



Surveillance Feedback Bulletin

2024 | Annual

Feedback bulletin on bacterial meningitis

Epidemiological situation, weeks 1-52

During epidemiologic weeks 1-52 of 2024, a total of 6,166 suspect cases were reported from MenAfriNet districts that submitted data from Burkina Faso and Niger. In total, specimens were collected from 94% of suspect cases. Twenty-four percent of suspect cases were confirmed by PCR or culture, and an additional 16% were probable cases (Table 1). MenAfriNet data sources used for analyses in this year's bulletin were validated national case-based meningitis surveillance data from Burkina Faso and Niger, both obtained through the STELab platform.

Table 1. Epidemiological situation, weeks 1-52 2024

Characteristics	Burkina Faso N (%)	Niger N (%)	Total N (%)
Epidemiologic			
Population under Surveillance	23,592,836	26,312,032	49,904,868
MenAfriNet districts reporting in CBS system†	70 / 70 (100)	72/72 (100)	142/142 (100)
Aggregate suspected cases*	1,454	3,450	4,904
Case-based surveillance cases	1,984	4,182	6,166
Deaths [∞]	64 (3)	280 (7)	344 (6)
Laboratory[§]			
Specimens collected	1925 (97)	3841 (92)	5,766 (94)
Specimens received at NRL	1669 (87)	3446 (90)	5,115 (83)
Specimens analyzed by PCR or culture [¥]	1708 (89)	3445 (90)	5,153 (89)
Specimens analyzed with gram stain	1691 (88)	1348 (35)	3,039 (53)
Probable bacterial meningitis**	553 (28)	409 (10)	965 (16)
Confirmed bacterial meningitis	193 (10)	1316 (31)	1,503 (24)

Abbreviation: CBS, Case-based surveillance; CSF, cerebrospinal fluid; NRL, National Reference Lab; PCR, Polymerase Chain Reaction (real-time)

† 2 districts in Burkina Faso districts and 9 districts in Niger did not report cases through the CBS system; these districts also reported 0 cases through the aggregate reporting system, suggesting that the absence of these districts in CBS data are likely due to having zero cases to report.

* Data source: Weekly district-level aggregate reports of clinically defined meningitis cases and meningitis-related deaths

∞ Deaths listed as outcome in case-based data

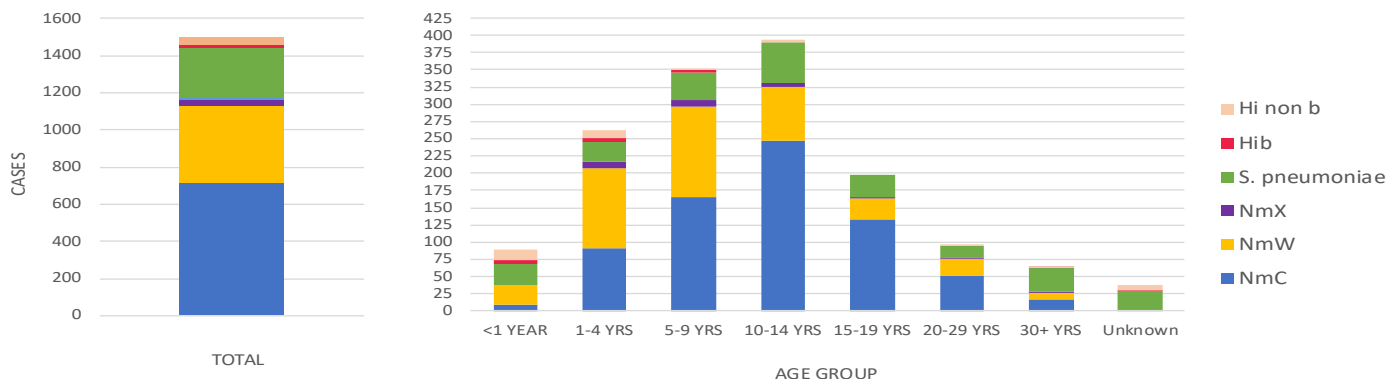
§ Denominator for laboratory characteristics = number of MenAfriNet suspected cases

¥ CSF analyzed by PCR or culture at any lab (district, region, or national levels)

** Tested negative or missing PCR/culture results. Further details of probable meningitis cases can be found here (page 4):

<https://apps.who.int/iris/bitstream/handle/10665/312141/9789290234241-eng.pdf>

Figure 1. Age distribution of confirmed bacterial meningitis pathogens



Meningitis pathogens

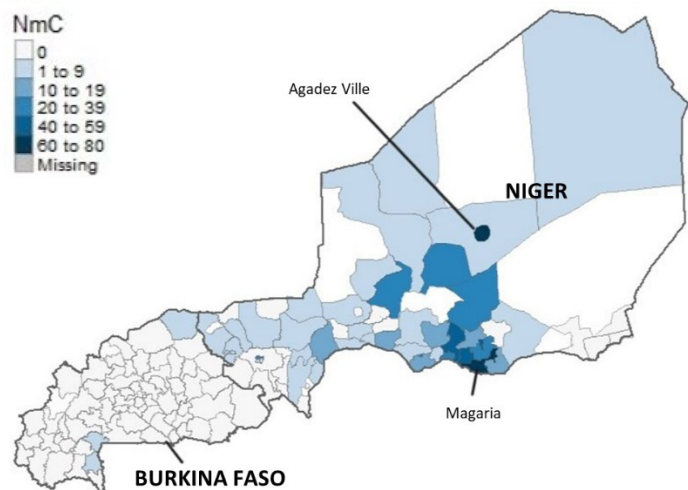
Among the available lab data reported from Burkina Faso and Niger, *Neisseria meningitidis* (*Nm*) continues to be detected, with 714 cases of serogroup C (48%), 418 cases of serogroup W (28%), and 28 cases of serogroup X (2%) confirmed. Zero serogroup A (*NmA*) cases were reported. *Nm* serogroup C was reported across individuals aged 1-30 years, while serogroup W was mostly reported in children ages <1 to 9 years. *Streptococcus pneumoniae* (*Sp*) accounted for 18% of cases and was reported primarily in ages <1 and >30 years. *Haemophilus influenzae* (*Hi*) accounted for 4% of confirmed cases in primarily children ages < 1 year; 3% of confirmed cases were serotype non-b.

Spatial Distribution of Confirmed Bacterial Meningitis Pathogens

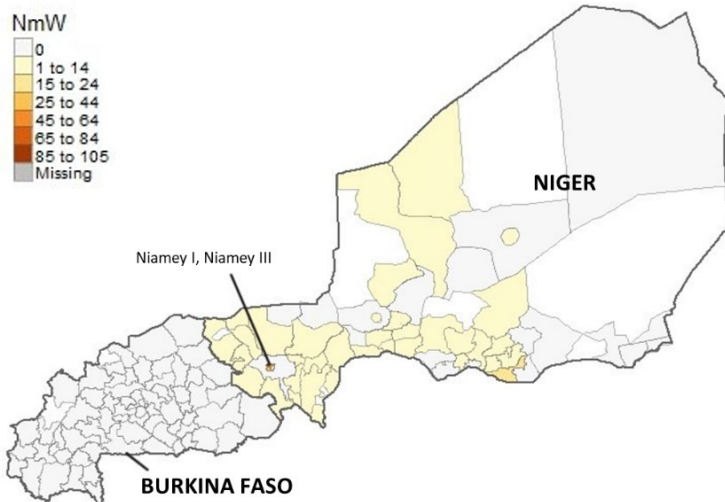
Niamey I, III and V reported alerts and epidemics in weeks 1-26 which were due to primarily *Nm* serogroup W, accounting for 102, 58, and 33 cases and 6, 4, and 0 deaths, respectively. *NmC* outbreaks were reported in the Agadez, Tahoua, and Zinder regions of Niger. In Niger, the pentavalent meningococcal ACWYX conjugate vaccine (Men5CV) was introduced through reactive vaccination campaigns in 13 districts. In Burkina Faso no district crossed the alert threshold, however *S. pneumoniae* (*Sp*) was the primary pathogen reported. In Niger, most *Sp* cases were reported in Niamey I, Magaria, and Mirriah districts. Less than 4% of cases reported were *Hi*, with most being *Hi* non-b serotype (74%), and 1-2 cases of *Hi* serotype b (*Hib*) reported in 8 districts in Burkina Faso and 4 in Niger.

Figures 2a-2d. District-level Distribution of *N. meningitidis* C, *N. meningitidis* W, *N. meningitidis* X, and *S. pneumoniae* across Burkina Faso and Niger

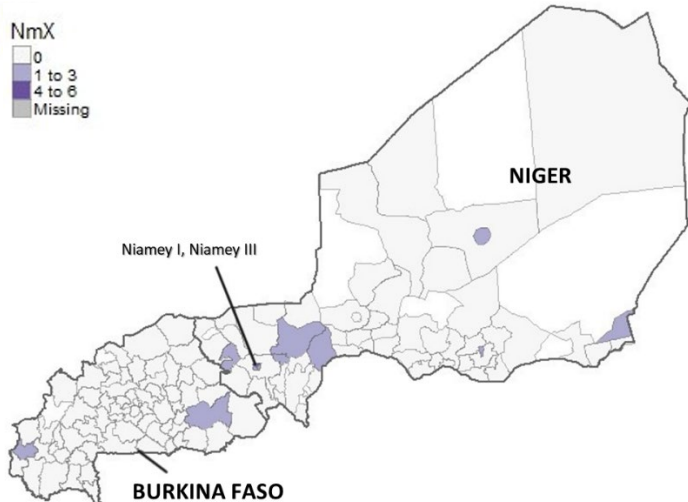
2a. *Neisseria meningitidis* C



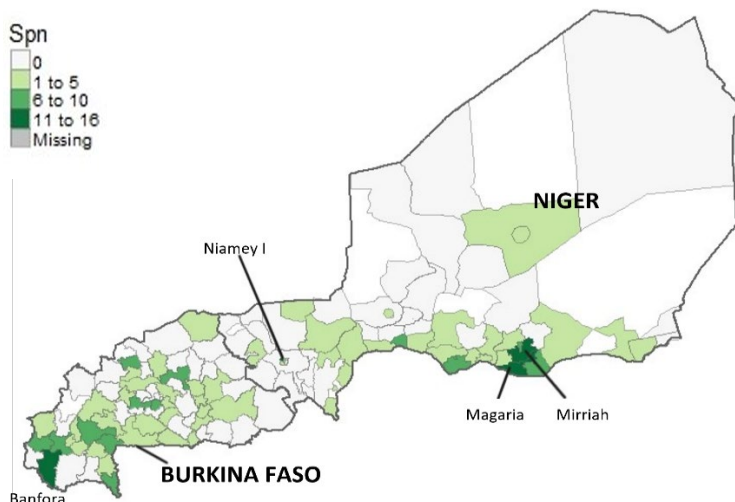
2c. *Neisseria meningitidis* W



2b. *Neisseria meningitidis* X



2d. *Streptococcus pneumoniae*



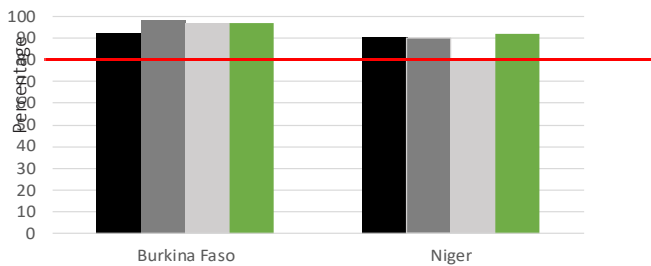
**S. pneumoniae* serotype data were not available at the time of this bulletin's publication

MenAfriNet case-based surveillance performance indicators

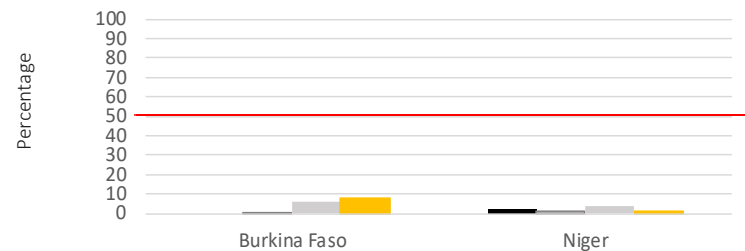
Specimen collection remained high in Burkina Faso and improved in Niger, with both countries crossing the target indicator (Figure 4a). Gram stain testing at periphery labs decreased in Burkina Faso and increased slightly in Niger (Figure 4c). Specimen transport times from CSF collection to arrival at the NRL improved in both countries, with Burkina Faso and Niger surpassing the performance indicator (Figure 4e). Once received at the NRL, both countries have rates of confirmatory testing on these samples by PCR or culture close to or above the threshold (Figure 4f). While the data show an increase in culture contamination at the national level, it is important to note that most specimens collected are tested by PCR and few are tested by culture, 24% in Burkina Faso and 1.2% in Niger. Collaboration between lab, data, and surveillance officers in both countries will help to better inform how to improve data completeness and strengthen surveillance data quality.

Figures 4a-4h. Annual Trends of Surveillance and Laboratory Performance Indicators

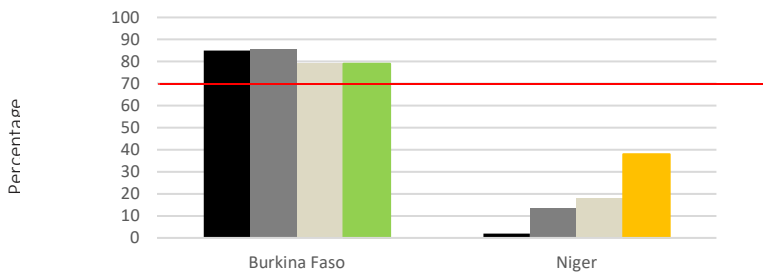
4a. Percent cases with specimen collected



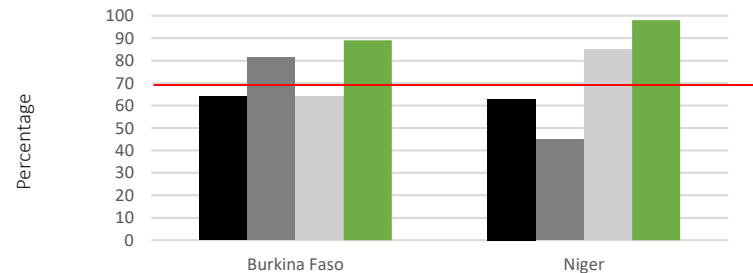
4b. Percent of specimens received at any lab in trans-isolate (T-I) media



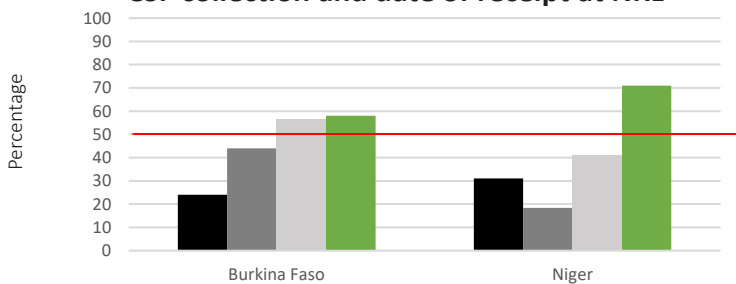
4c. Percent specimens tested by Gram stain at non-NRL Lab



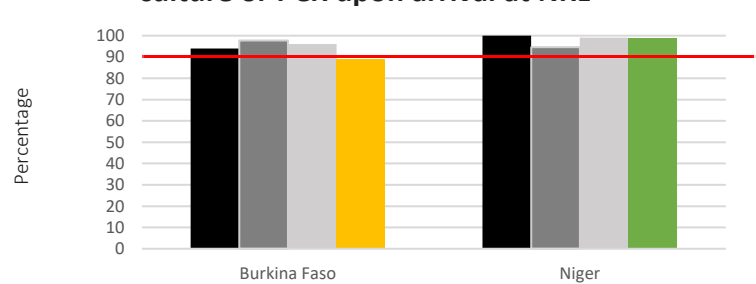
4d. Percent specimens received at NRL



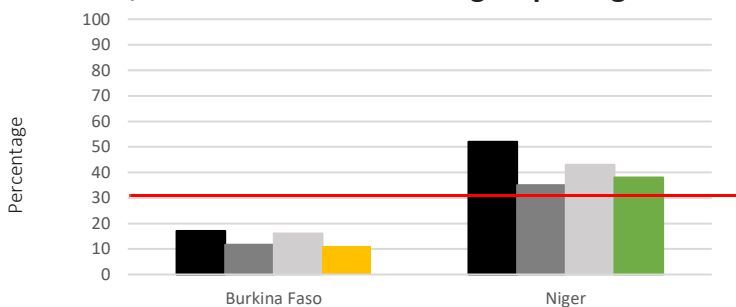
4e. Percent cases with <7 days delay between CSF collection and date of receipt at NRL



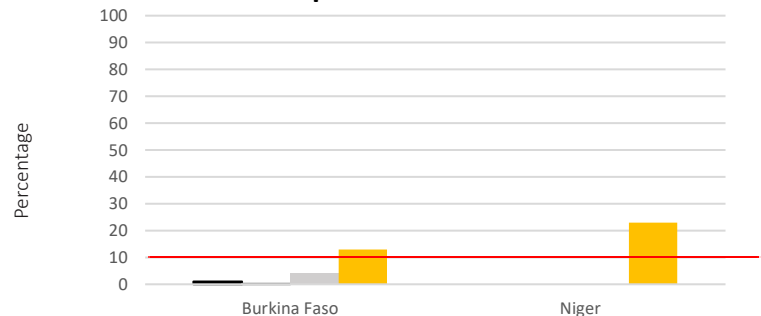
4f. Percent specimens analyzed by culture or PCR upon arrival at NRL



4g. Percent specimens confirmed at NRL for Hi, Spn, Nm, or other bacterial meningitis pathogen



4h. Percentage of CSF specimen contaminated for culture procedure at the NRL

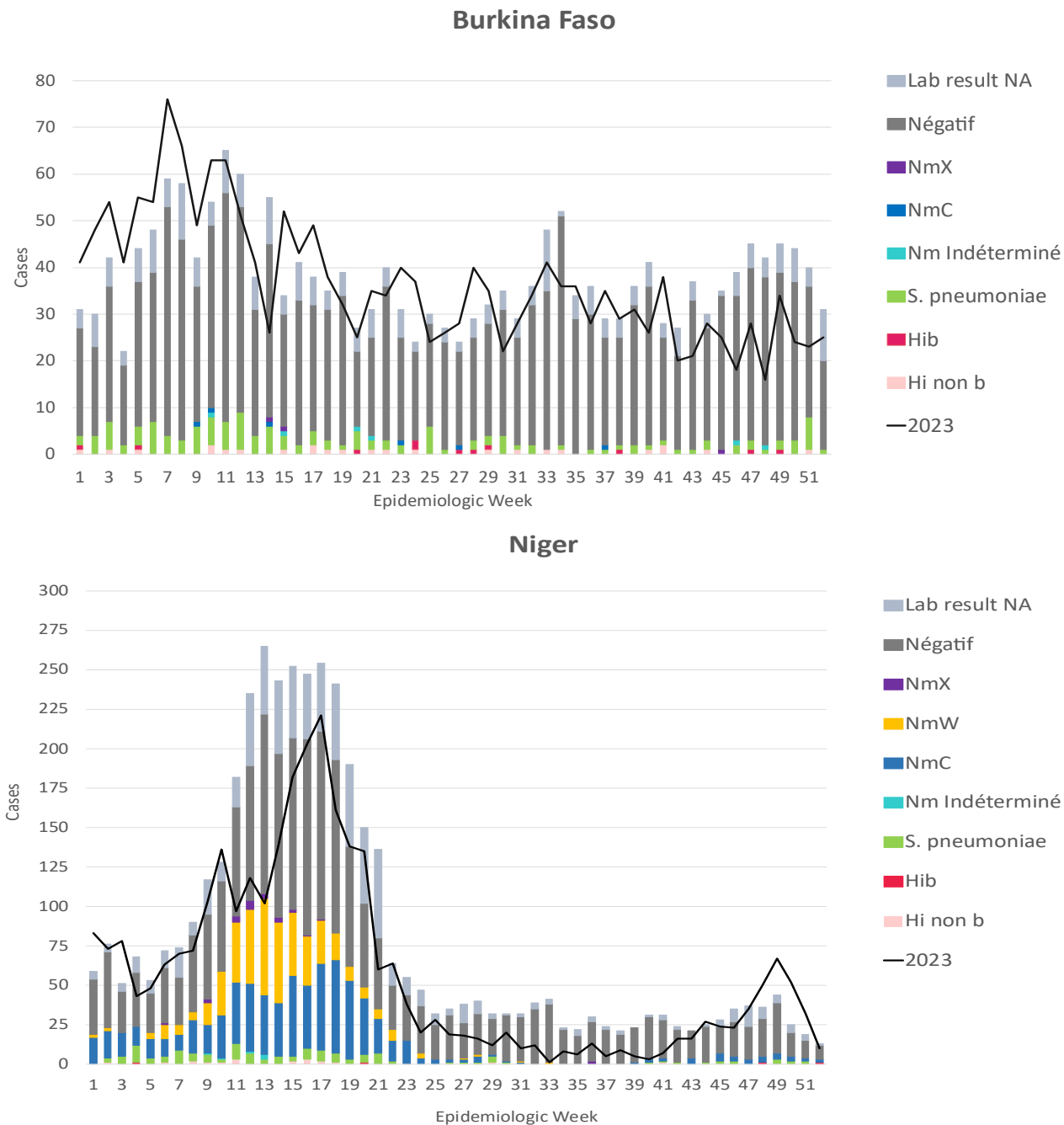


Key: 2021 2022 2023 2024 (meets target) 2024 (does not meet target) — Indicator target

Epidemiologic trends over time

The number of total cases reported from Burkina Faso was similar in 2023 and 2024 (1,912 and 1,984 cases respectively). In Niger, a higher number of cases was reported in 2024 compared to the previous year, increasing from 2,991 to 4,182 cases. In Niger, the seasonality of cases is more pronounced with a clear peak in cases between weeks 11 and 19. Niger's peak in cases this year lasted longer in than the previous year (weeks 15-18 in 2023). Spn was the dominant pathogen among confirmed cases in Burkina Faso, and NmC and NmW are the primary pathogens among confirmed cases in Niger.

Figure 5. Epidemic curves by country, weeks 1-26, 2024 (Note y-axes vary by country)



Appendix A: MenAfriNet Threshold Calculation

Indicator / Threshold	Numerator	Denominator
Percentage of cases with specimens collected Threshold: > 80%	Number of suspected cases with specimens collected	Number of suspected cases
Percentage of specimens received at any lab in trans-isolate (T-I) Threshold: > 50%	Number of specimens received at any lab in trans-isolate (T-I) tube	Number of suspected cases with specimens collected
Percentage of specimens tested at labs other than the NRL by a Gram stain test Threshold: > 70%	Number of specimens tested at district or regional lab by a Gram stain test	Number of suspected cases with specimens collect
Percentage of specimens received at the NRL Threshold: > 70%	Number of specimens received at NRL	Number of suspected cases with specimens collect
Percentage of cases with a delay of <7 days between specimen collection date and date specimens received at NRL Threshold: > 50%	Delay between specimen collection date and date specimens received at NRL is within 7 days	Number of specimens received at NRL
Percentage of specimens received at the NRL and analyzed by a confirmatory test (culture, PCR) Threshold: > 90%	Number of specimens analyzed by a confirmatory test at NRL level (culture, PCR)	Number of specimens received at the NRL
Percentage of specimens confirmed at the NRL for Hi, Spn, and Nm, and other pathogens. Threshold: > 30 %	Number of specimens confirmed at the NRL for Hi, Spn and Nm and other pathogens	Number of specimens analyzed by a confirmatory test at NRL (culture, PCR)
Percentage of specimens contaminated for culture procedure at the NRL Threshold: < 10 %	Number specimens contaminated for culture procedure at the NRL	Number of specimens tested by culture at NRL*

**This value changed from number of specimens received by an NRL (reflected in previous years' MenAfriNet bulletins) to number of specimens tested by culture at an NRL. This will be the denominator used to calculate this indicator in the future.*