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Bacterial Meningitis Epidemiology in Burkina Faso and Niger - High-Risk Countries in the Meningitis Belt of Sub-Saharan Africa, 2016-2021

Author(s)

Veronica A. Pinell-McNamara, MPH

Epidemiologist

CDC

Issaka Yameogo, MD

Director, Service de surveillance épidémiologique

Ministère de la santé et de l'hygiène publique du Burkina Faso

Elh Ibrahim Tassiou, MD, MPH

Directeur de la Surveillance et de la Riposte aux Epidémies

Ministère de la santé Publique, de la Population et des Affaires Sociales

Zaneidou Mamane, MS, RN

Data Manager

Ministère de la Santé Publique Niamey NIGER

H. Flavien Ake, MD

Executive Director

Davycas International

Clement LINGANI, WHO

MONITORING AND EVALUATION OFFICER

WORLD HEALTH ORGANIZATION

Katya FERNANDEZ, WHO

PUBLIC HEALTH EXPERT

WORLD HEALTH ORGANIZATION

ANDRE ARSENE FOU DA. BITA, WHO AFRO

Regional meningitis control officer

World Health Organization - African Region

Lucy A. McNamara, PhD, MS

Epidemiologist, Team Lead
Centers for Disease Control and Prevention

Background

Since 2014, the MenAfriNet Consortium has supported meningitis surveillance in Burkina Faso and Niger. This analysis describes bacterial meningitis epidemiology in these countries during 2016-2021, prior to anticipated introduction of a new pentavalent meningococcal vaccine (NmCV-5).

Aim/Methods

Meningitis cases in Burkina Faso and Niger were identified through case-based surveillance during 2016-2021. All Burkina Faso districts were included in the analysis; districts included for Niger increased from 17 to 48 during 2016–2021 based on when they first received MenAfriNet support and/or reported at least 90% of total aggregate cases through case-based surveillance. Cerebrospinal fluid (CSF) specimens were tested via PCR or culture to confirm *Neisseria meningitidis* (Nm), *Streptococcus pneumoniae* (Sp), or *Haemophilus influenzae* (Hi) and Nm were serogrouped as A (NmA), C (NmC), W (NmW), Y (NmY), X (NmX), or other by PCR. We calculated annual incidence in participating districts in each country.

Results

During 2016-2021, 21,597 suspected meningitis cases were reported among included districts. Of these, 20,016 (93%) had a CSF specimen collected, of which 4,521 (23%) were confirmed as bacterial meningitis. Among the confirmed cases, 2,373 (52%) were Nm, 1,862 (41%) Sp, and 286 (6%) Hi. Average annual incidence of Nm, Sp, and Hi was 1.39, 0.91, and 0.15 per 100,000 population, respectively. Nm cases included 1,513 (64%) NmC, 591 (25%) NmX, 252 (11%) NmW, and 2 (0.1%) NmY; no NmA cases were detected in either country. In Burkina Faso 236 (33%) of confirmed Nm cases were NmW, 250 (35%) NmX and 165 (23%) NmC; in Niger 1,348 (82%) were NmC and 341 (21%) NmX. Niger experienced multiple NmC outbreaks during this period including a large epidemic in 2017 as well as outbreaks in the Zinder region in 2020-2021.

Conclusions

While Burkina Faso and Niger experienced a significant burden of meningococcal and pneumococcal bacterial meningitis, no NmA cases were reported. Recurrent NmC outbreaks were identified in Niger, a significant burden of NmX was observed in both countries and NmW remains common in Burkina Faso. NmCV-5 introduction can help address the burden of disease and recurrent meningococcal outbreaks, but further evaluation is needed to identify ways to reduce the burden of Sp.

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