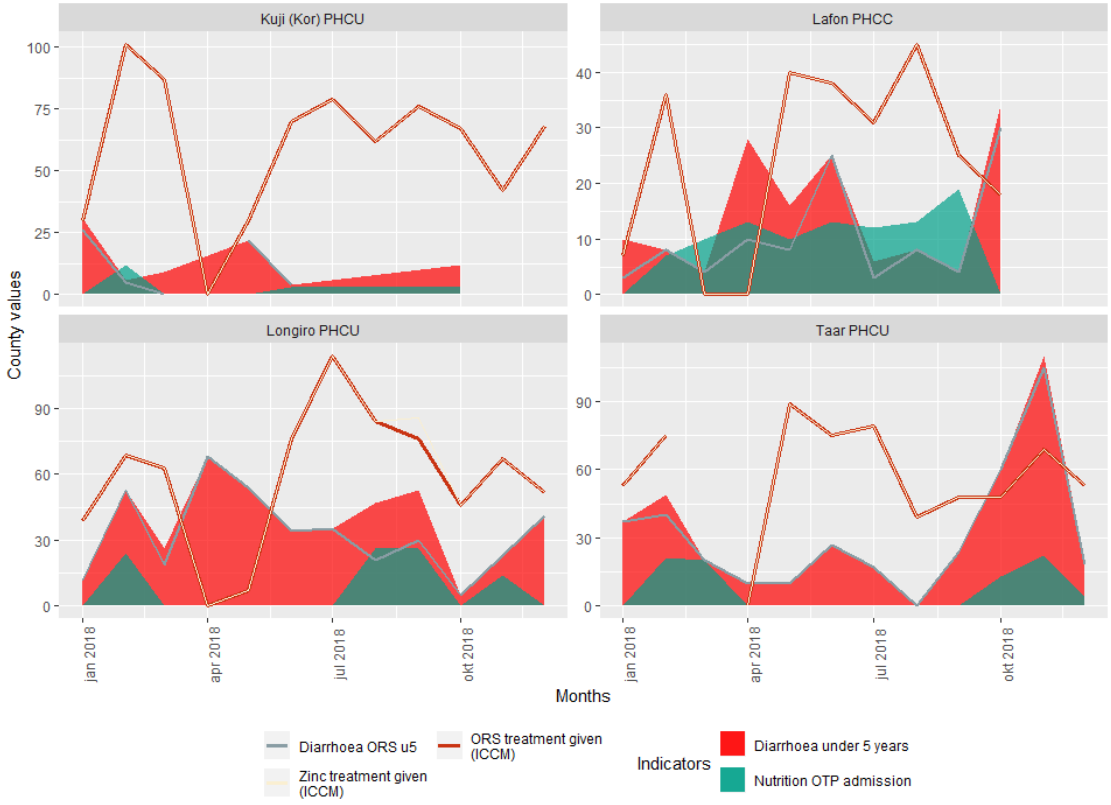
Monthly trends in selected indicators, facility level
Kapoeta North

Group 4: Nutrition and diarrhoea, 2018 South Sudan

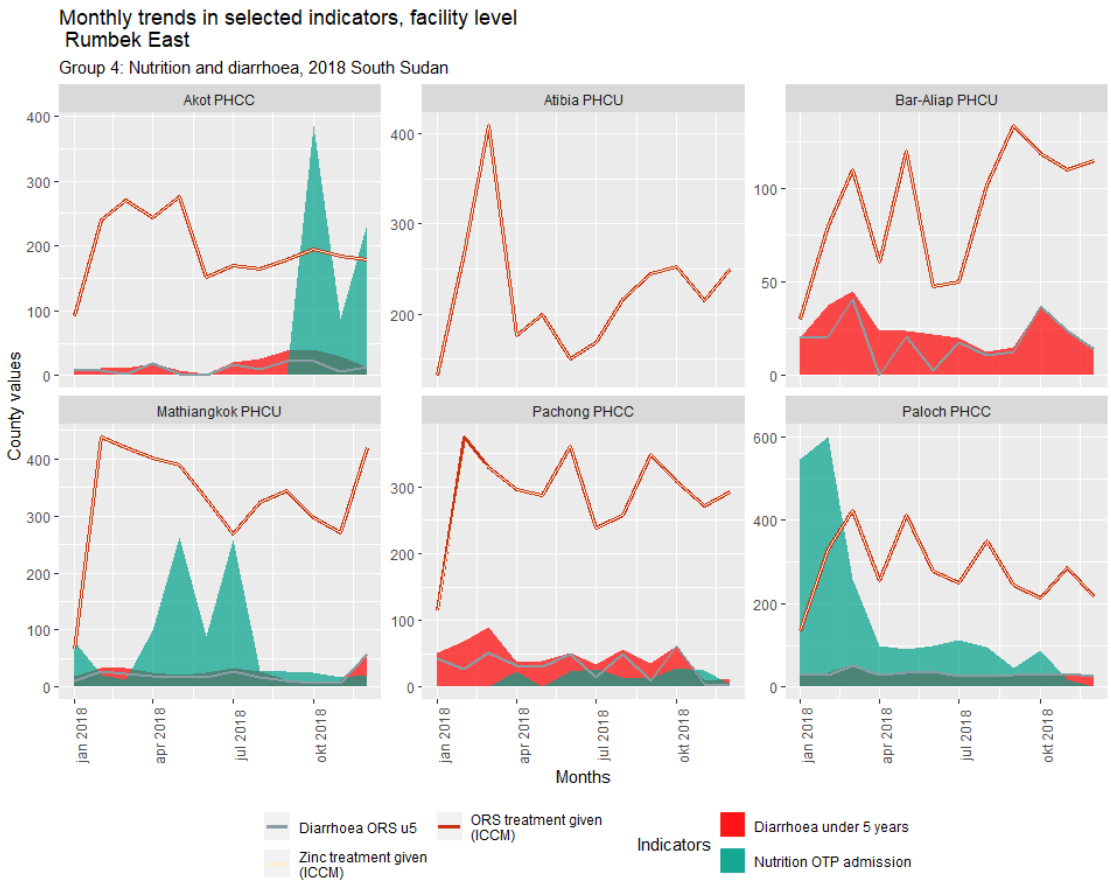


Monthly trends in selected indicators, facility level
Lopa/Lafon

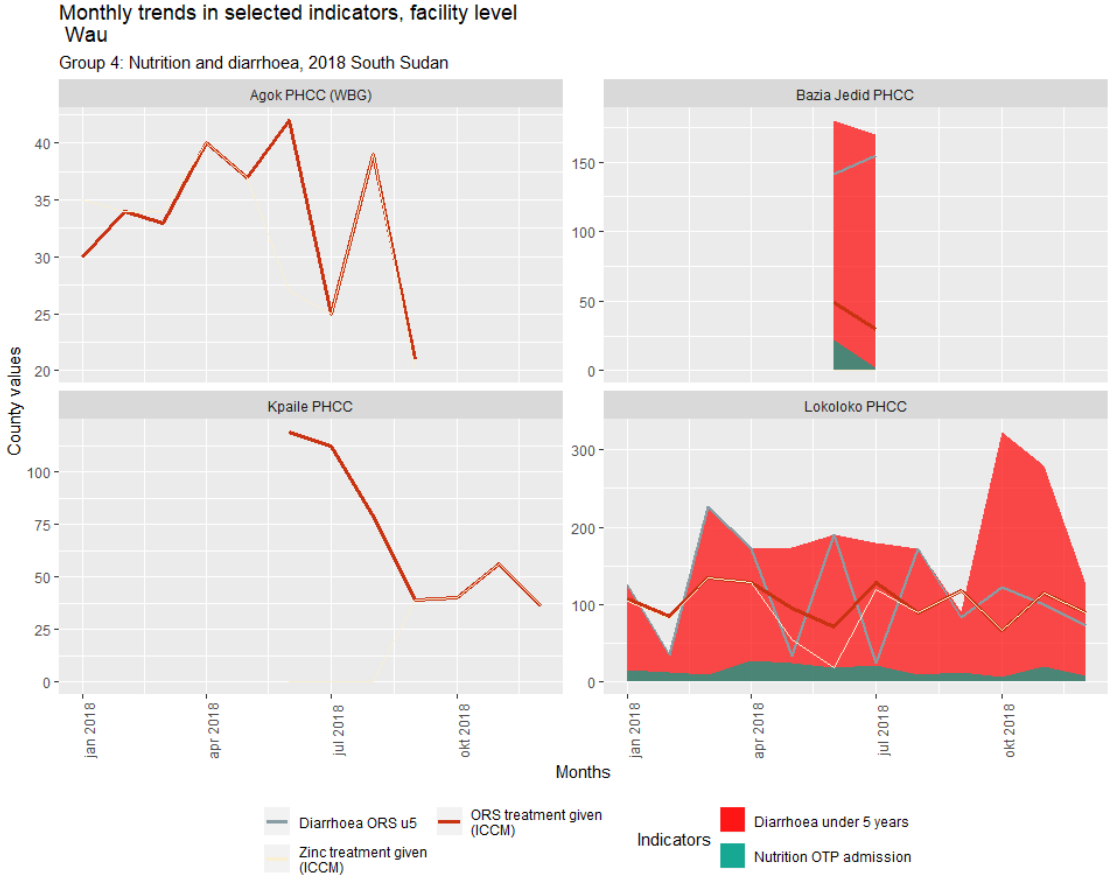
Group 4: Nutrition and diarrhoea, 2018 South Sudan




Monthly trends in selected indicators, facility level
Payinjiar
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Ganyliel PHCC
Janglou PHCU
Laidiet PHCU
Machar PHCU
Maluak PHCU
Morgok PHCU
Pachaar PHCU
Pathiel PHCU
Tiap PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission

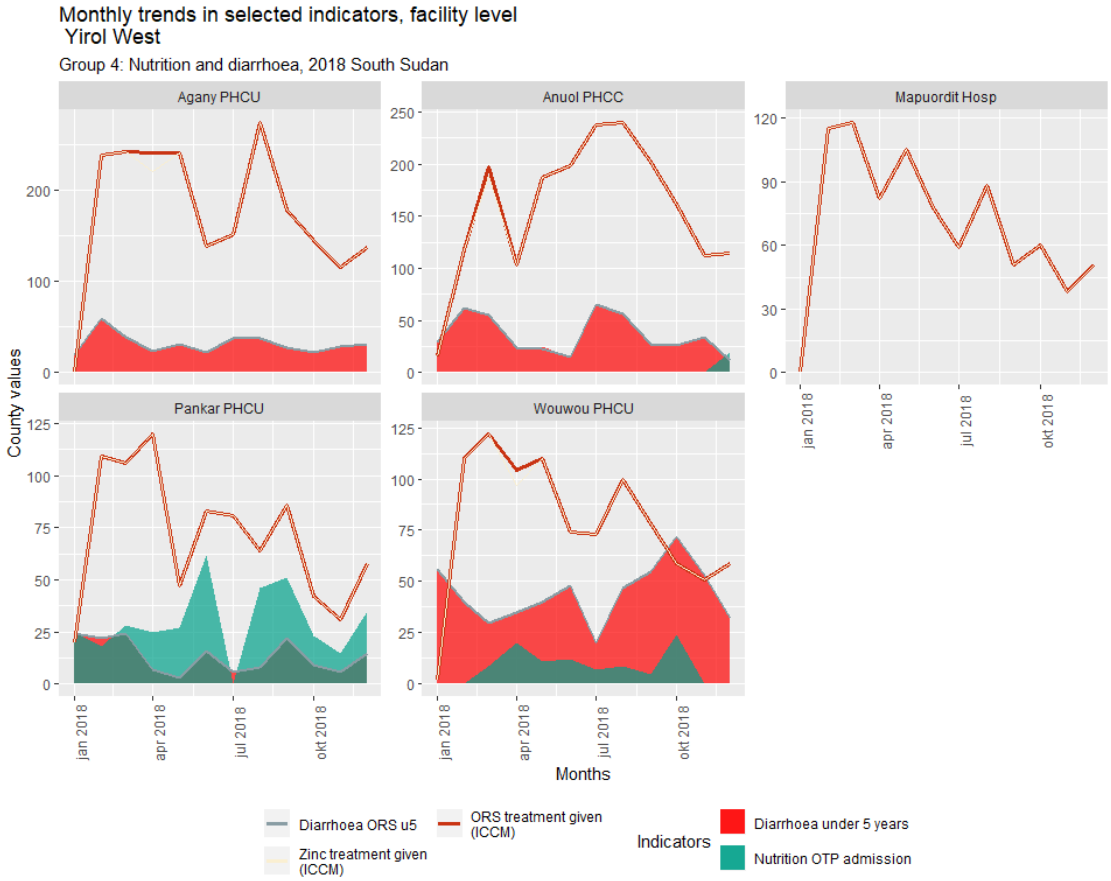

Monthly trends in selected indicators, facility level
Rumbek East
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Akot PHCC
Atibia PHCU
Bar-Aliap PHCU
Mathiangkok PHCU
Pachong PHCC
Paloch PHCC
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission


Monthly trends in selected indicators, facility level
Rumbek North
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Malueth PHCU
Maper Centre PHCC
Mayen PHCU (Rumbek N)
Wun-riang PHCU
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission

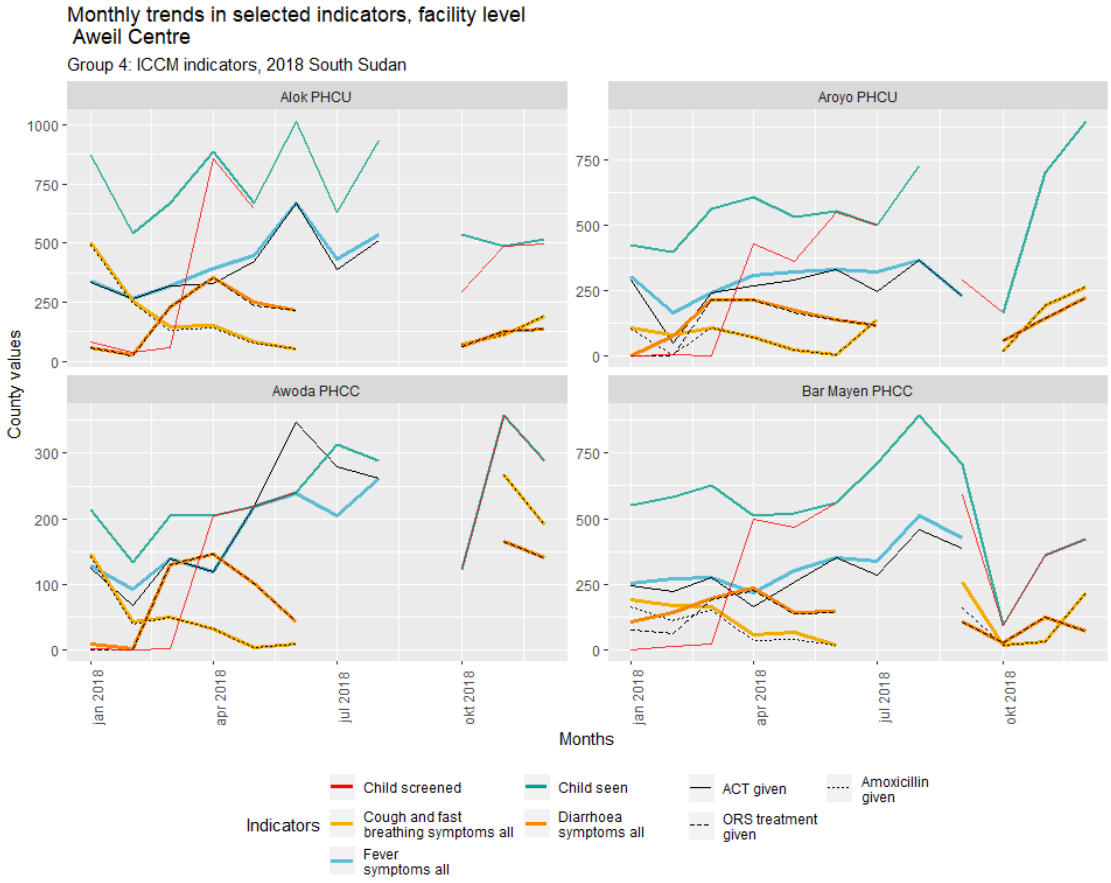

Monthly trends in selected indicators, facility level
Wau
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Agok PHCC (WBG)
Bazia Jedid PHCC
Kpaile PHCC
Lokoloko PHCC
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission

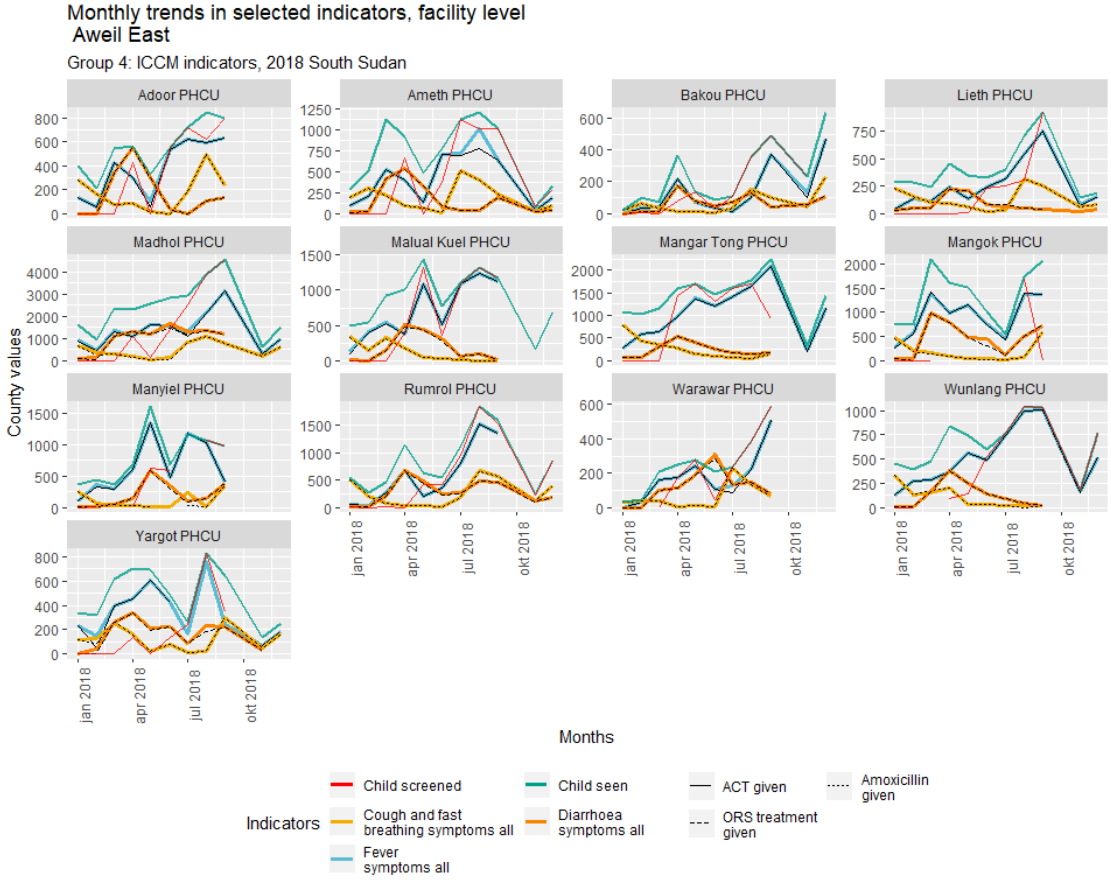

Monthly trends in selected indicators, facility level
Wulu
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Doteku PHCU
Nuktamanga PHCU (Domu)
Tonji PHCU
Wulu PHCC
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission


Monthly trends in selected indicators, facility level
Yirol East
Group 4: Nutrition and diarrhoea, 2018 South Sudan
Adior PHCC
Kap PHCU
Langmatot PHCU
Lekakudu PHCU
Nyang PHCC
Pagarau PHCC
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Diarrhoea ORS u5
ORS treatment given (ICCM)
Zinc treatment given (ICCM)
Indicators
Diarrhoea under 5 years
Nutrition OTP admission

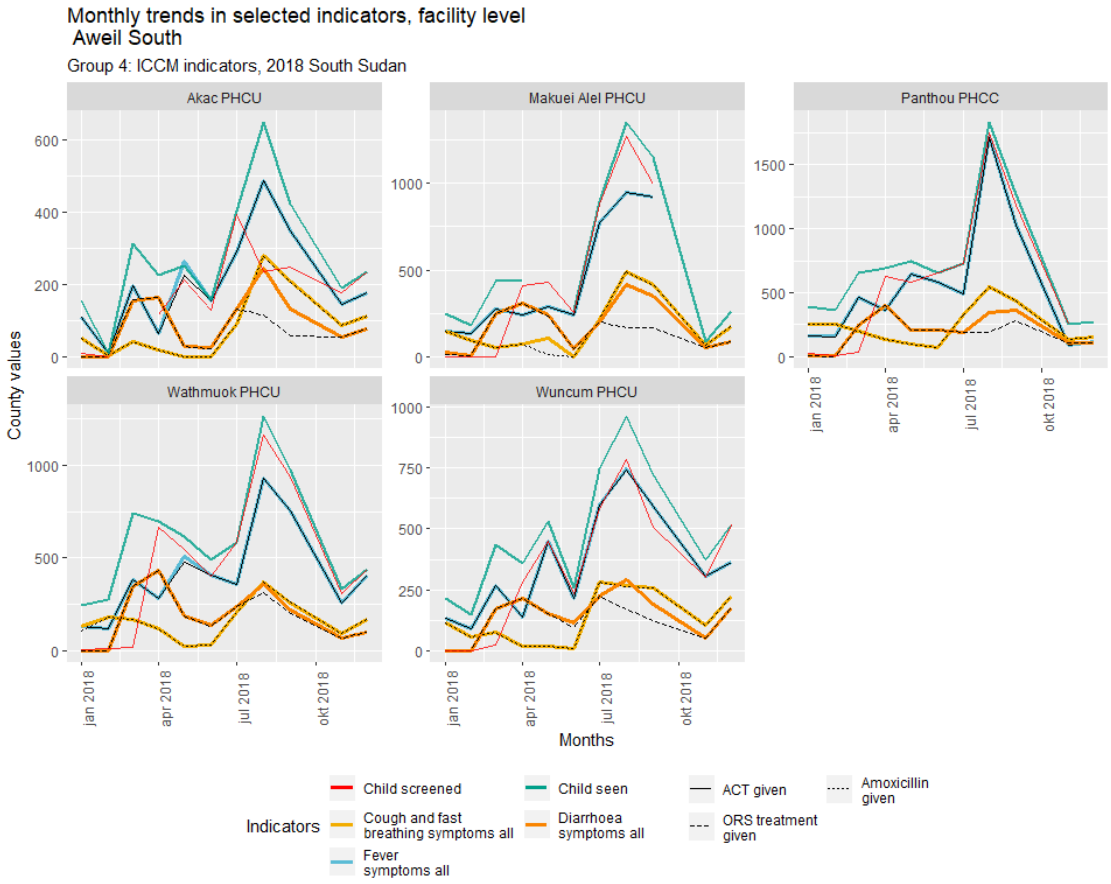


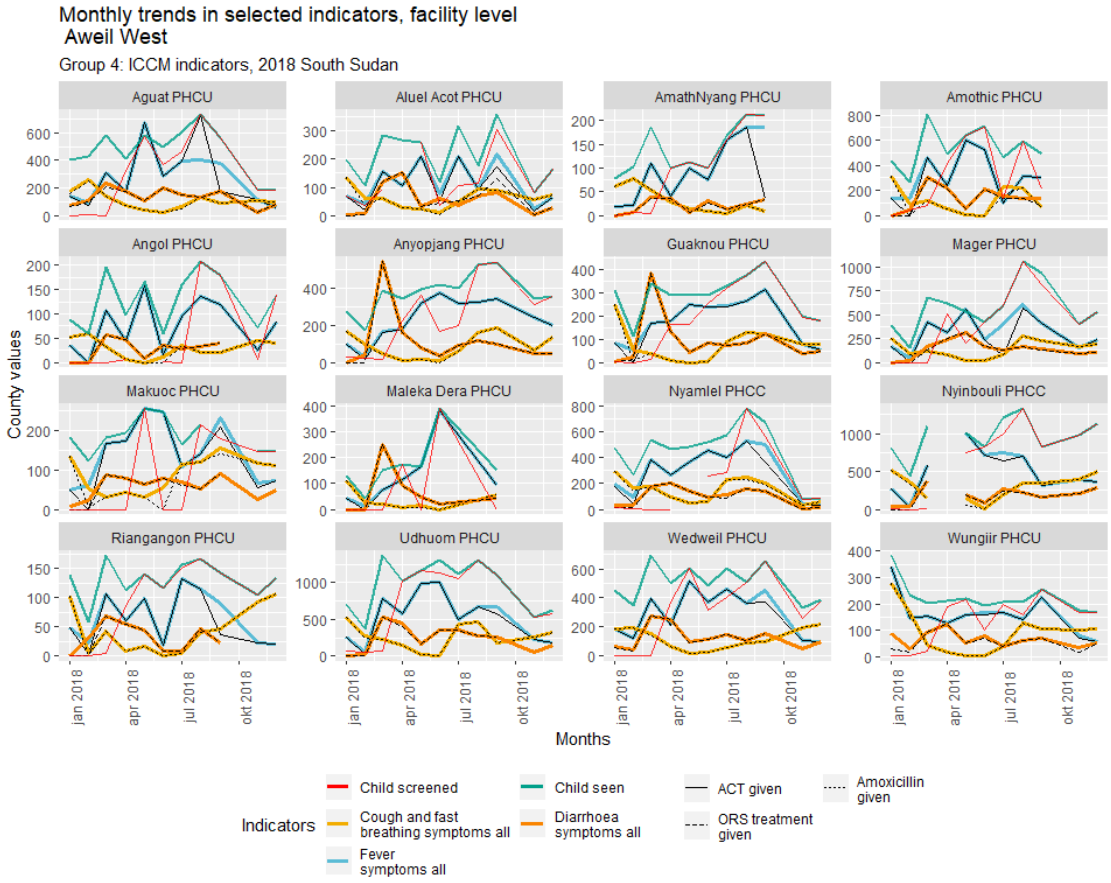
Group 4: iCCM indicators

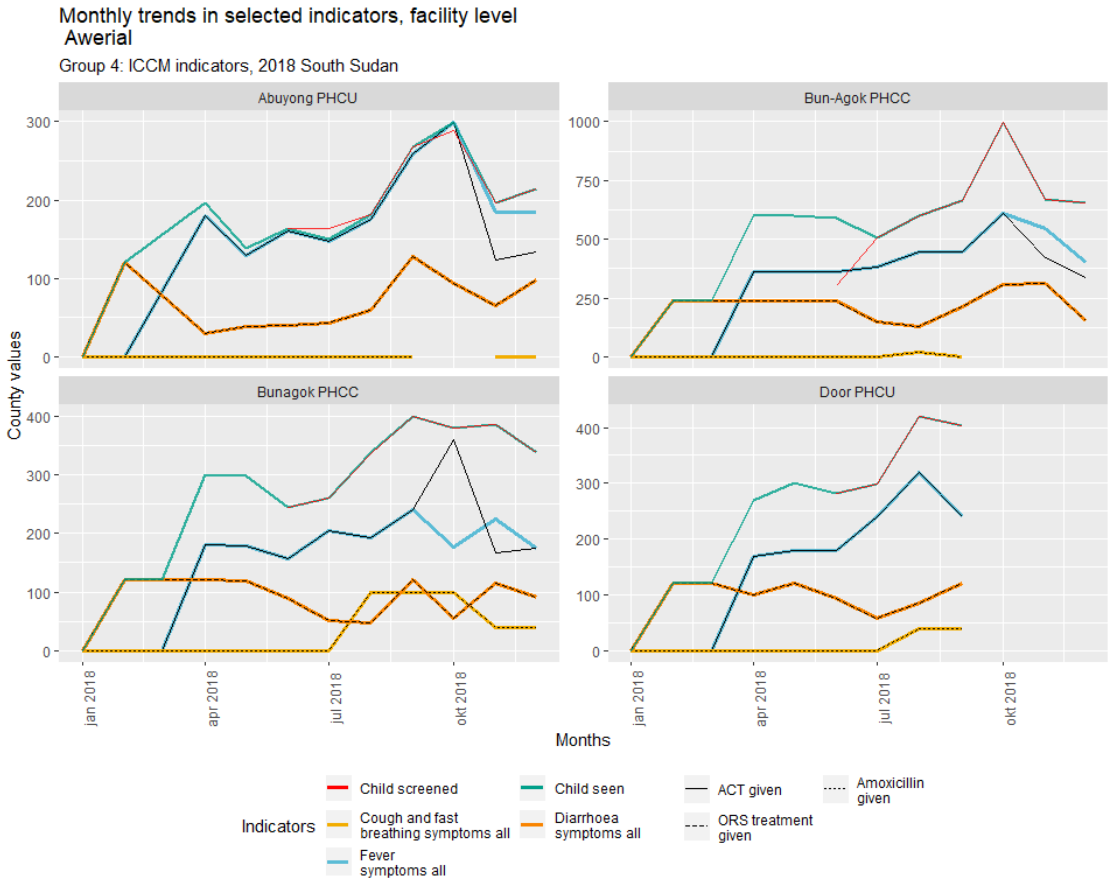

Monthly trends in selected indicators, facility level
Aweil Centre
Group 4: ICCM indicators, 2018 South Sudan
Alok PHCU
Aroyo PHCU
Awoda PHCC
Bar Mayen PHCC
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

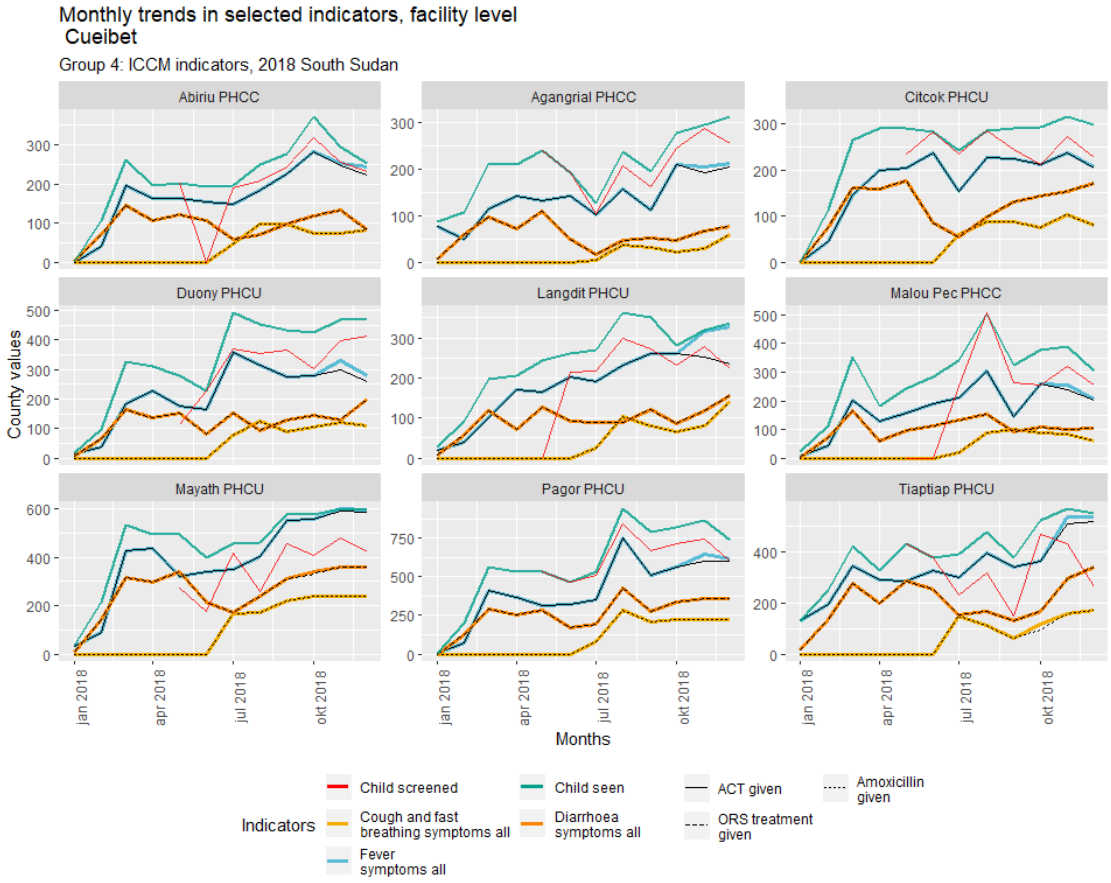

Monthly trends in selected indicators, facility level
Aweil East
Group 4: ICCM indicators, 2018 South Sudan
Adoor PHCU
Ameth PHCU
Bakou PHCU
Lieth PHCU
Madhol PHCU
Malual Kuel PHCU
Mangar Tong PHCU
Mangok PHCU
Manyiel PHCU
Rumrol PHCU
Warawar PHCU
Wunlang PHCU
Yargot PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

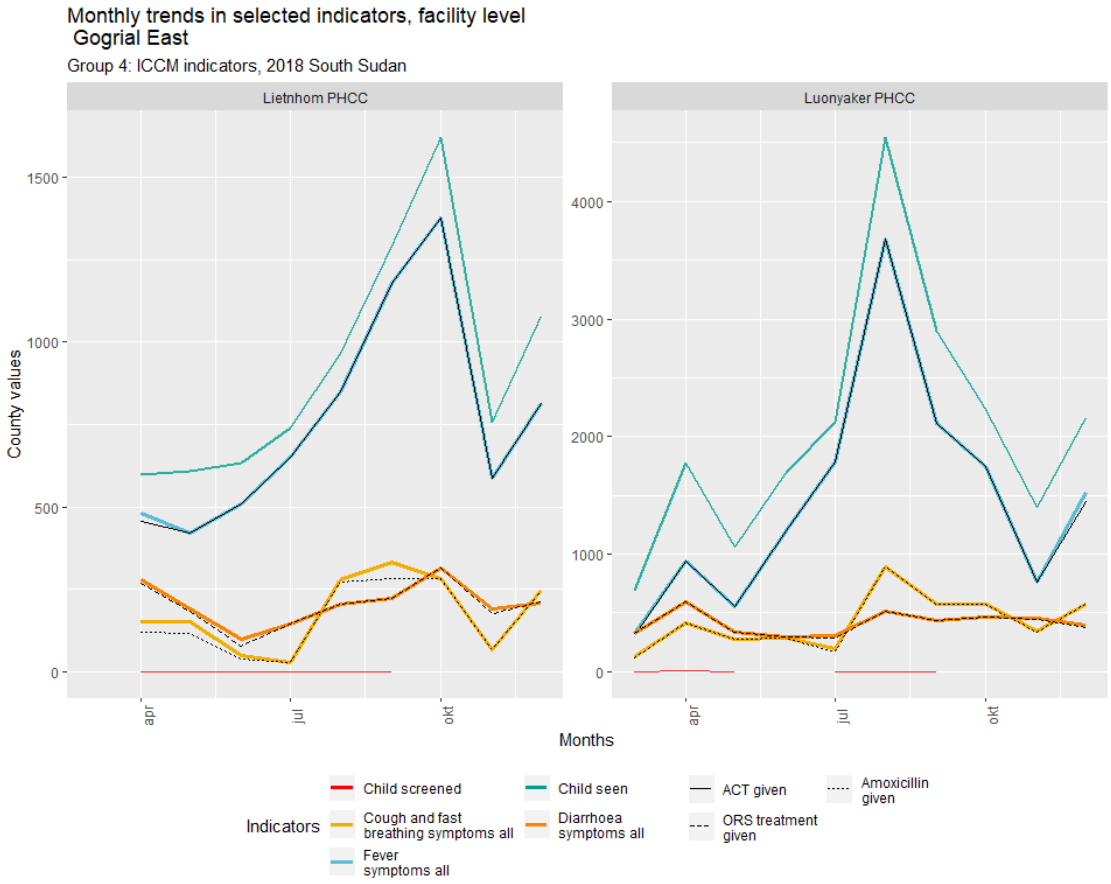

Monthly trends in selected indicators, facility level
Aweil North
Group 4: ICCM indicators, 2018 South Sudan
Gok Machar PHCC
Jaac PPF PHCU
Majak Bai PHCU
Manyiel Akok PHCU
Mayom Adhal PHCU
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

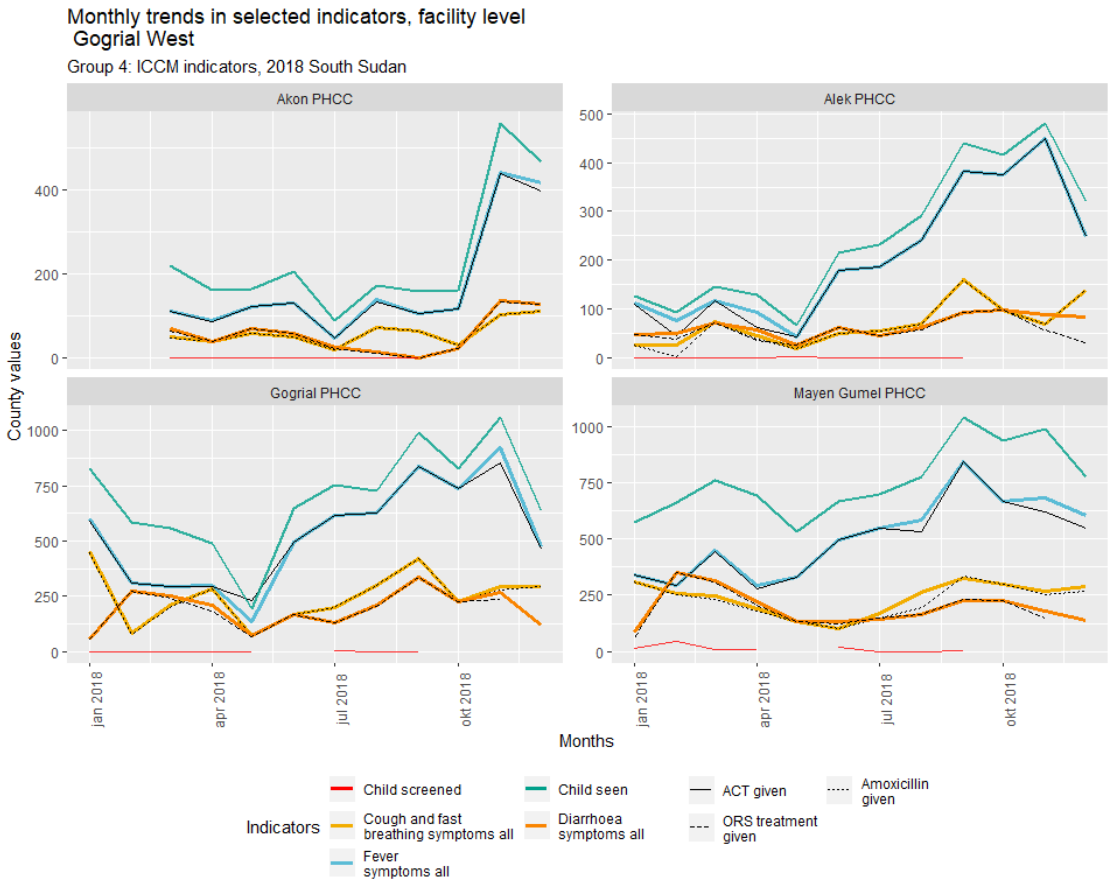

Monthly trends in selected indicators, facility level
Aweil South
Group 4: ICCM indicators, 2018 South Sudan
Akac PHCU
Makuei Alel PHCU
Panthou PHCC
Wathmuok PHCU
Wuncum PHCU
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

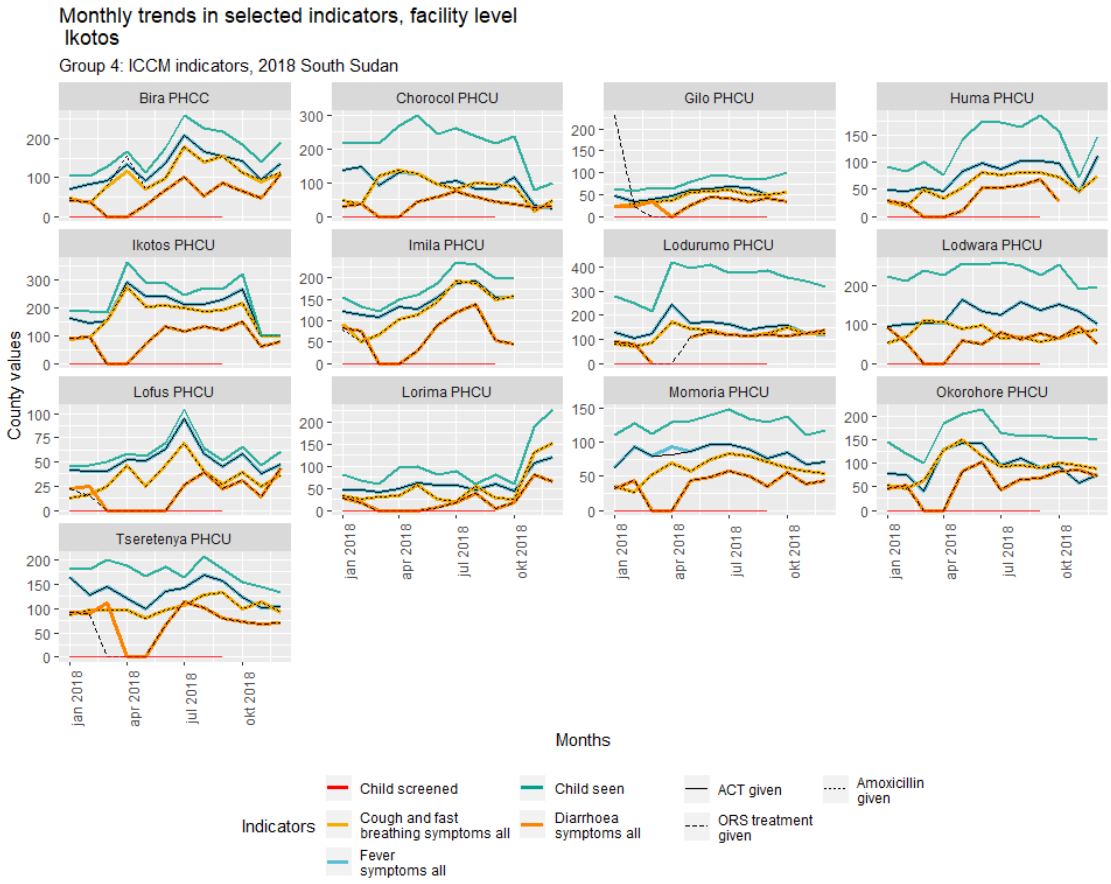

Monthly trends in selected indicators, facility level
Aweil West
Group 4: ICCM indicators, 2018 South Sudan
Aguat PHCU
Aluel Acot PHCU
AmathNyang PHCU
Amothic PHCU
Angol PHCU
Anyopjang PHCU
Guaknou PHCU
Mager PHCU
Makuoc PHCU
Maleka Dera PHCU
Nyamlel PHCC
Nyinbouli PHCC
Riangangon PHCU
Udhuom PHCU
Wedweil PHCU
Wungiir PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all


Monthly trends in selected indicators, facility level
Awerial
Group 4: ICCM indicators, 2018 South Sudan
Abuyong PHCU
Bun-Agok PHCC
Bunagok PHCC
Door PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all


Monthly trends in selected indicators, facility level
Cueibet
Group 4: ICCM indicators, 2018 South Sudan
Abiriu PHCC
Agangrial PHCC
Citcok PHCU
Duony PHCU
Langdit PHCU
Malou Pec PHCC
Mayath PHCU
Pagor PHCU
Tiaptiap PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

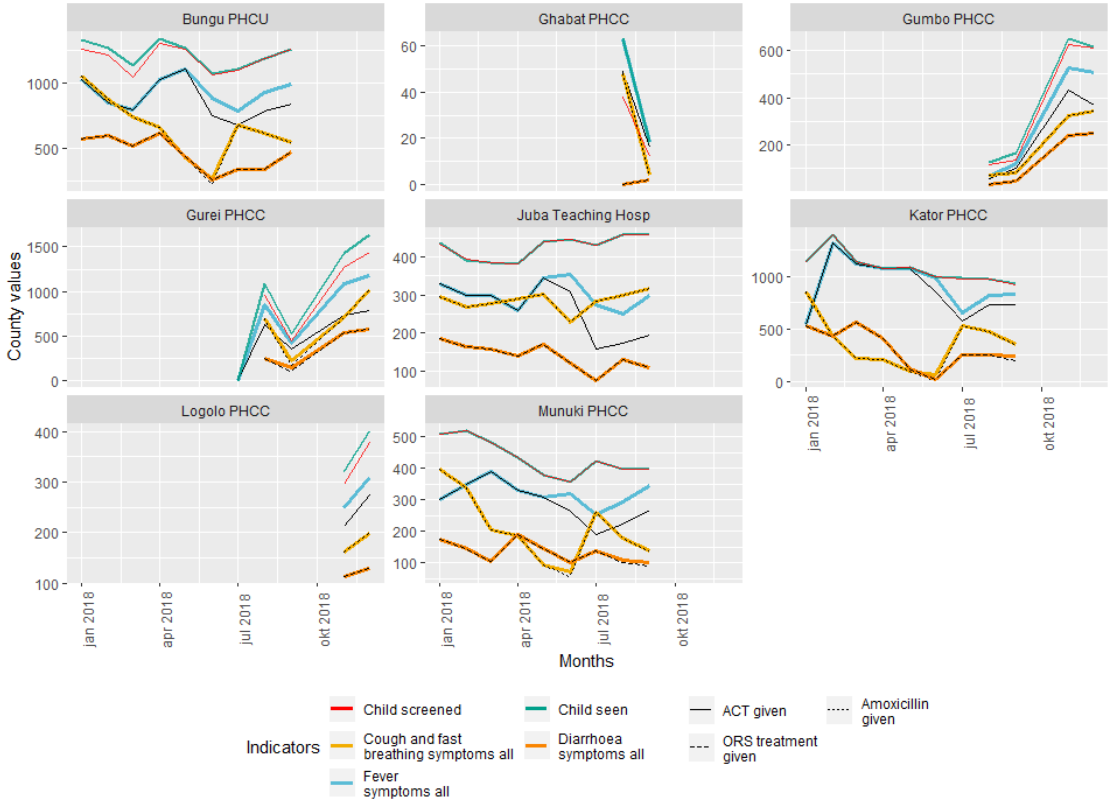

Monthly trends in selected indicators, facility level
Gogrial East
Group 4: ICCM indicators, 2018 South Sudan
Lietnhom PHCC
Luonyaker PHCC
County values
apr
jul
okt
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all


Monthly trends in selected indicators, facility level
Gogrial West
Group 4: ICCM indicators, 2018 South Sudan
Akon PHCC
Alek PHCC
Gogrial PHCC
Mayen Gumel PHCC
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all


Monthly trends in selected indicators, facility level
Ikotos
Group 4: ICCM indicators, 2018 South Sudan
Bira PHCC
Chorocol PHCU
Gilo PHCU
Huma PHCU
Ikotos PHCU
Imila PHCU
Lodurumo PHCU
Lodwara PHCU
Lofus PHCU
Lorima PHCU
Momoria PHCU
Okorohore PHCU
Tseretenya PHCU
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

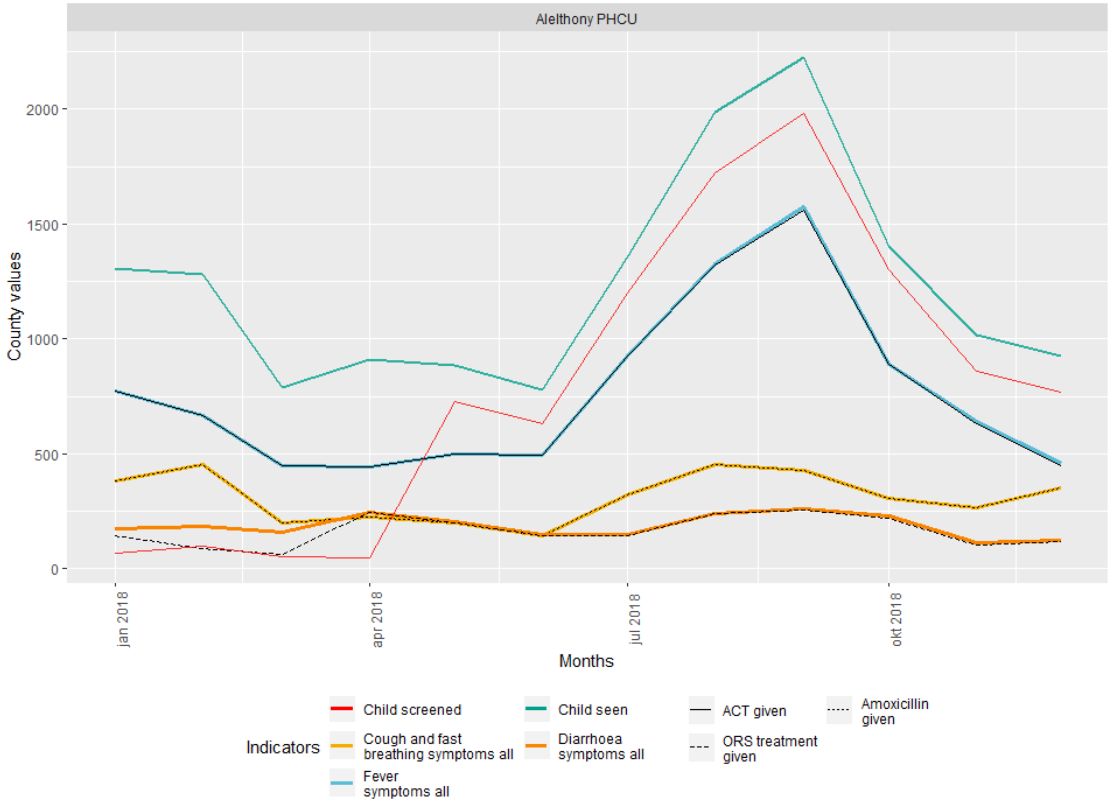
Monthly trends in selected indicators, facility level
Juba

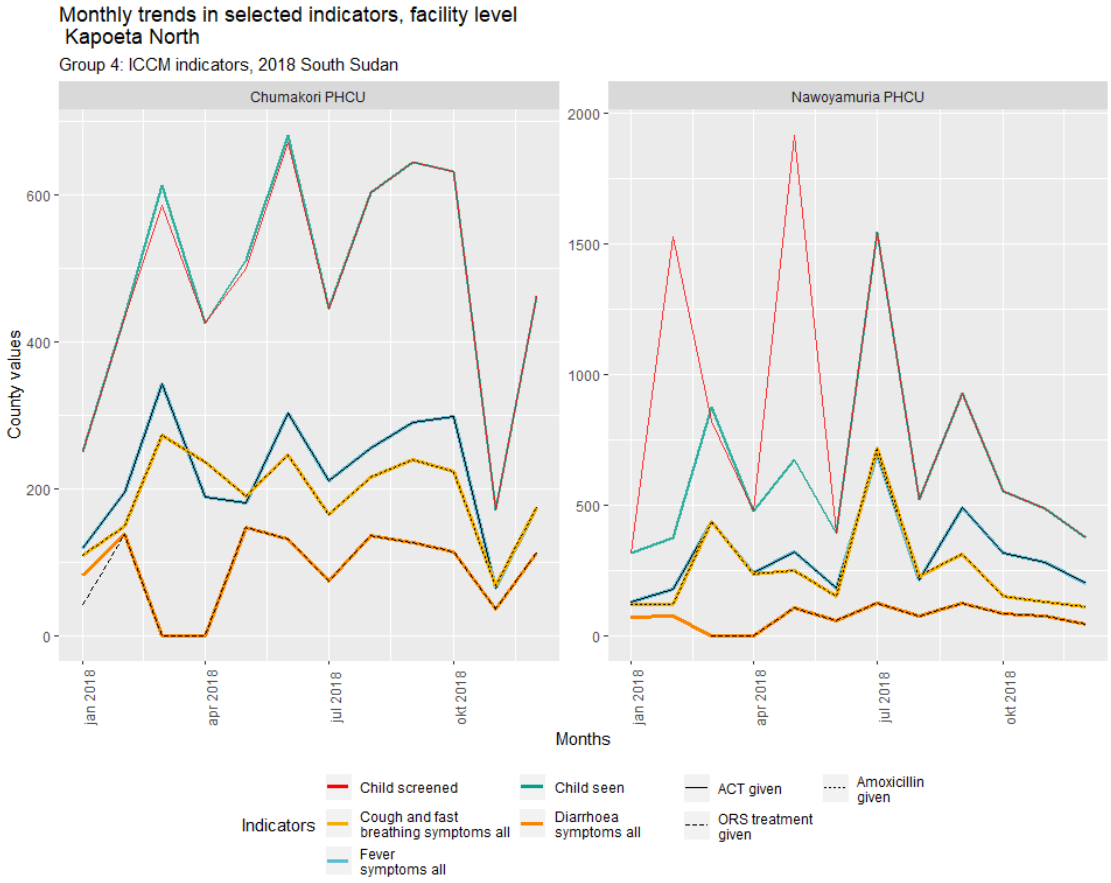
Group 4: ICCM indicators, 2018 South Sudan

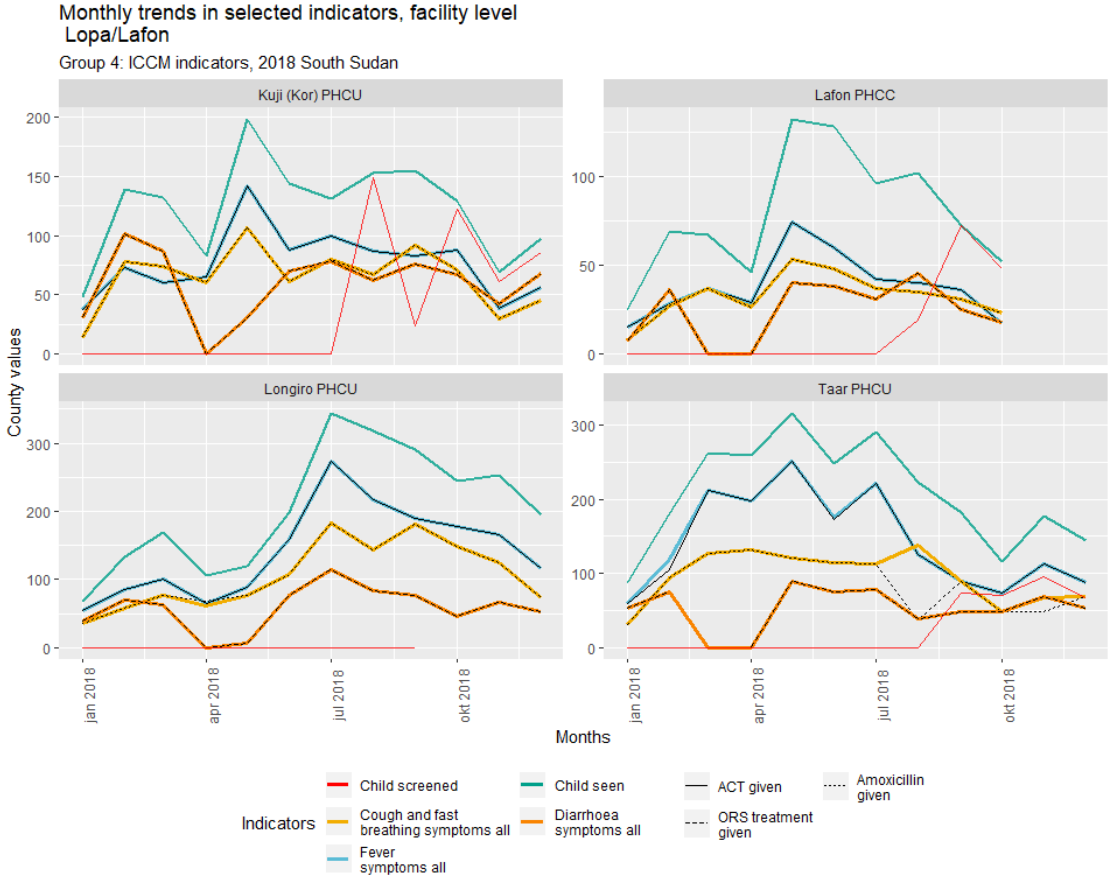


Monthly trends in selected indicators, facility level
Jur River

Group 4: ICCM indicators, 2018 South Sudan

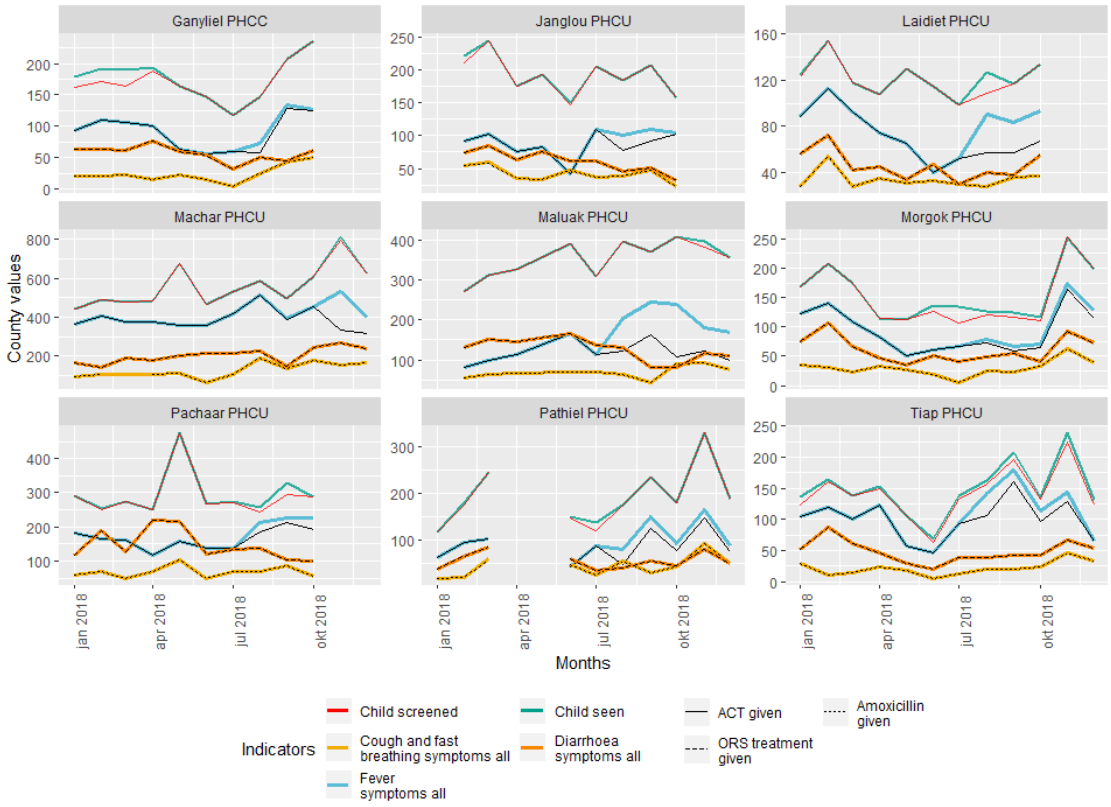



Monthly trends in selected indicators, facility level
Kapoeta North
Group 4: ICCM indicators, 2018 South Sudan
Chumakori PHCU
Nawoyamuria PHCU
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all


Monthly trends in selected indicators, facility level
Lopa/Lafon
Group 4: ICCM indicators, 2018 South Sudan
Kuji (Kor) PHCU
Lafon PHCC
Longiro PHCU
Taar PHCU
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

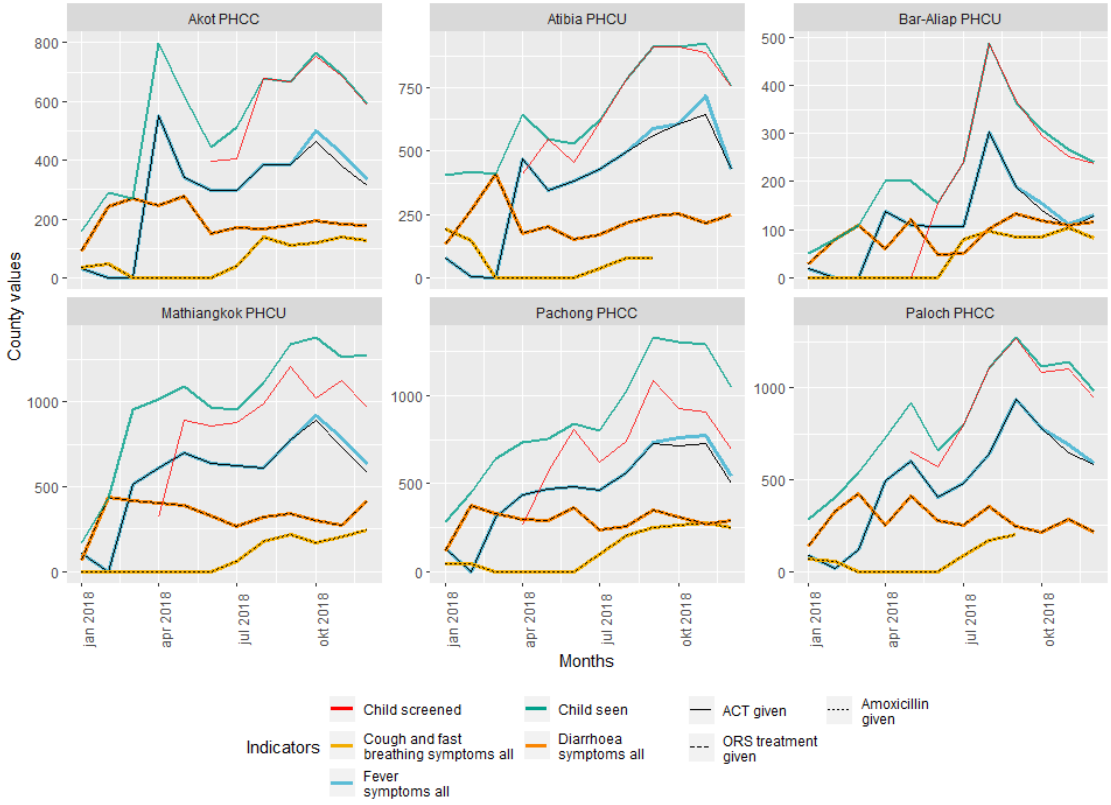
Monthly trends in selected indicators, facility level
Payinjiar

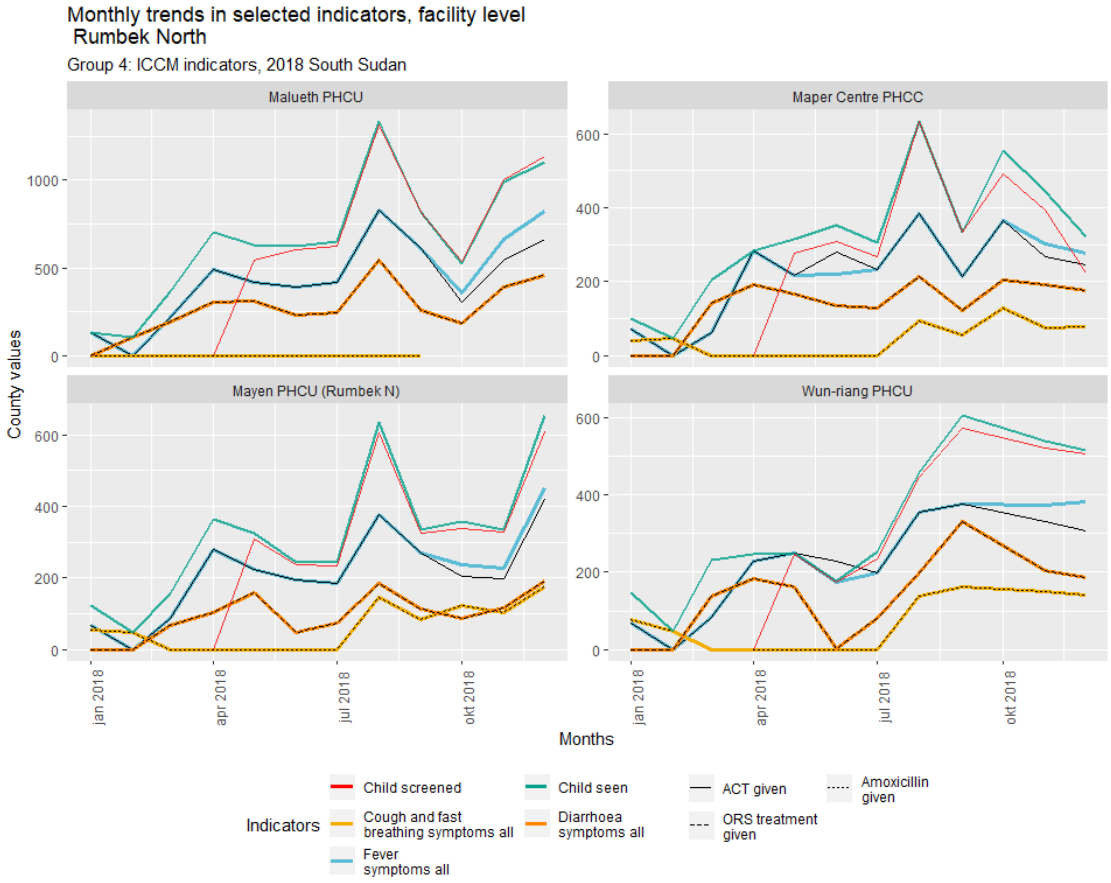
Group 4: ICCM indicators, 2018 South Sudan



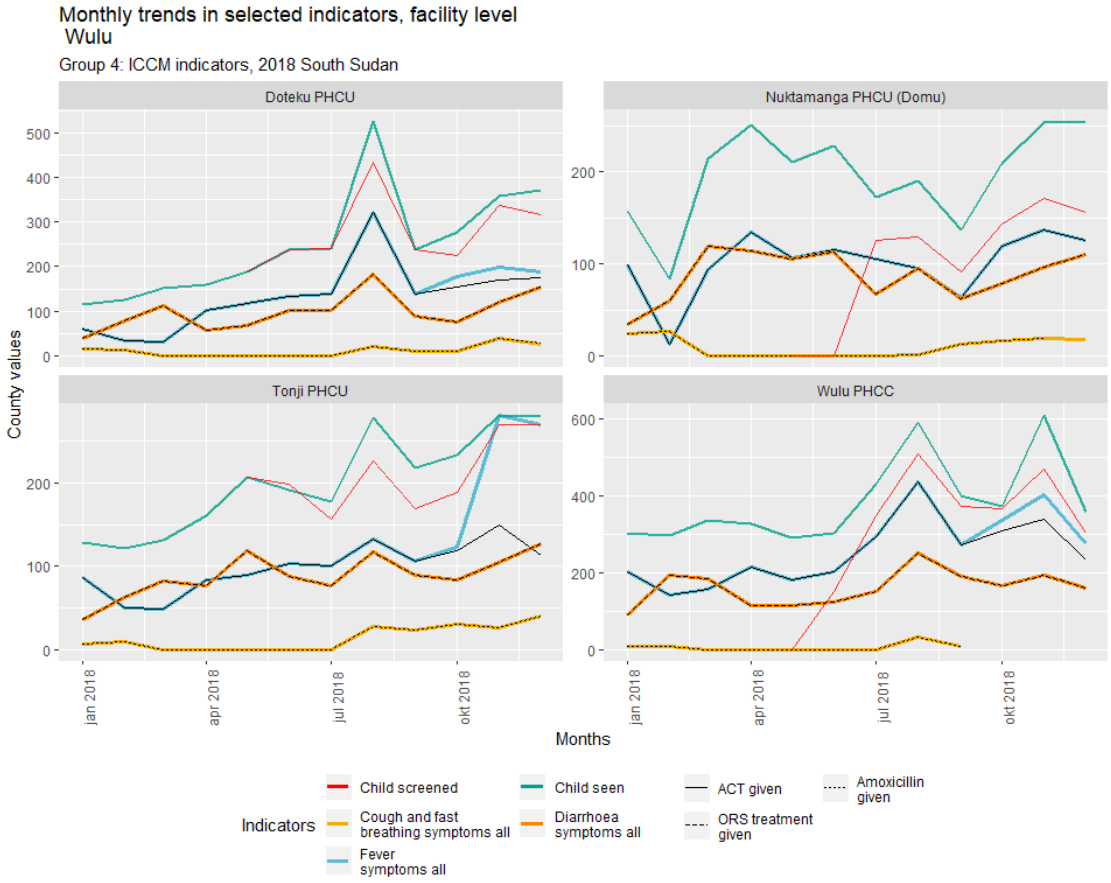
Monthly trends in selected indicators, facility level
Rumbek East

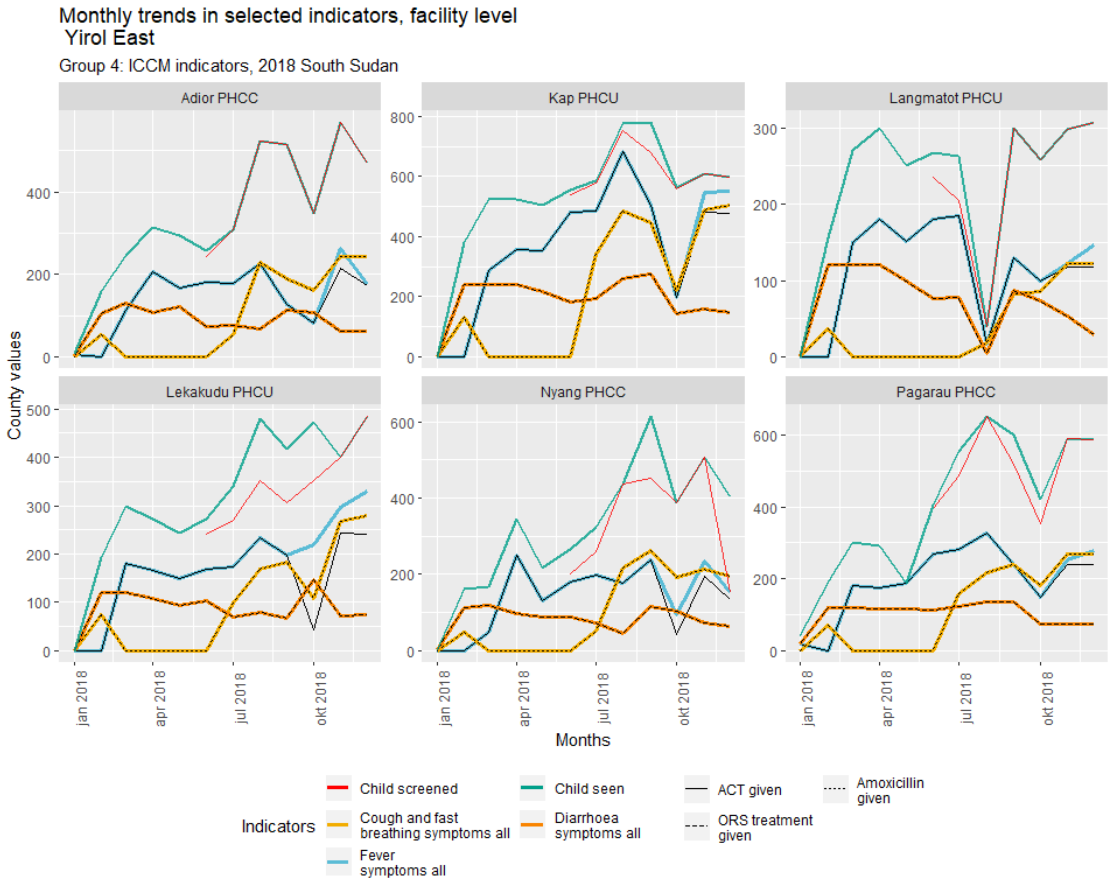
Group 4: ICCM indicators, 2018 South Sudan

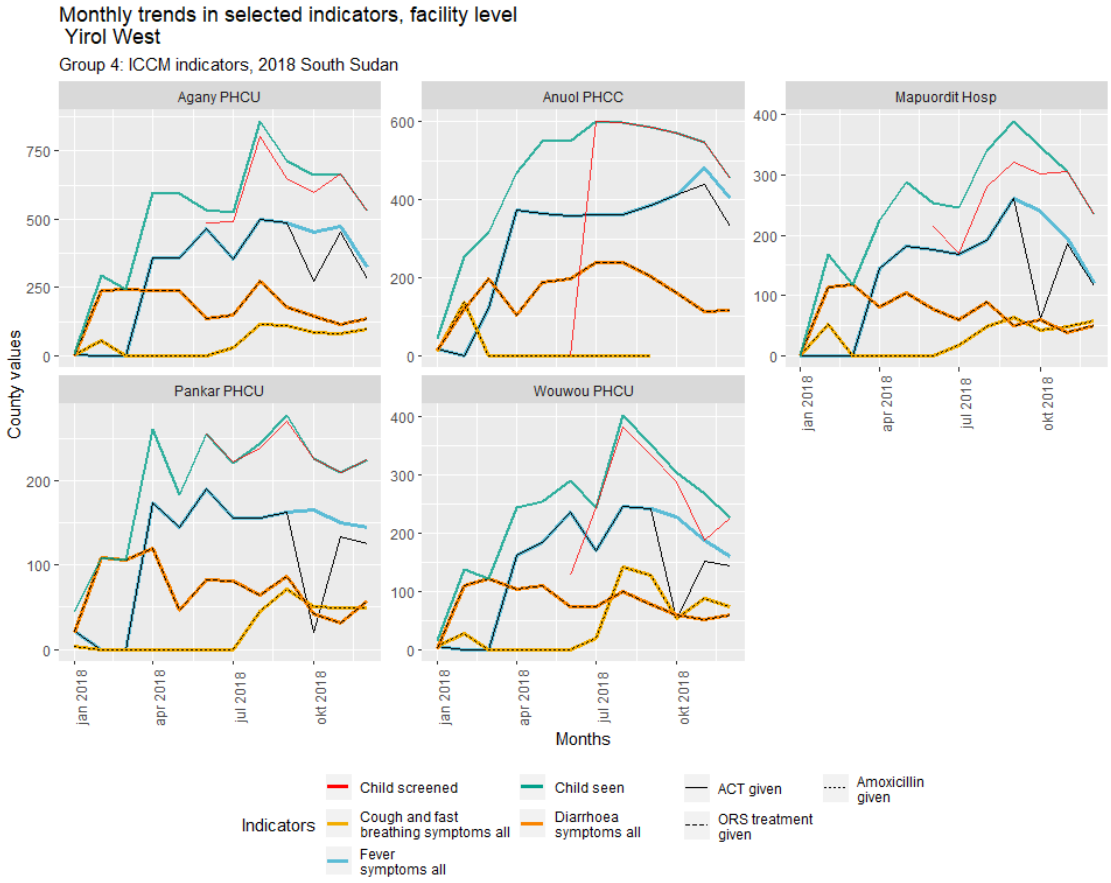



Monthly trends in selected indicators, facility level
Rumbek North
Group 4: ICCM indicators, 2018 South Sudan
Malueth PHCU
Maper Centre PHCC
Mayen PHCU (Rumbek N)
Wun-riang PHCU
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

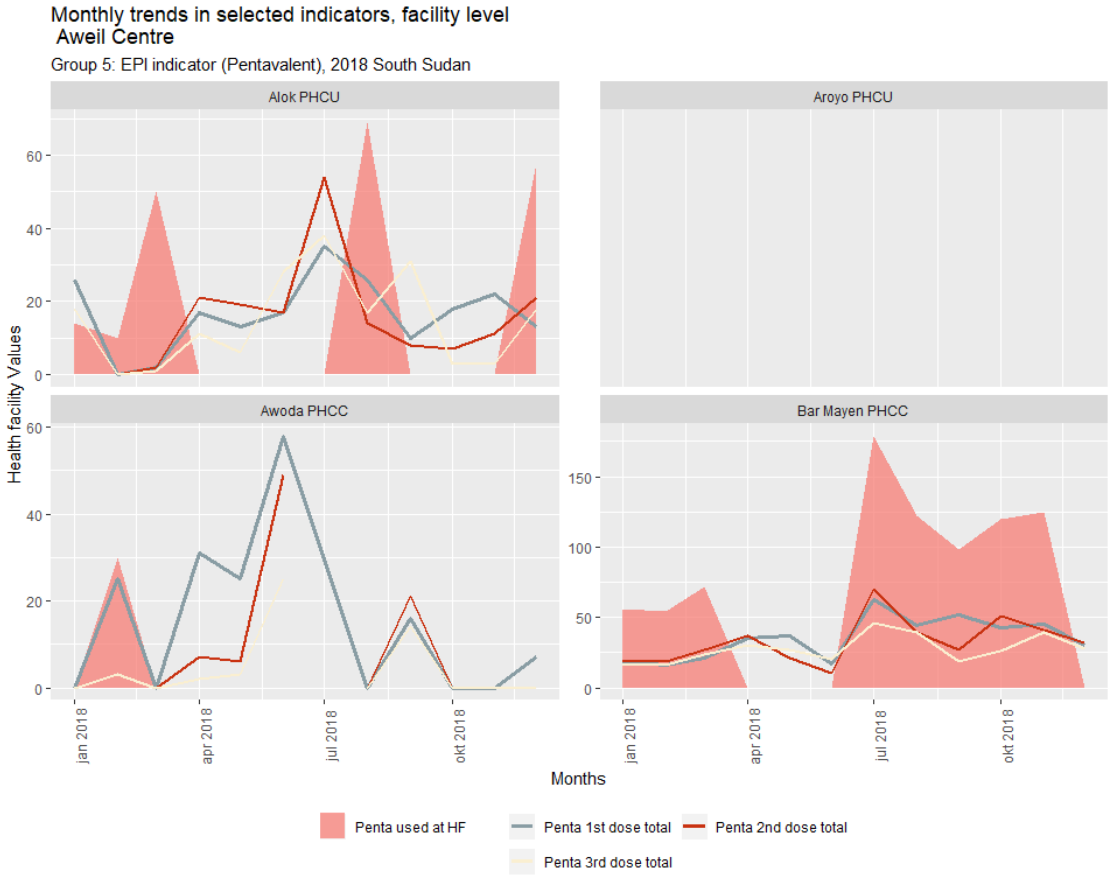

Monthly trends in selected indicators, facility level
Wau
Group 4: ICCM indicators, 2018 South Sudan
Agok PHCC (WBG)
Bazia Jedid PHCC
Kpaile PHCC
Lokoloko PHCC
County values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

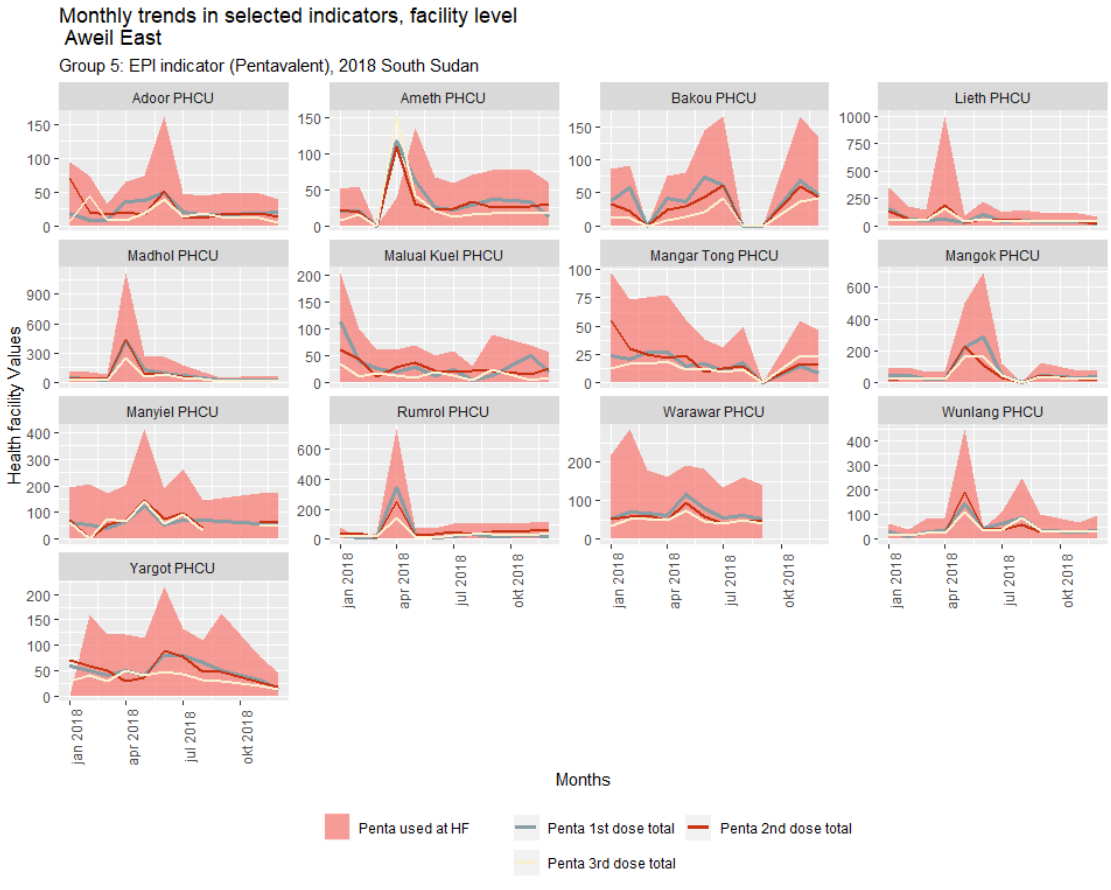

Monthly trends in selected indicators, facility level
Wulu
Group 4: ICCM indicators, 2018 South Sudan
Doteku PHCU
Nuktamanga PHCU (Domu)
Tonji PHCU
Wulu PHCC
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

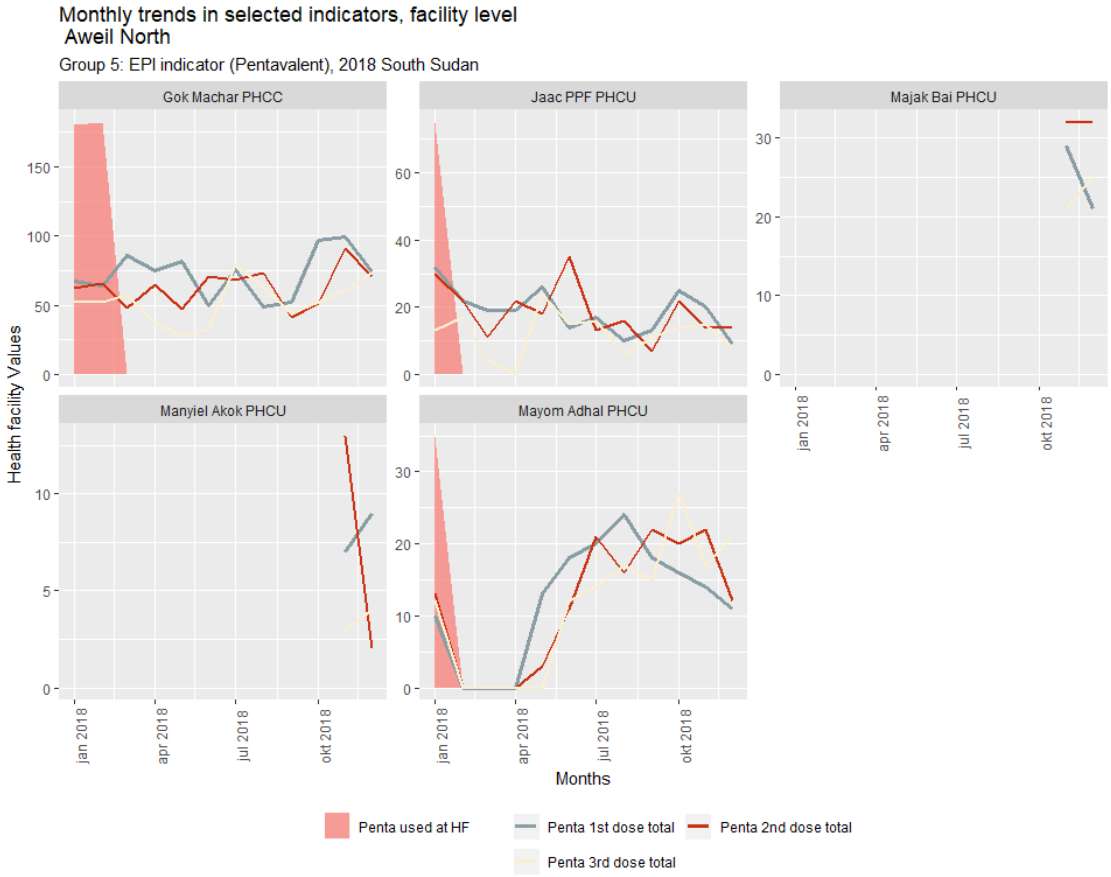

Monthly trends in selected indicators, facility level
Yirol East
Group 4: ICCM indicators, 2018 South Sudan
Adior PHCC
Kap PHCU
Langmatot PHCU
Lekakudu PHCU
Nyang PHCC
Pagarau PHCC
County values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Indicators
Child screened
Child seen
ACT given
Amoxicillin given
Cough and fast breathing symptoms all
Diarrhoea symptoms all
ORS treatment given
Fever symptoms all

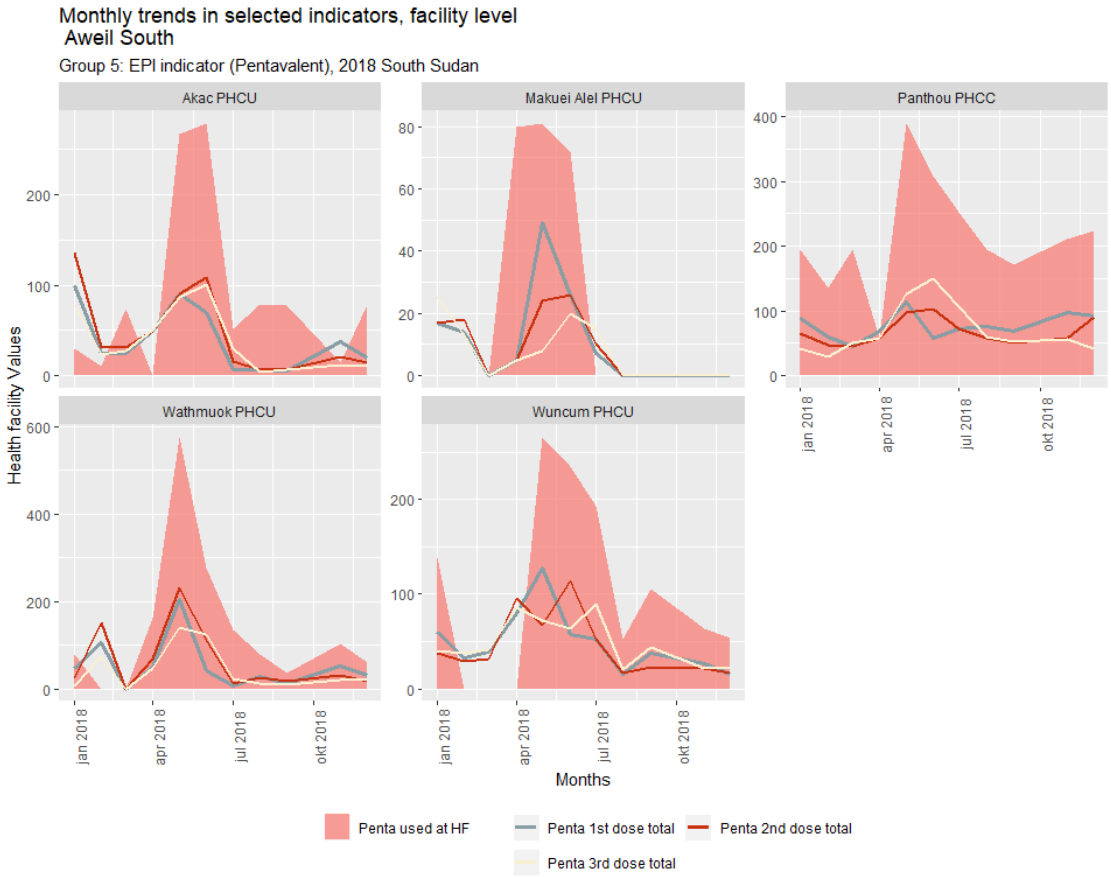


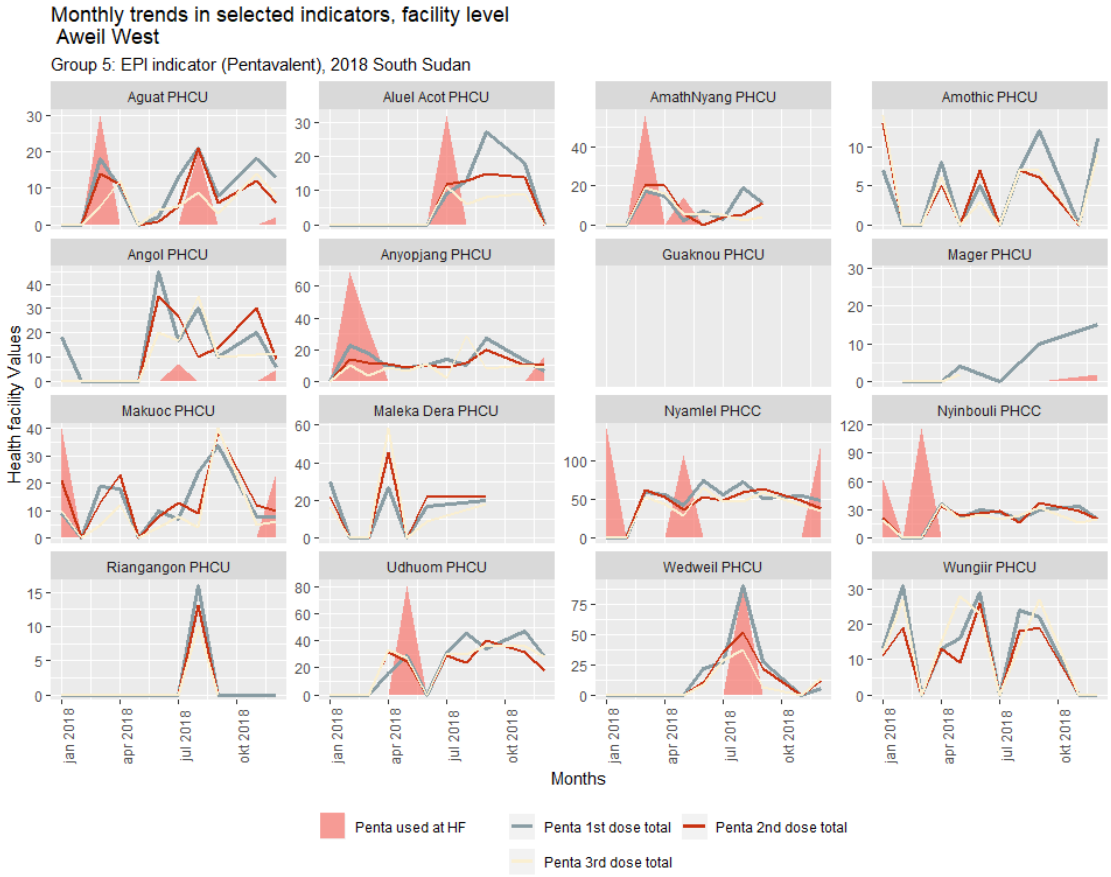
Group 5: Pentavalent EPI indicator

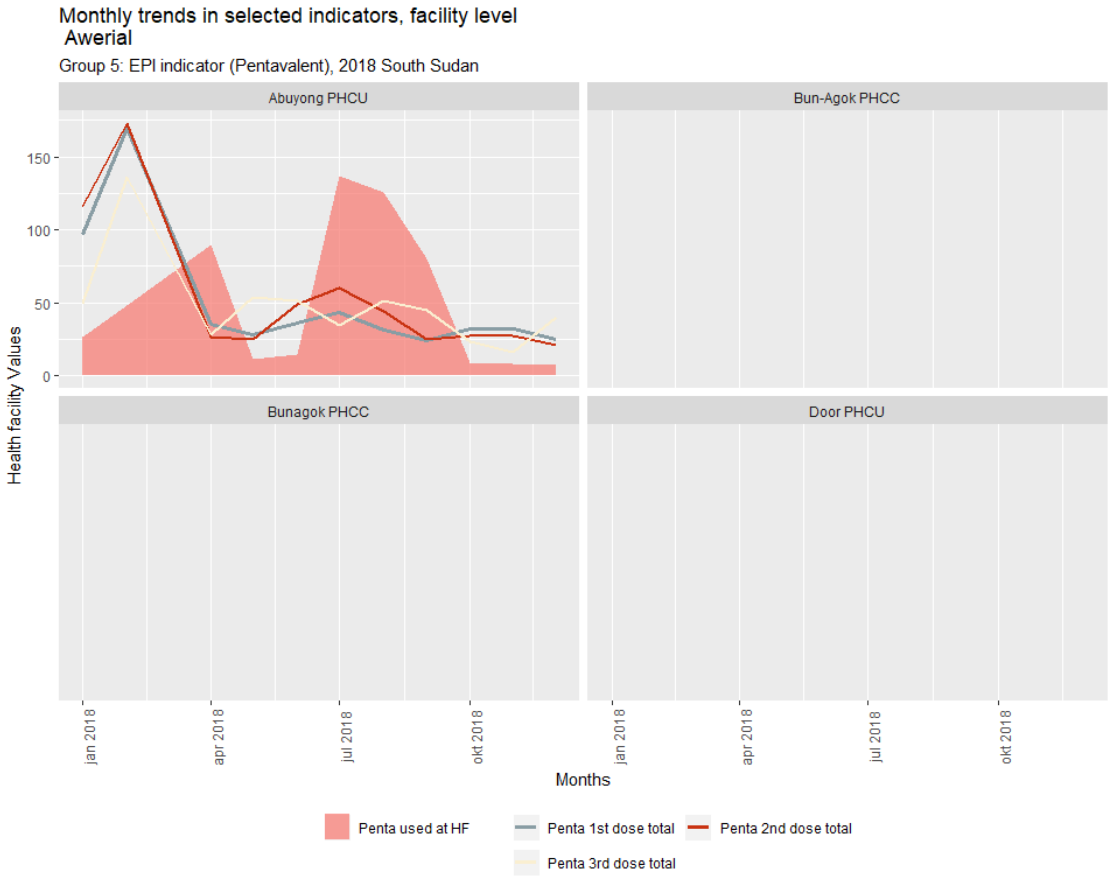

Monthly trends in selected indicators, facility level
Aweil Centre
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Alok PHCU
Aroyo PHCU
Awoda PHCC
Bar Mayen PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

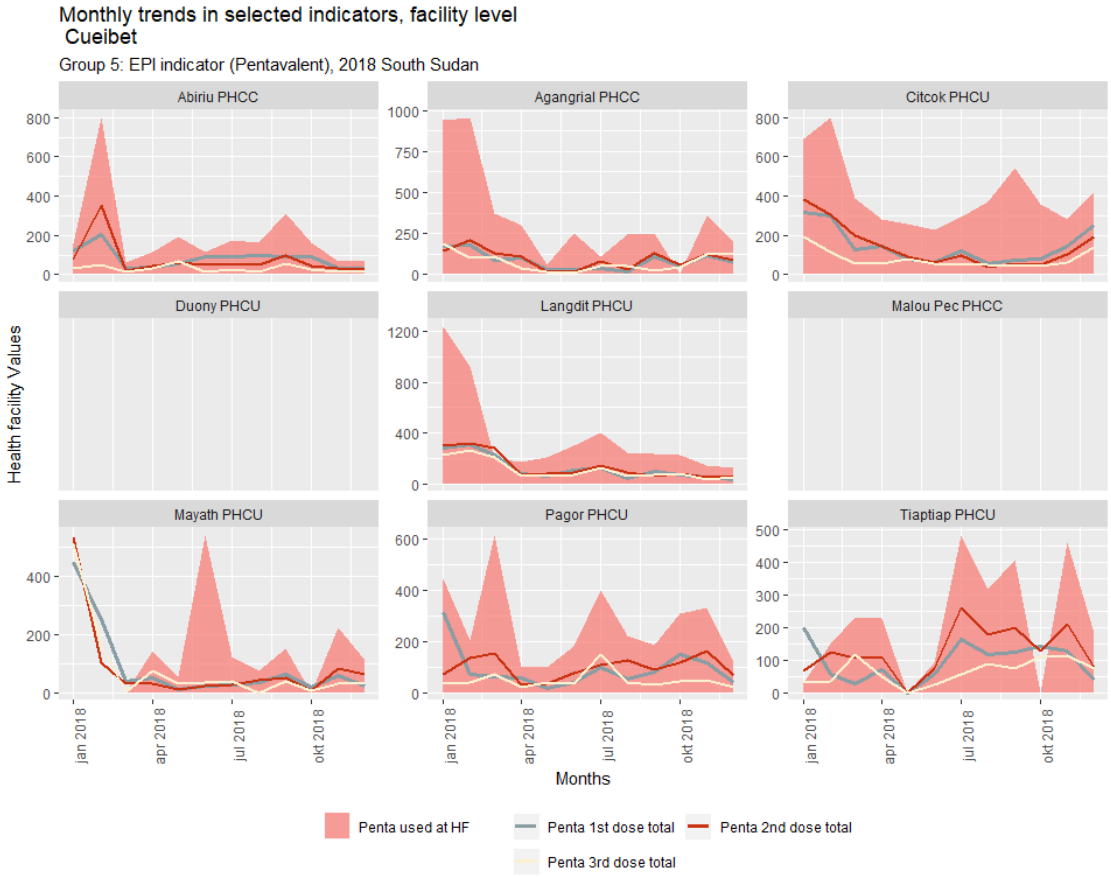

Monthly trends in selected indicators, facility level
Aweil East
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Adoor PHCU
Ameth PHCU
Bakou PHCU
Lieth PHCU
Madhol PHCU
Malual Kuel PHCU
Mangar Tong PHCU
Mangok PHCU
Manyiel PHCU
Rumrol PHCU
Warawar PHCU
Wunlang PHCU
Yargot PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

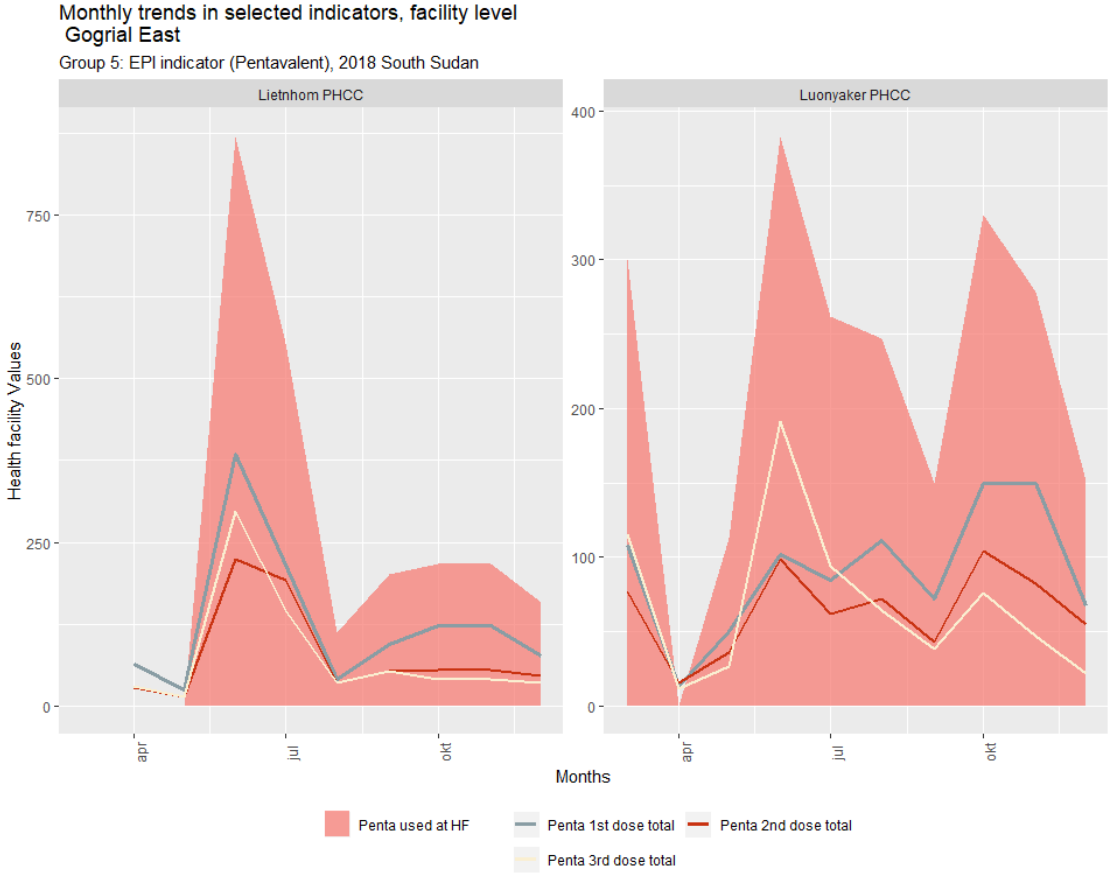

Monthly trends in selected indicators, facility level
Aweil North
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Gok Machar PHCC
Jaac PPF PHCU
Majak Bai PHCU
Manyiel Akok PHCU
Mayom Adhal PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

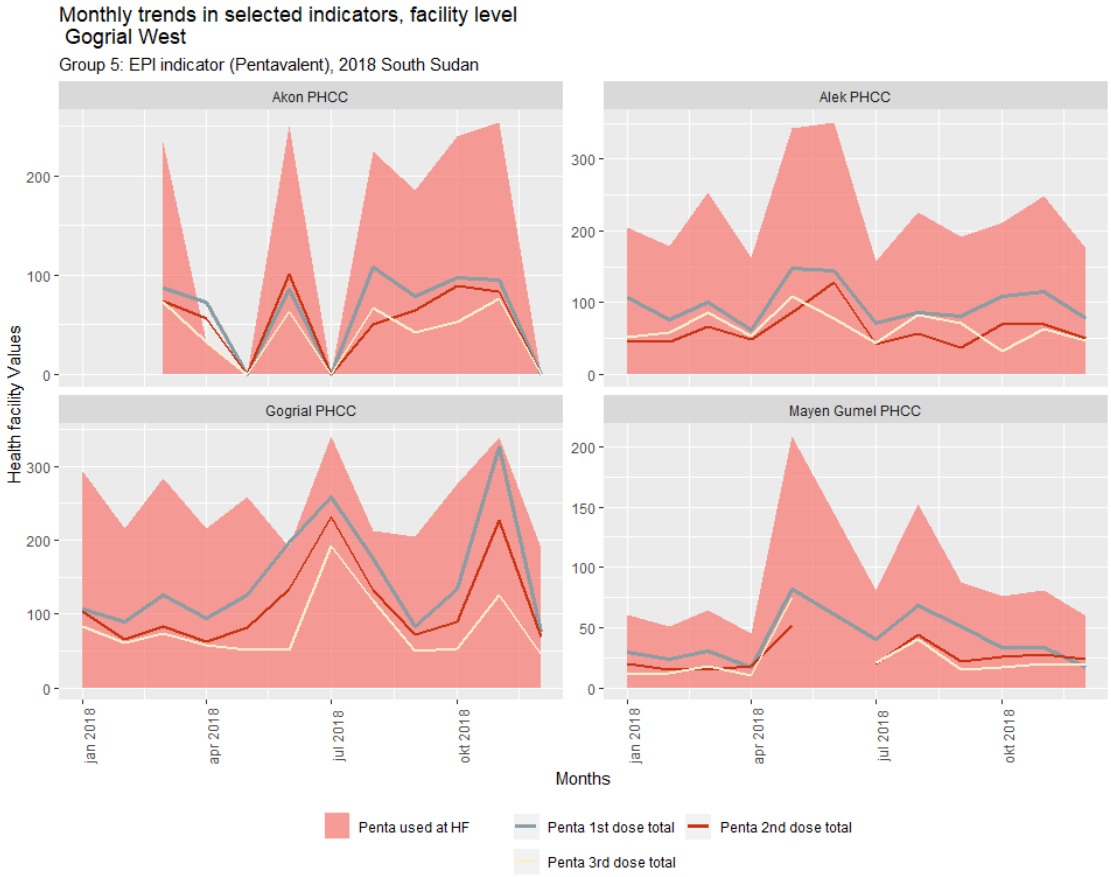

Monthly trends in selected indicators, facility level
Aweil South
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Akac PHCU
Makuei Alel PHCU
Panthou PHCC
Wathmuok PHCU
Wuncum PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

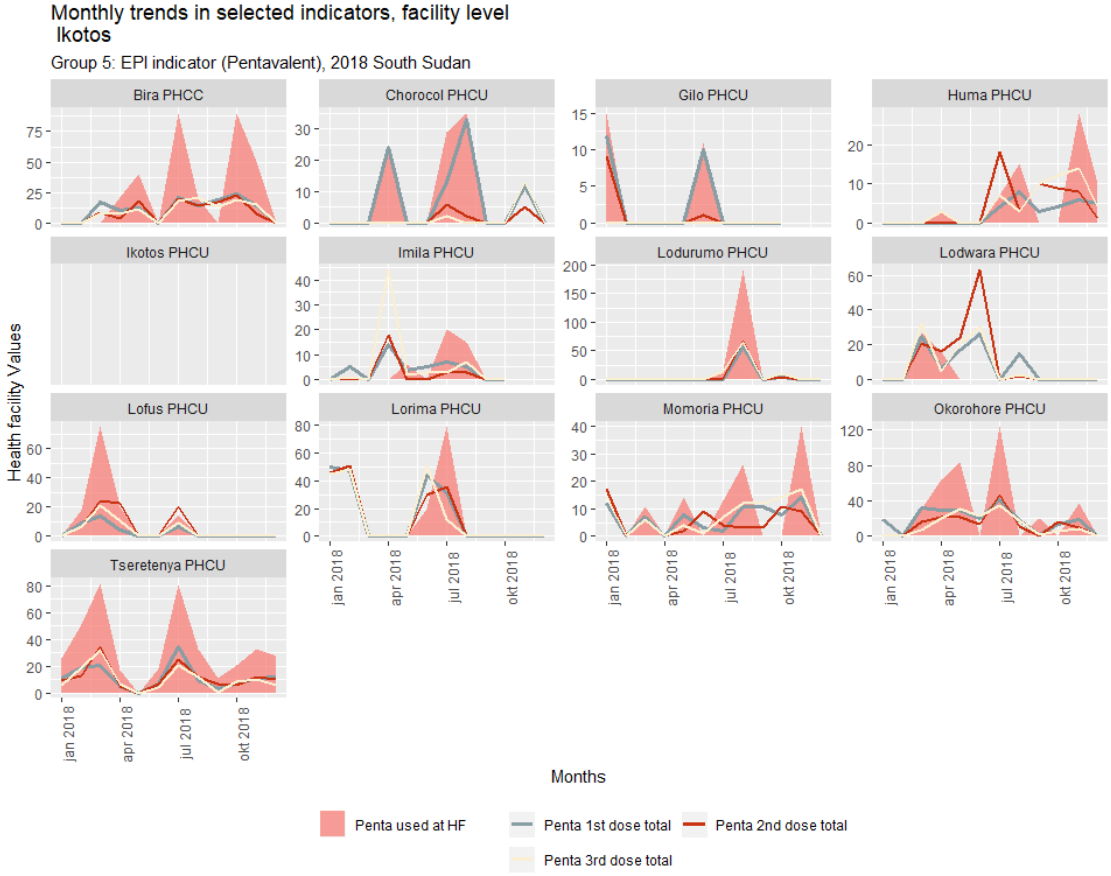

Monthly trends in selected indicators, facility level
Aweil West
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Aguat PHCU
Aluel Acot PHCU
AmathNyang PHCU
Amothic PHCU
Angol PHCU
Anyopjang PHCU
Guaknou PHCU
Mager PHCU
Makuoc PHCU
Maleka Dera PHCU
Nyamlel PHCC
Nyinbouli PHCC
Riangangon PHCU
Udhuom PHCU
Wedweil PHCU
Wungiir PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

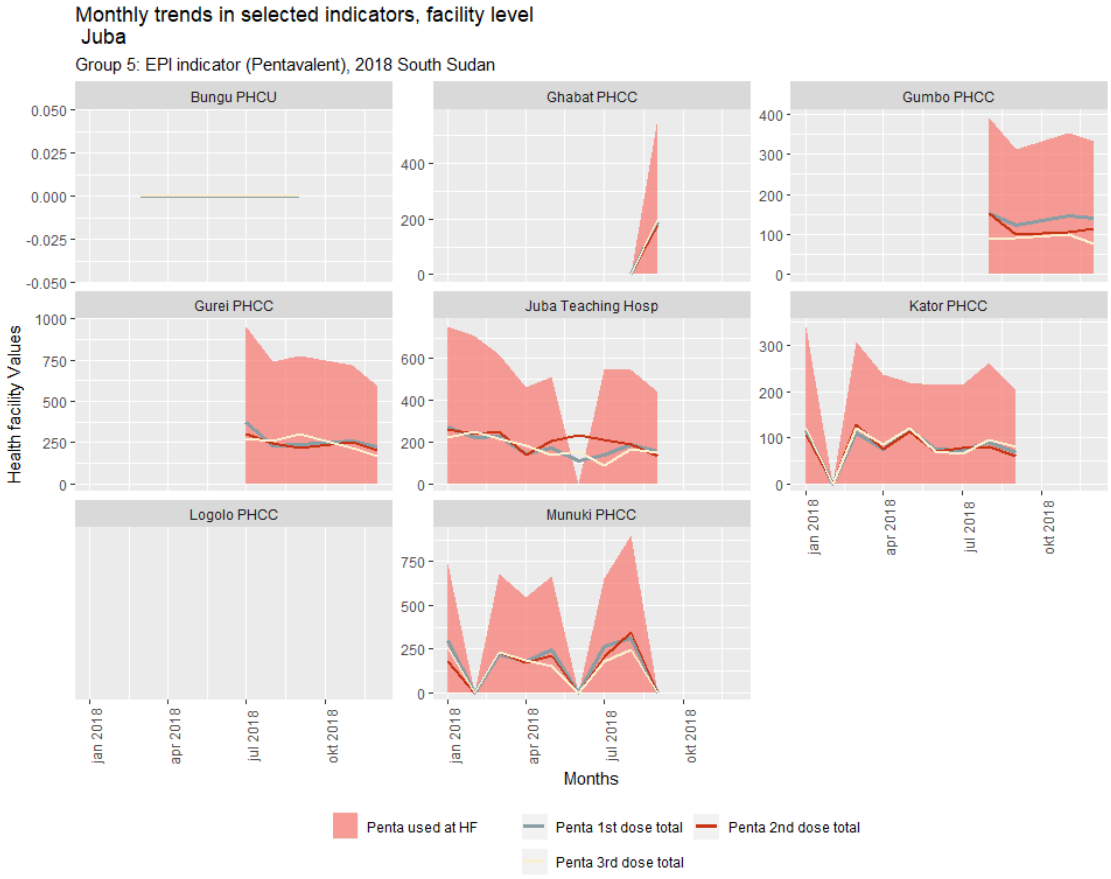

Monthly trends in selected indicators, facility level
Awerial
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Abuyong PHCU
Bun-Agok PHCC
Bunagok PHCC
Door PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

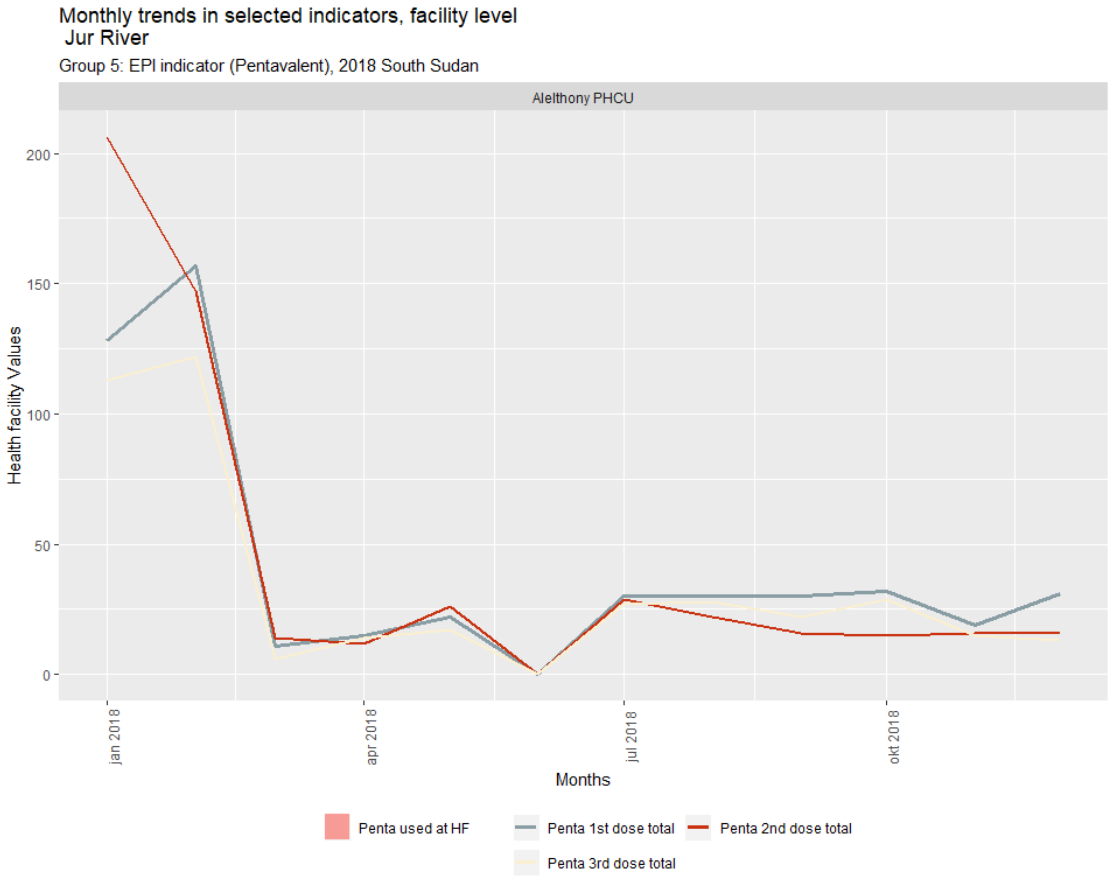

Monthly trends in selected indicators, facility level
Cueibet
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Abiriu PHCC
Agangrial PHCC
Citcok PHCU
Duony PHCU
Langdit PHCU
Malou Pec PHCC
Mayath PHCU
Pagor PHCU
Tiaptiap PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

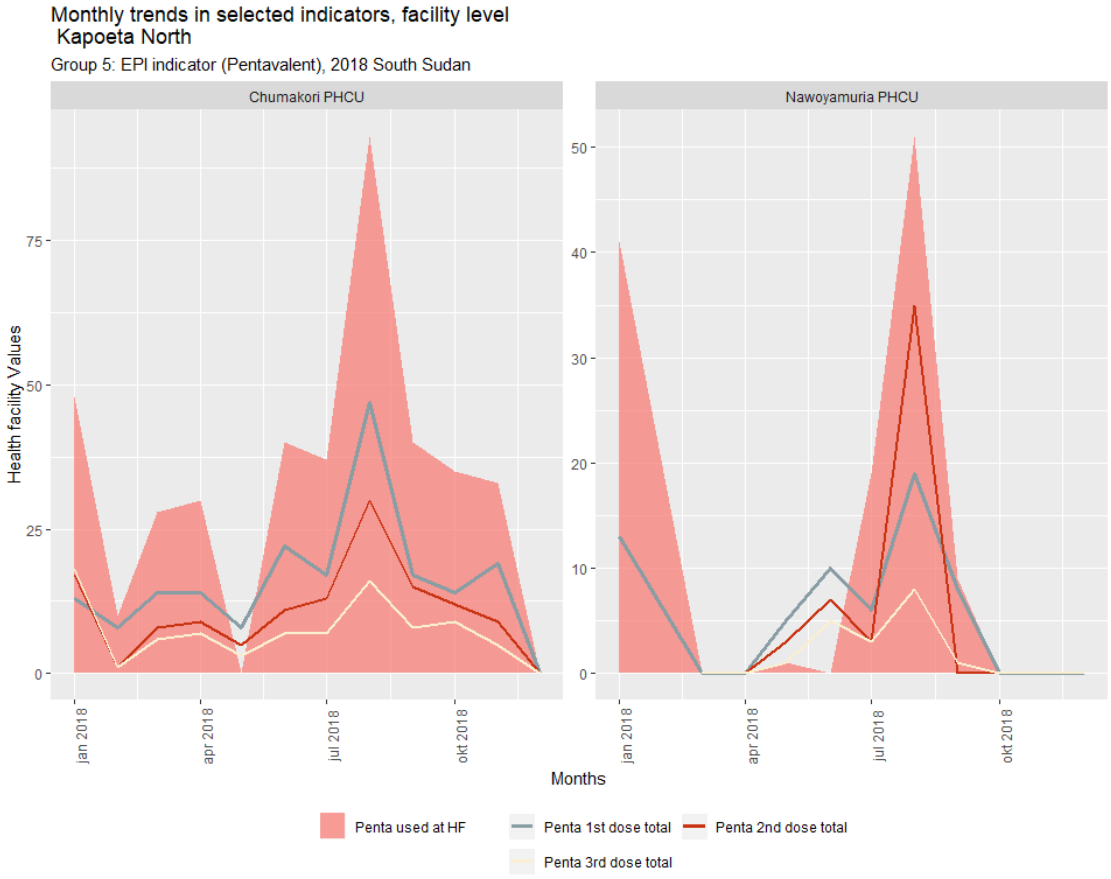

Monthly trends in selected indicators, facility level
Gogrial East
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Lietnhom PHCC
Luonyaker PHCC
Health facility Values
apr
jul
okt
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

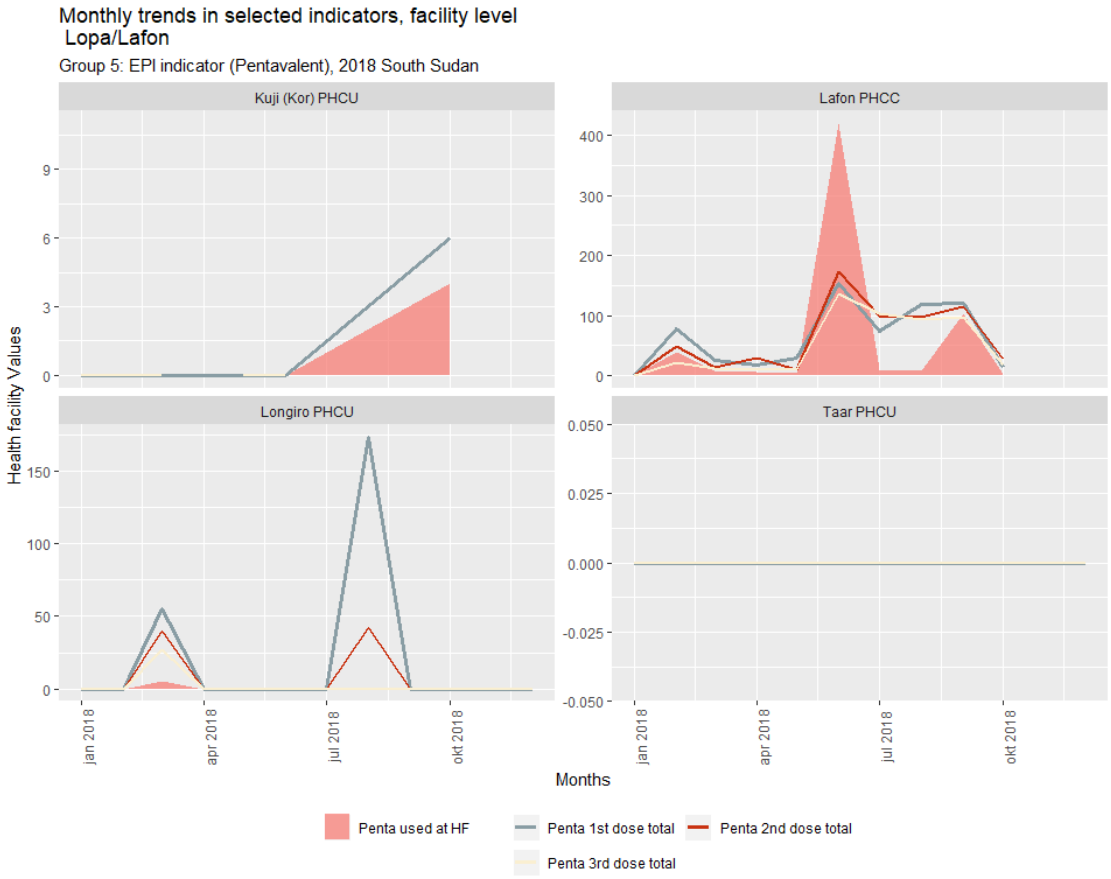

Monthly trends in selected indicators, facility level
Gogrial West
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Akon PHCC
Alek PHCC
Gogrial PHCC
Mayen Gumel PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

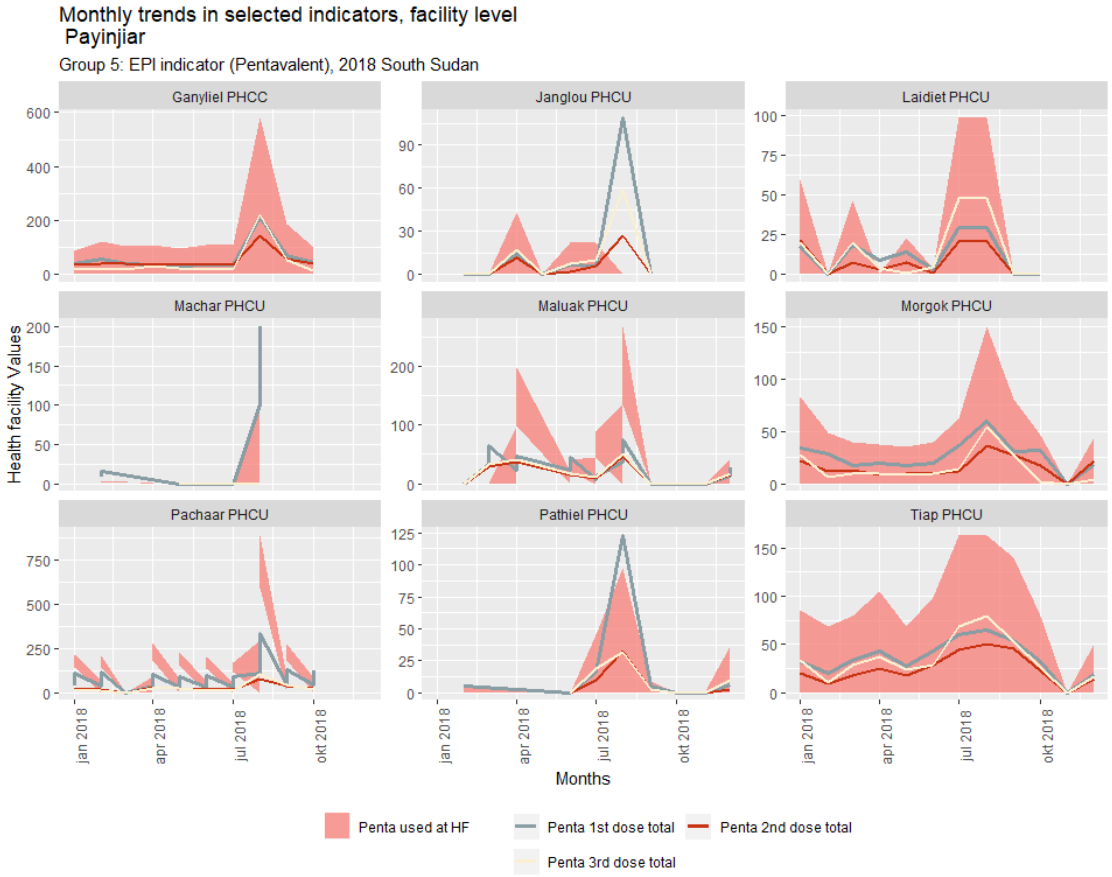

Monthly trends in selected indicators, facility level
Ikotos
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Bira PHCC
Chorocol PHCU
Gilo PHCU
Huma PHCU
Ikotos PHCU
Imila PHCU
Lodurumo PHCU
Lodwara PHCU
Lofus PHCU
Lorima PHCU
Momoria PHCU
Okorohore PHCU
Tseretenya PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

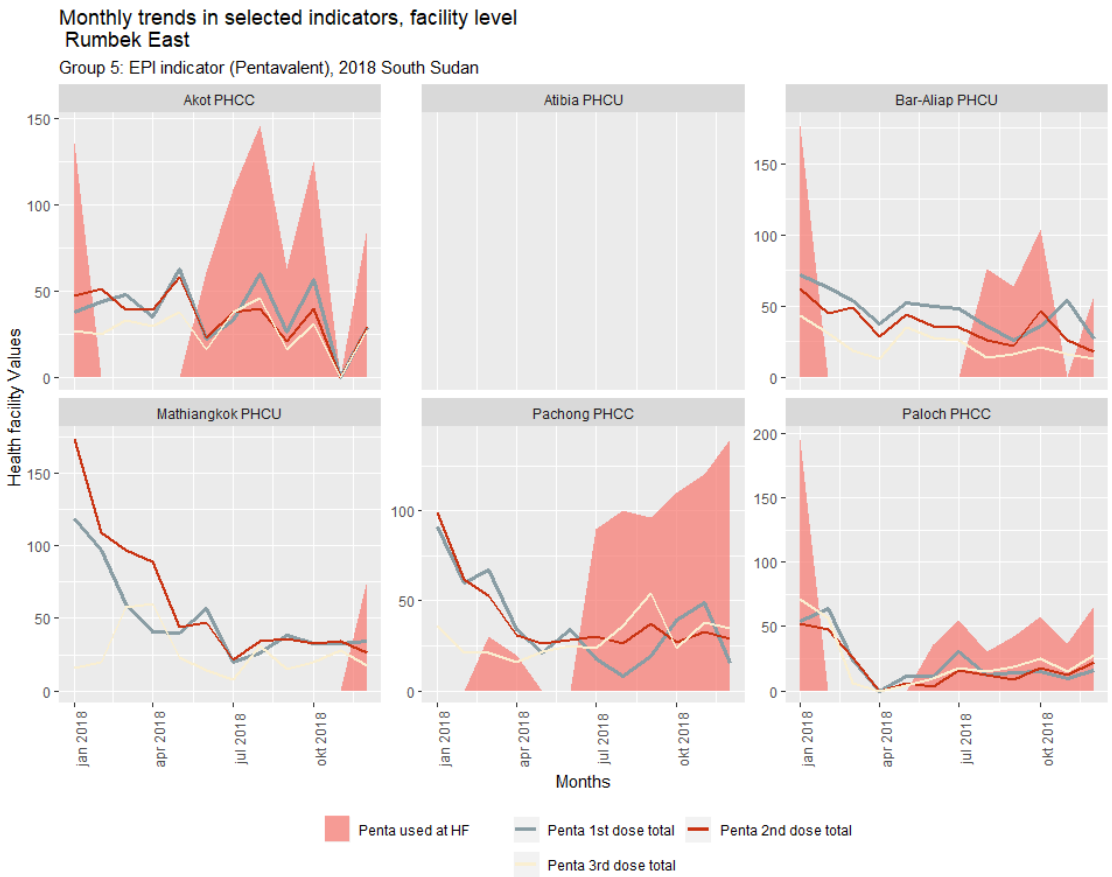

Monthly trends in selected indicators, facility level
Juba
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Bungu PHCU
Ghabat PHCC
Gumbo PHCC
Gurei PHCC
Juba Teaching Hosp
Kator PHCC
Logolo PHCC
Munuki PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

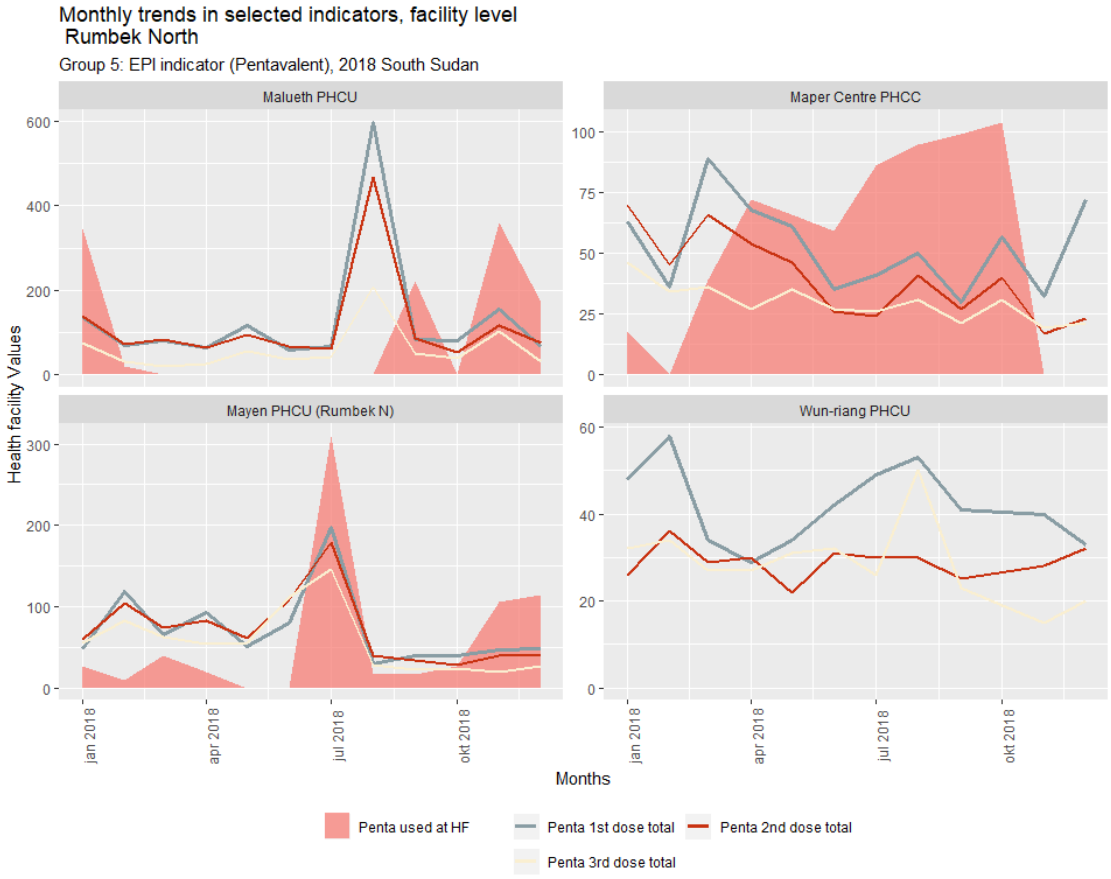

Monthly trends in selected indicators, facility level
Jur River
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Alelthony PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

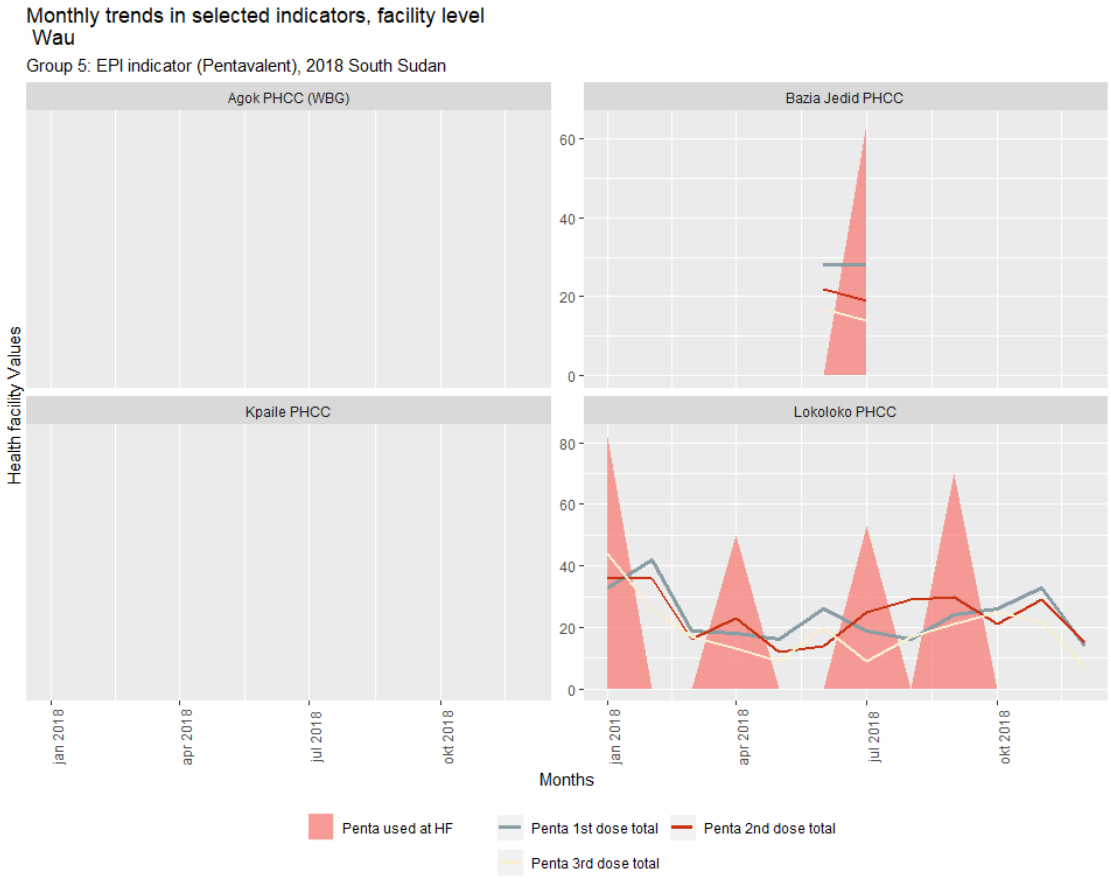

Monthly trends in selected indicators, facility level
Kapoeta North
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Chumakori PHCU
Nawoyamuria PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total


Monthly trends in selected indicators, facility level
Lopa/Lafon
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Kuji (Kor) PHCU
Lafon PHCC
Longiro PHCU
Taar PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

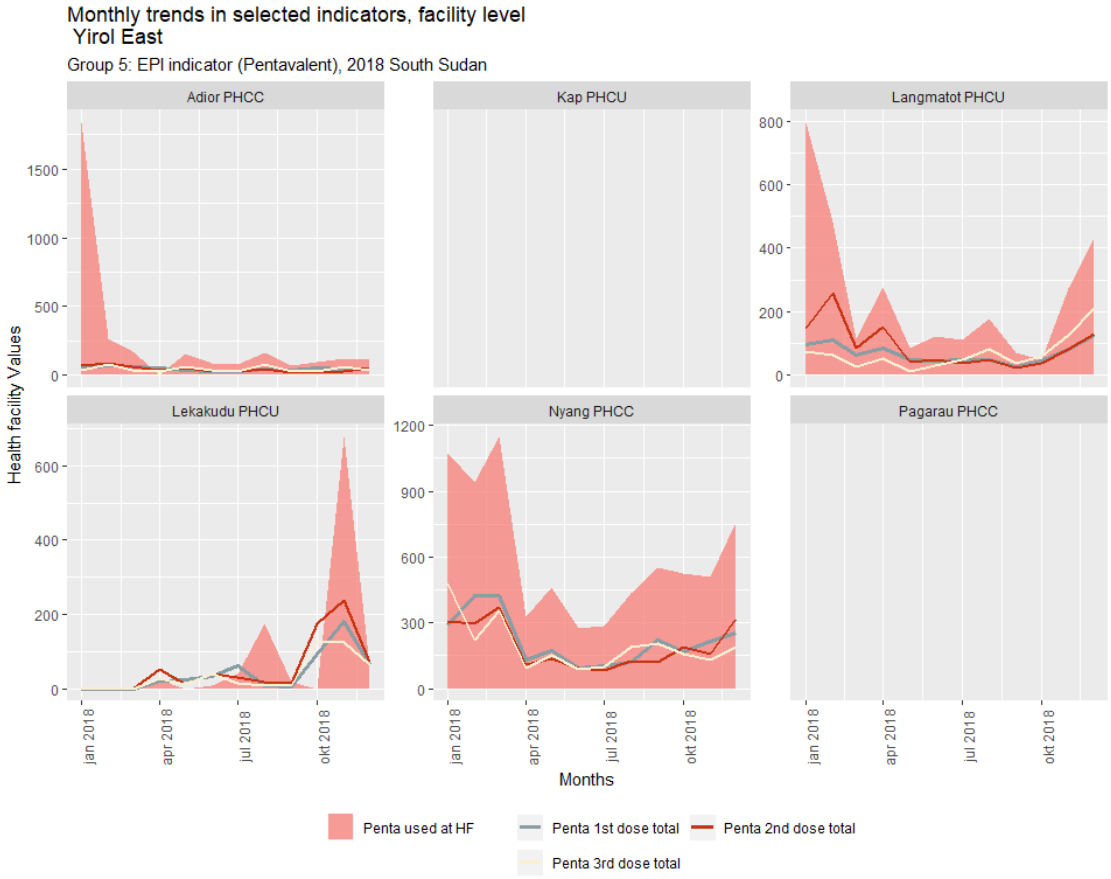

Monthly trends in selected indicators, facility level
Payinjiar
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Ganyliel PHCC
Janglou PHCU
Laidiet PHCU
Machar PHCU
Maluak PHCU
Morgok PHCU
Pachaar PHCU
Pathiel PHCU
Tiap PHCU
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

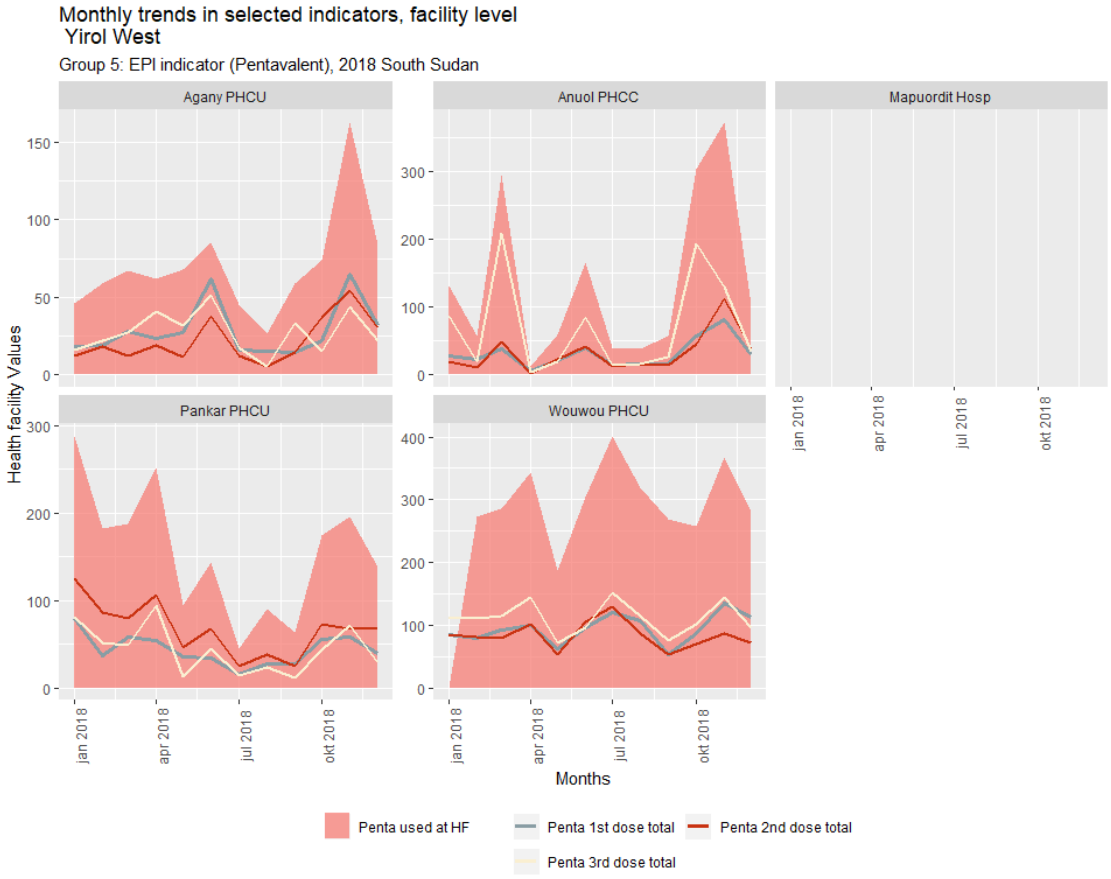

Monthly trends in selected indicators, facility level
Rumbek East
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Akot PHCC
Atibia PHCU
Bar-Aliap PHCU
Mathiangkok PHCU
Pachong PHCC
Paloch PHCC
Health facility Values
jan 2018
apr 2018
jul 2018
okt 2018
Months
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total


Monthly trends in selected indicators, facility level
Rumbek North
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Malueth PHCU
Maper Centre PHCC
Mayen PHCU (Rumbek N)
Wun-riang PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

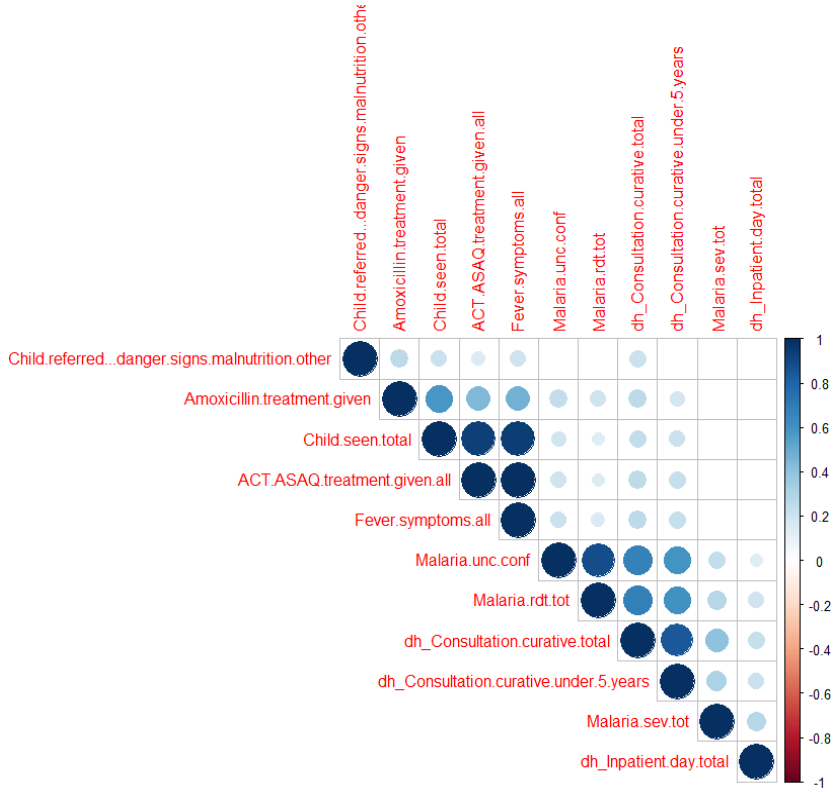

Monthly trends in selected indicators, facility level
Wau
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Agok PHCC (WBG)
Bazia Jedid PHCC
Kpaile PHCC
Lokoloko PHCC
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

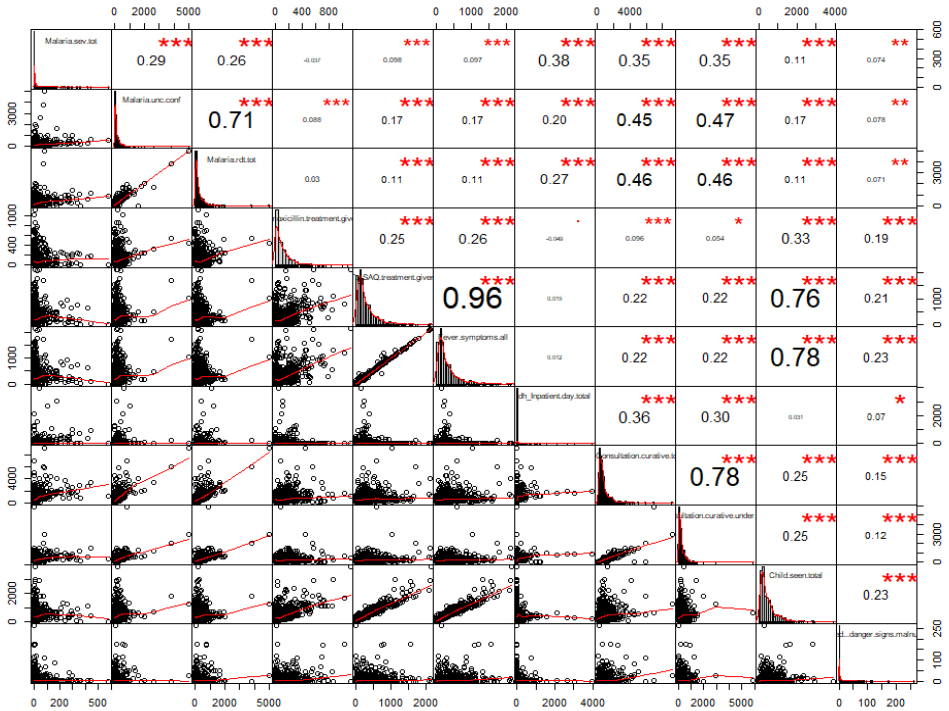

Monthly trends in selected indicators, facility level
Wulu
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Doteku PHCU
Nuktamanga PHCU (Domu)
Tonji PHCU
Wulu PHCC
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

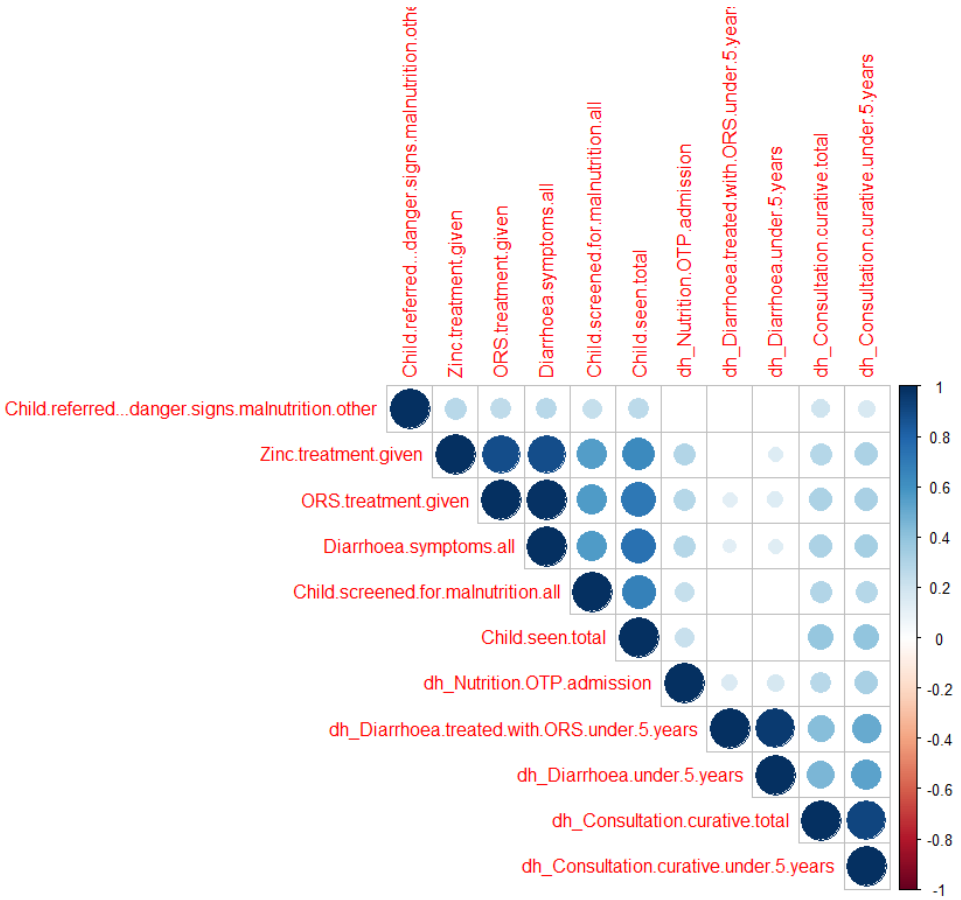

Monthly trends in selected indicators, facility level
Yirol East
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Adior PHCC
Kap PHCU
Langmatot PHCU
Lekakudu PHCU
Nyang PHCC
Pagarau PHCC
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

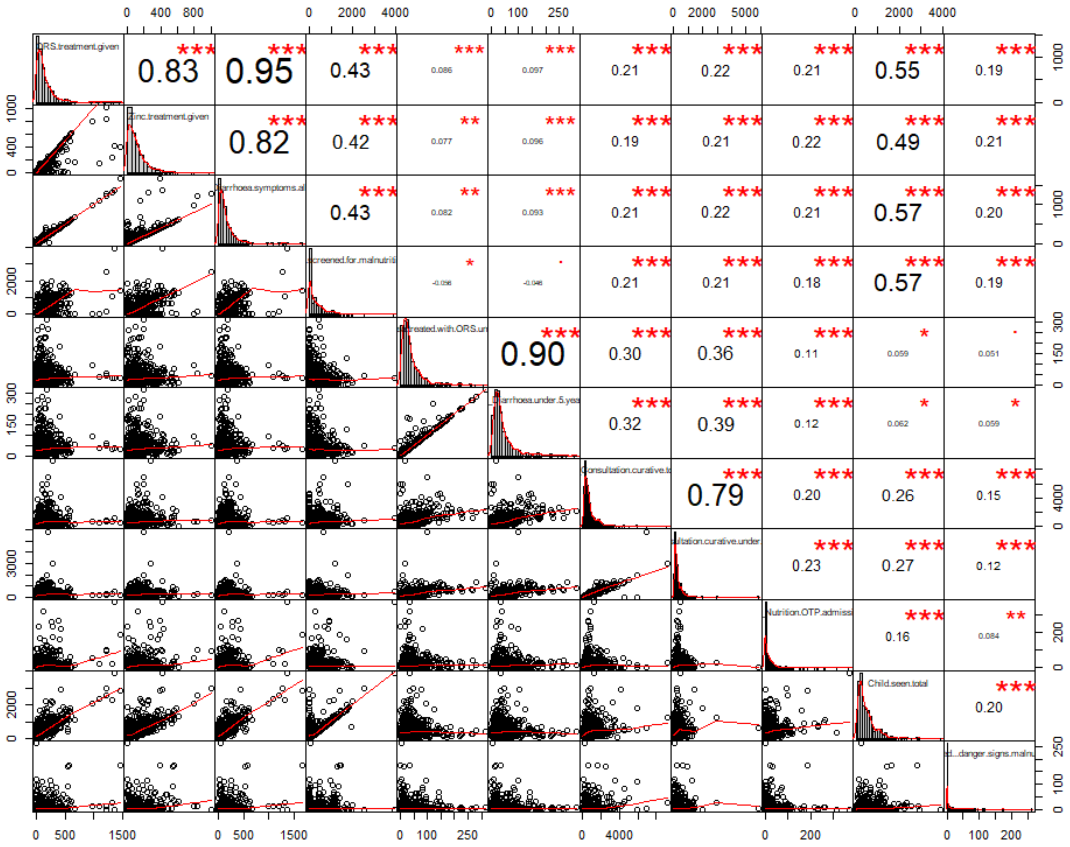

Monthly trends in selected indicators, facility level
Yirol West
Group 5: EPI indicator (Pentavalent), 2018 South Sudan
Agany PHCU
Anuol PHCC
Mapuordit Hosp
Pankar PHCU
Wouwou PHCU
Health facility Values
Months
jan 2018
apr 2018
jul 2018
okt 2018
Penta used at HF
Penta 1st dose total
Penta 2nd dose total
Penta 3rd dose total

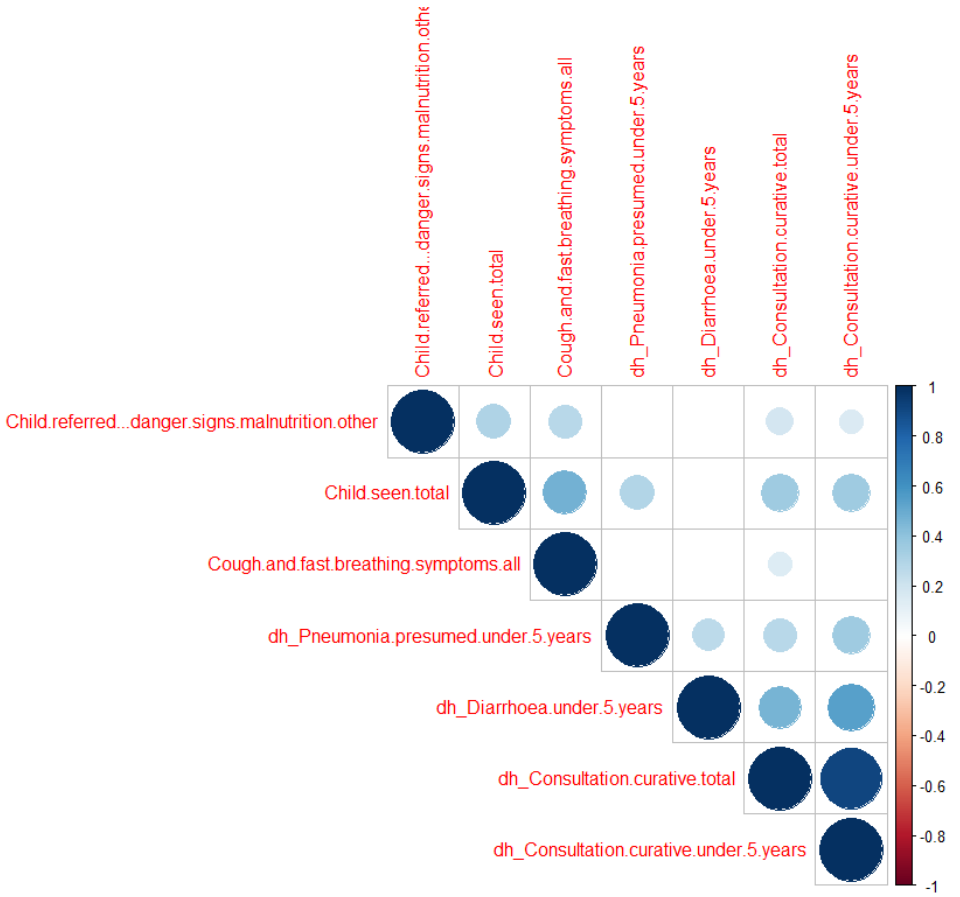
Annex E: Correlations charts

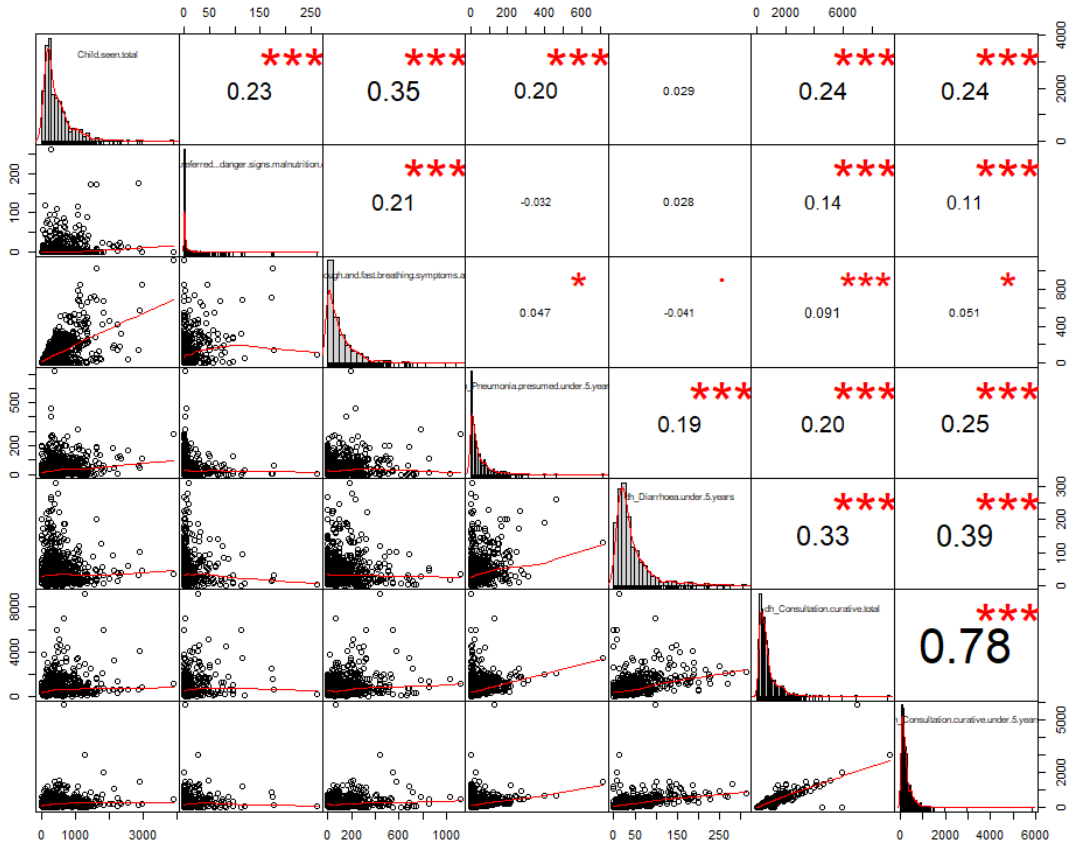


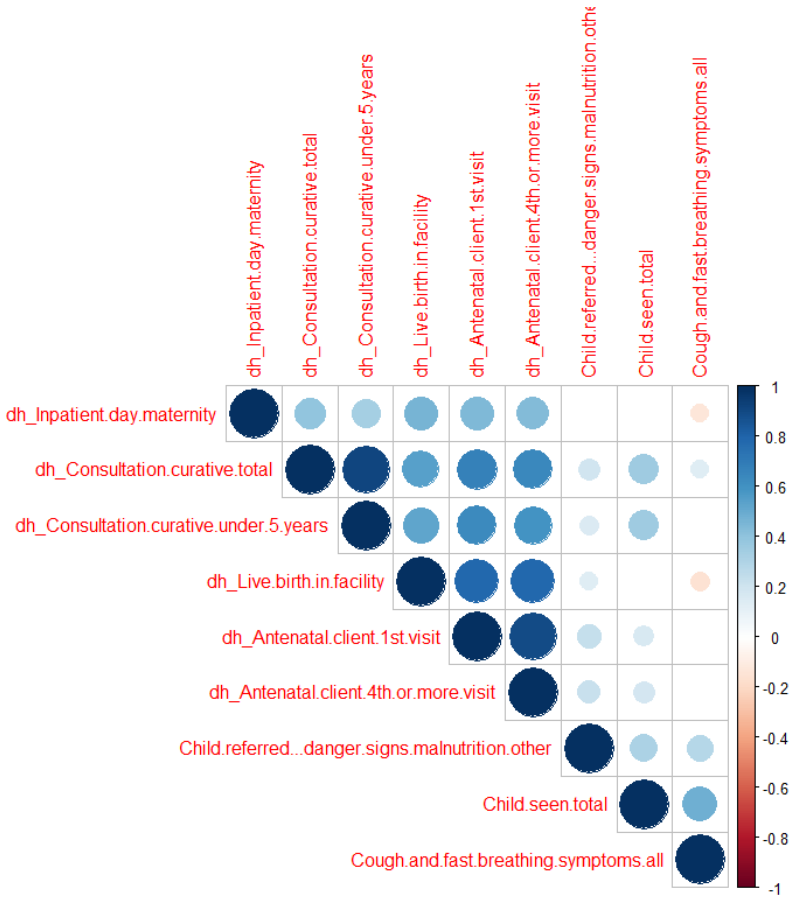


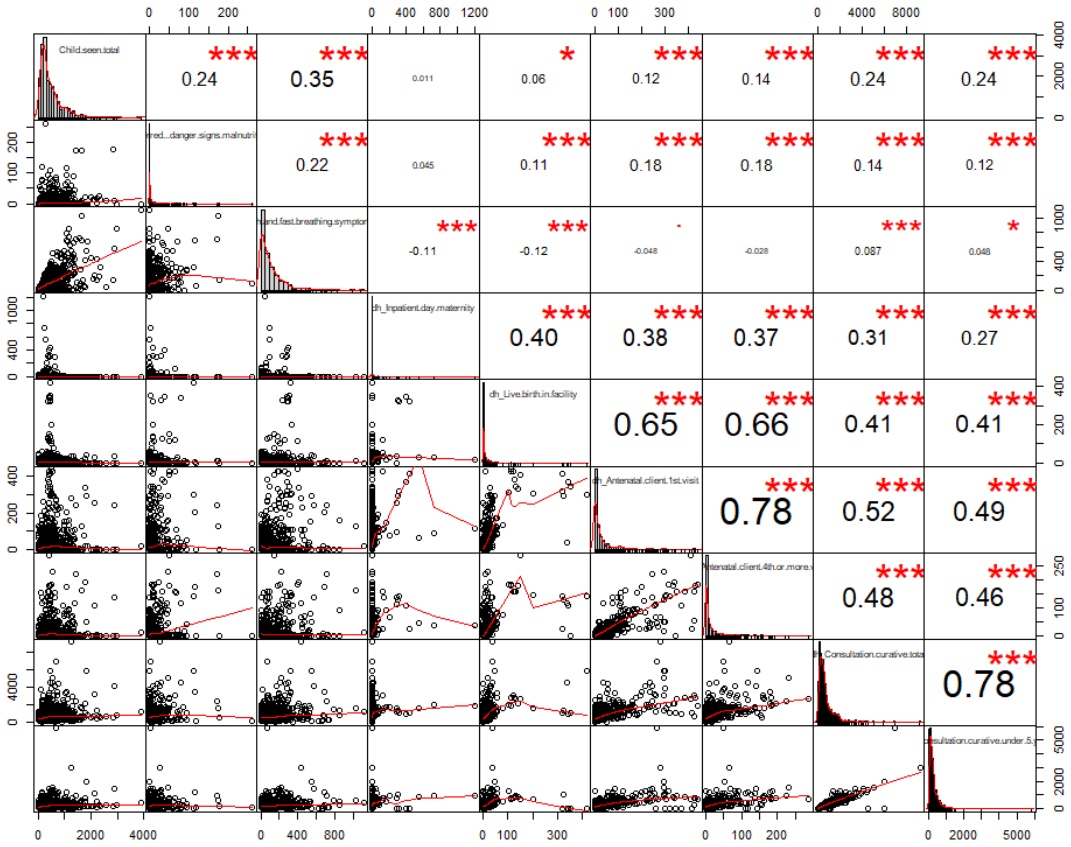

Child.referred...danger.signs.malnutrition.other
Zinc.treatment.given
ORS.treatment.given
Diarrhoea.symptoms.all
Child.screened.for.malnutrition.all
Child.seen.total
dh_Nutrition.OTP.admission
dh_Diarrhoea.treated.with.ORS.under.5.years
dh_Diarrhoea.under.5.years
dh_Consultation.curative.total
dh_Consultation.curative.under.5.years
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1


0.83
0.95
0.43
0.21
0.22
0.21
0.55
0.19
0.82
0.42
0.19
0.21
0.22
0.49
0.21
0.43
0.21
0.22
0.21
0.57
0.20
0.21
0.21
0.18
0.57
0.19
0.90
0.30
0.36
0.11
0.32
0.39
0.12
0.79
0.20
0.26
0.15
0.23
0.27
0.12
0.16
0.20


Child.referred...danger.signs.malnutrition.other
Child.seen.total
Cough.and.fast.breathing.symptoms.all
dh_Pneumonia.presumed.under.5.years
dh_Diarrhoea.under.5.years
dh_Consultation.curative.total
dh_Consultation.curative.under.5.years
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1

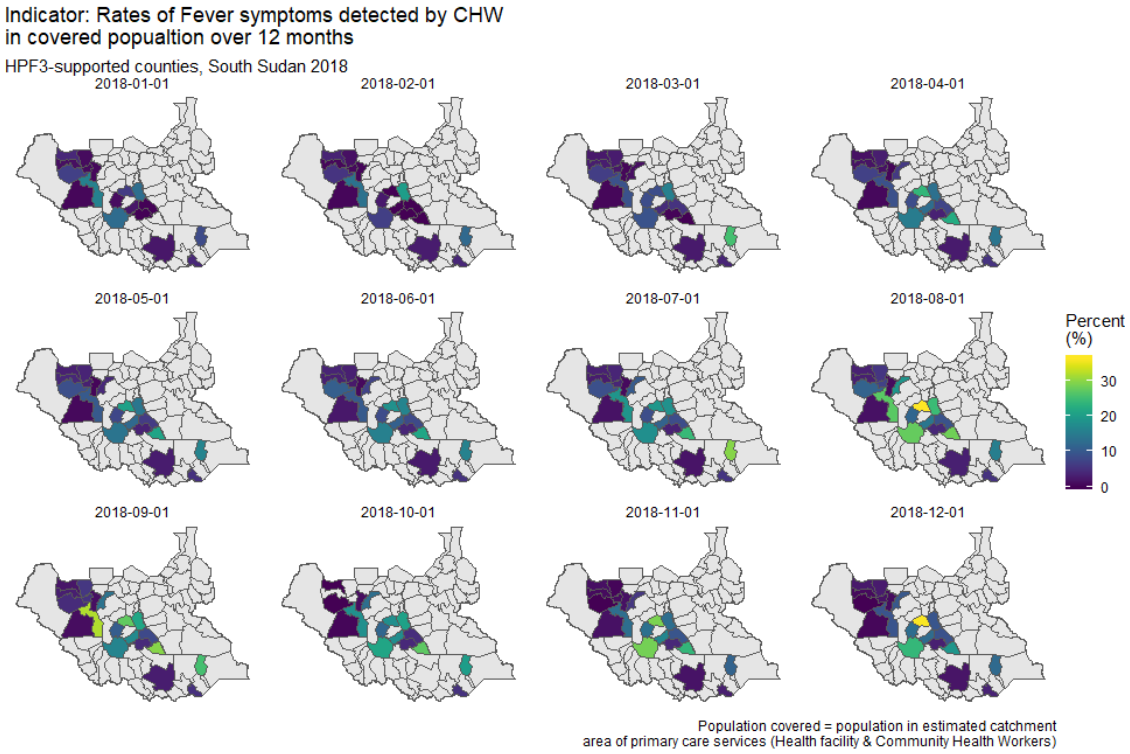

Child.seen.total
0.23
0.35
0.20
0.029
0.24
0.24
0.21
-0.032
0.028
0.14
0.11
0.047
-0.041
0.091
0.051
0.19
0.20
0.25
0.33
0.39
0.78


dh_Inpatient.day.maternity
dh_Consultation.curative.total
dh_Consultation.curative.under.5.years
dh_Live.birth.in.facility
dh_Antenatal.client.1st.visit
dh_Antenatal.client.4th.or.more.visit
Child.referred...danger.signs.malnutrition.other
Child.seen.total
Cough.and.fast.breathing.symptoms.all
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1


Child.seen.total
0.24
0.35
0.06
0.12
0.14
0.24
0.24
0.22
0.11
0.18
0.18
0.14
0.12
-0.11
-0.12
0.087
0.048
0.40
0.38
0.37
0.31
0.27
0.65
0.66
0.41
0.41
0.78
0.52
0.49
0.48
0.46
0.78

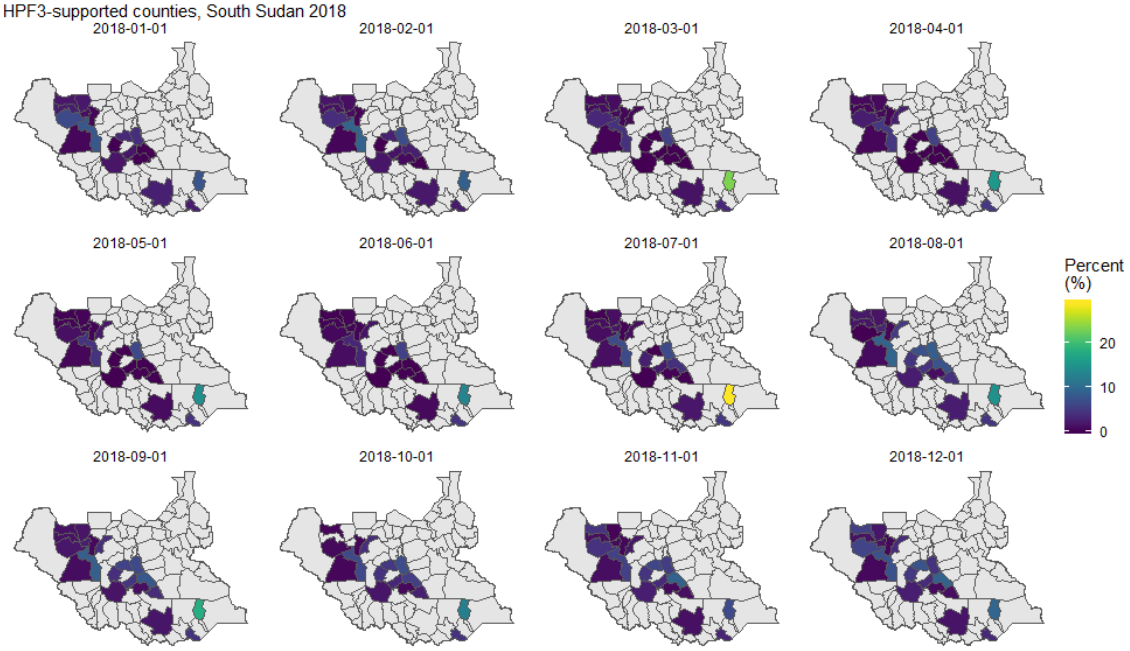
Annex F: General county level and indicators trends

Annex G: Spatiotemporal trends, ICCM indicators



Indicator: Rates of Coughing/Breathing issues detected by CHW
in covered popualtion over 12 months

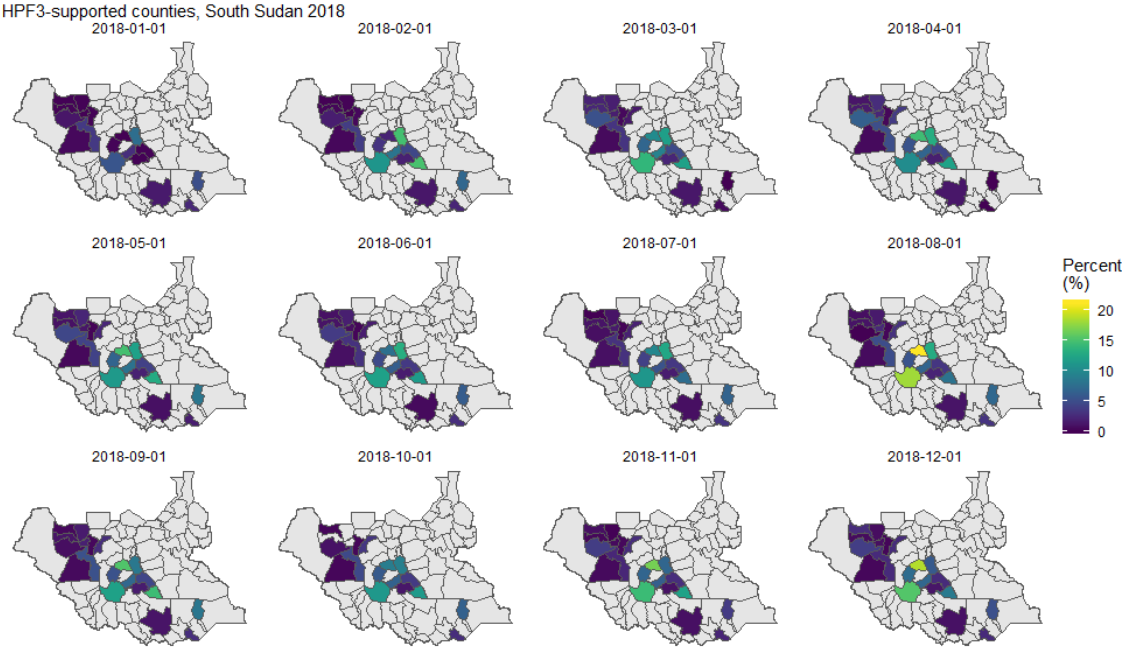
HPF3-supported counties, South Sudan 2018



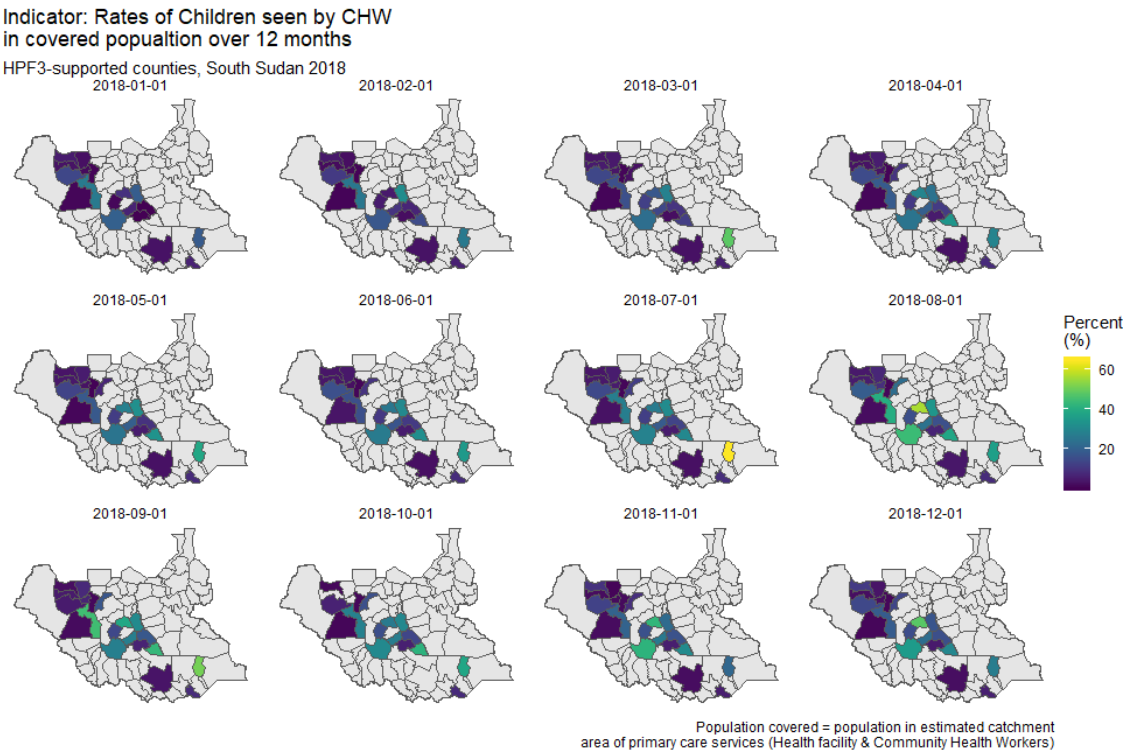
Population covered = population in estimated catchment
area of primary care services (Health facility & Community Health Workers)

Indicator: Rates of Diarrhoea symptoms detected by CHW
in covered popualtion over 12 months

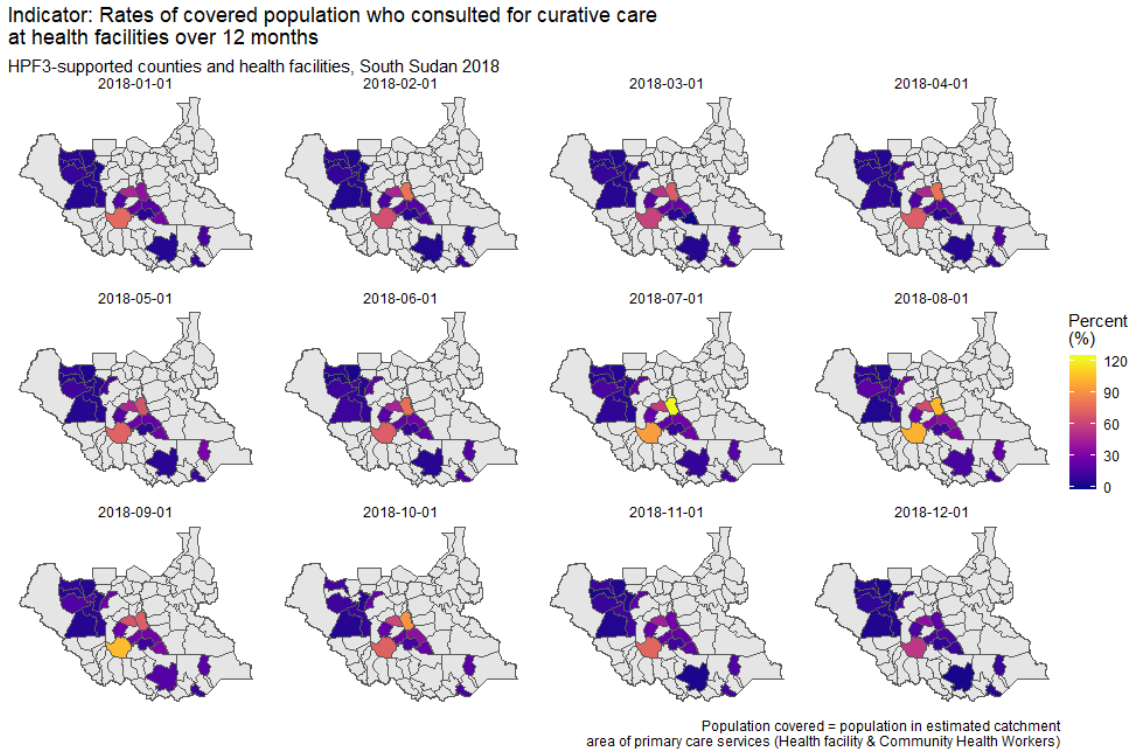
HPF3-supported counties, South Sudan 2018



Population covered = population in estimated catchment
area of primary care services (Health facility & Community Health Workers)

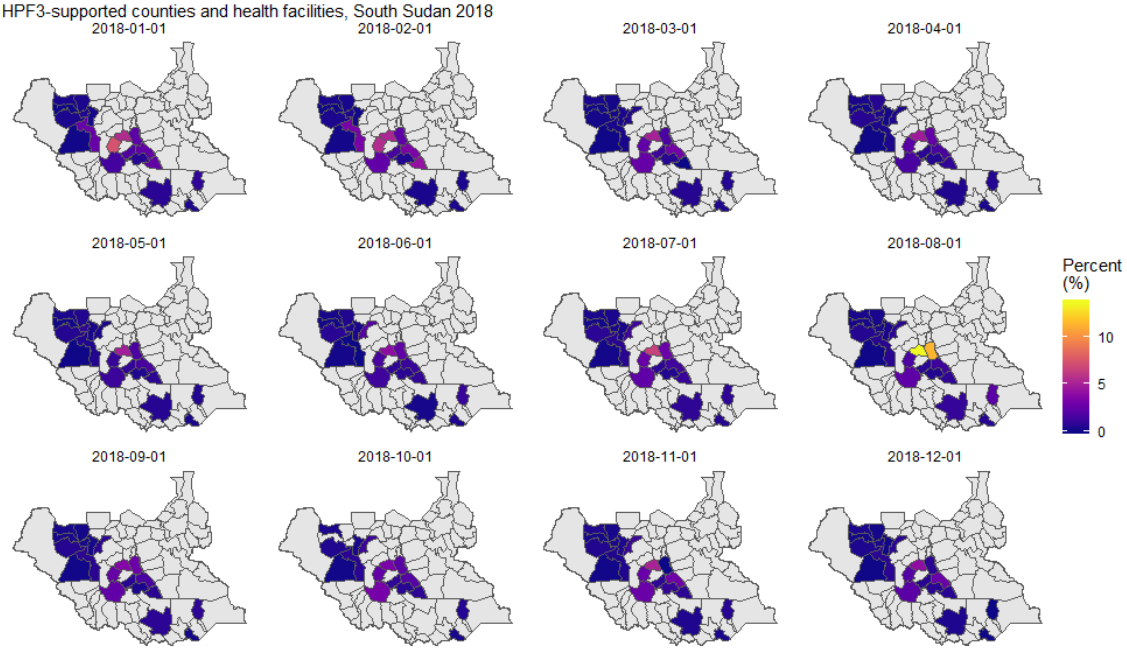

Indicator: Rates of Children seen by CHW
in covered popualtion over 12 months
HPF3-supported counties, South Sudan 2018
2018-01-01
2018-02-01
2018-03-01
2018-04-01
2018-05-01
2018-06-01
2018-07-01
2018-08-01
2018-09-01
2018-10-01
2018-11-01
2018-12-01
Percent
(%)
60
40
20
Population covered = population in estimated catchment
area of primary care services (Health facility & Community Health Workers)

Annex H: Spatiotemporal trends, DHIS1.4 indicators



Indicator: Rates of covered population who received 1st Pentavalent dose at health facilities over 12 months

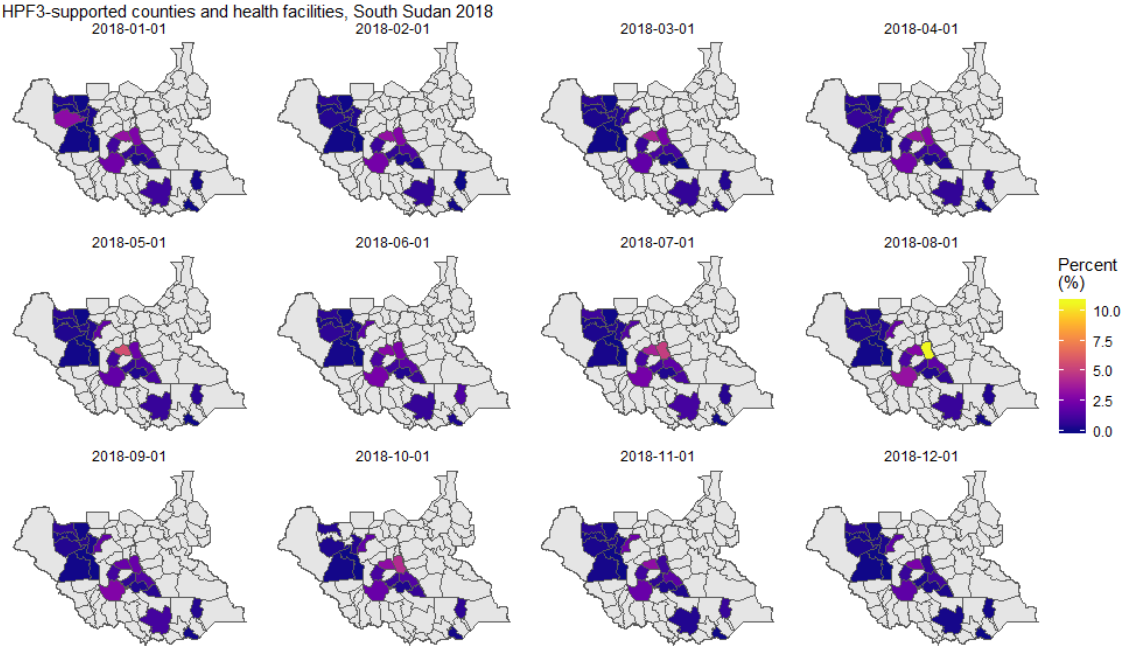
HPF3-supported counties and health facilities, South Sudan 2018



Population covered = population in estimated catchment area of primary care services (Health facility & Community Health Workers)

Indicator: Rates of covered population who went for a 1st ANC visit at health facilities over 12 months

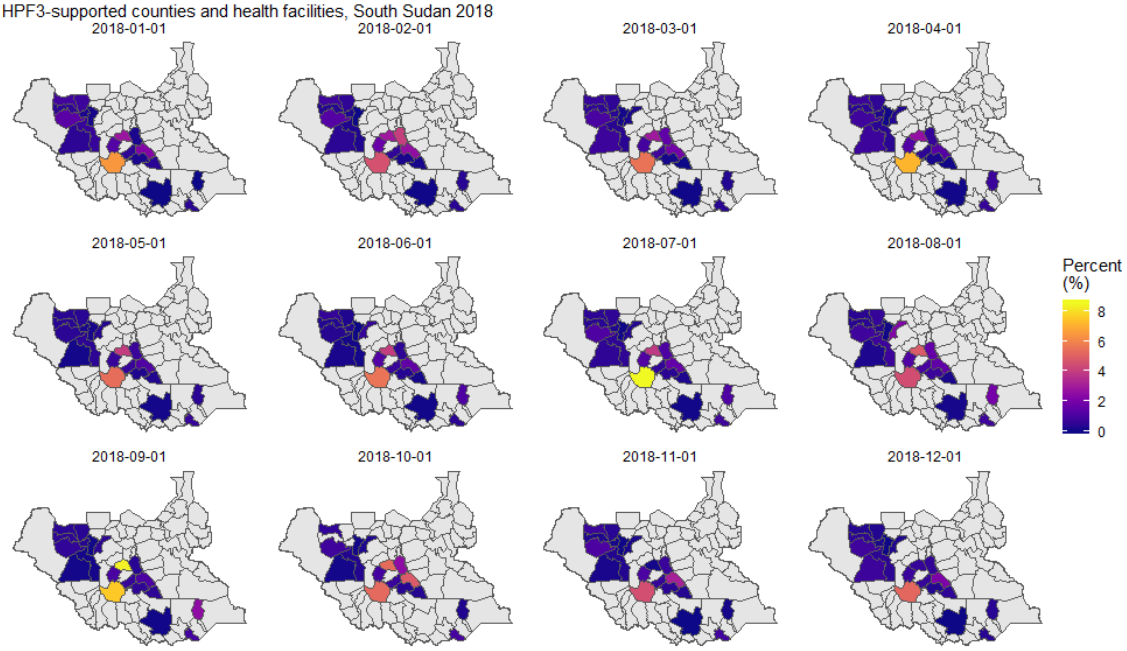
HPF3-supported counties and health facilities, South Sudan 2018



Population covered = population in estimated catchment area of primary care services (Health facility & Community Health Workers)

Indicator: Rates of covered population presumed to have Pneumonia at health facilities over 12 months

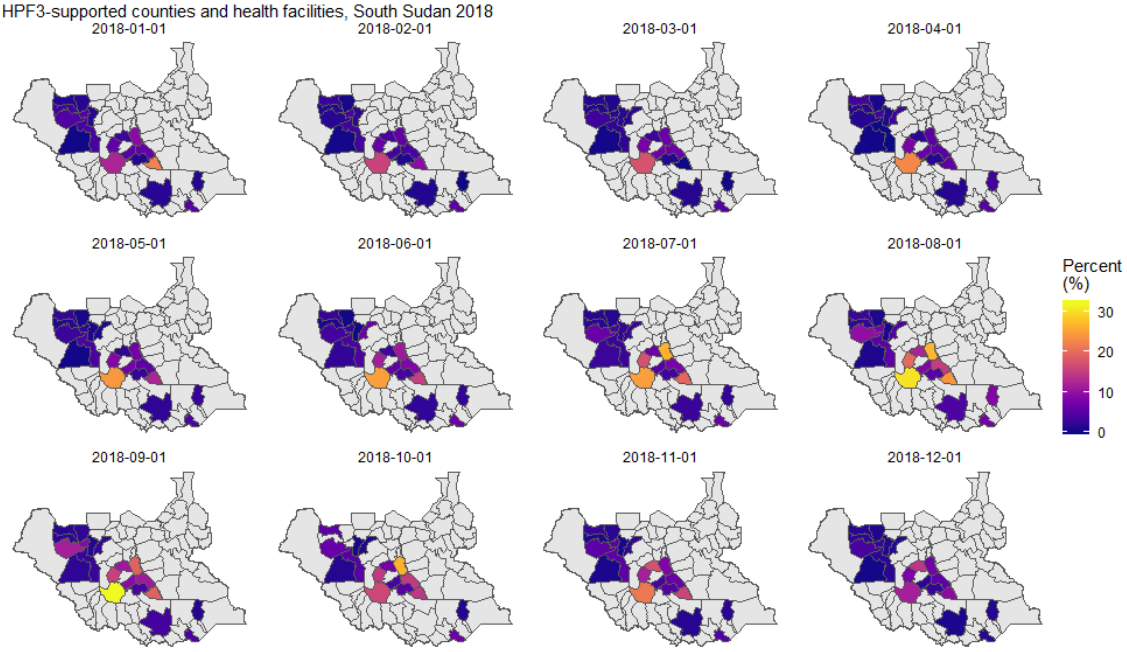
HPF3-supported counties and health facilities, South Sudan 2018



Population covered = population in estimated catchment area of primary care services (Health facility & Community Health Workers)

Indicator: Rates of covered population who was tested for Malaria with mRDT at health facilities over 12 months

HPF3-supported counties and health facilities, South Sudan 2018



Population covered = population in estimated catchment area of primary care services (Health facility & Community Health Workers)