

Title of dissertation			
High prevalence of hepatitis B infections in Burkina Faso (1996-2017): a systematic review with meta-analysis of epidemiological studies (ブルキナファソにおける高い B 型肝炎感染率 (1996-2017) : システマティックレビューとメタアナリシス)			
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Background: With above 8 % of the adult population chronically infected and more than 4500 related deaths each year, chronic hepatitis B infection is a major health problem in Burkina Faso that challenges the national health system. Following the world health organization resolution to eliminate viral hepatitis by 2030, the national viral hepatitis control program adopted a strategic plan to coordinate elimination's efforts. Main activities include improved immunization coverage in children and scaling up treatment. However, evidence to guide the implementation of these efforts remains scanty and scattered. The purpose of this study was to summarize information from peer-reviewed data to help understand the burden of hepatitis B infection and to facilitate evidence-based decision making.

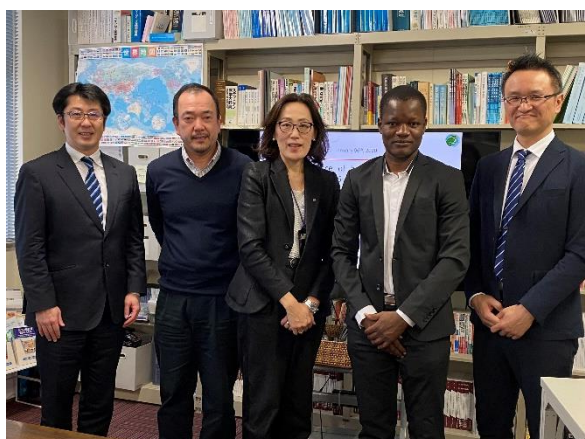
Methods: A systematic review with meta-analysis was conducted to search peer-reviewed literature addressing hepatitis B surface antigen (HBsAg) prevalence by following the 2009 preferred reporting items for systematic Reviews and meta-analysis (PRISMA) statement guidelines in 2017. A concept map was established using key words and medical subject headings (MeSH) including hepatitis B, hepatitis surface antigen, seroprevalence, Burkina Faso, and similar terms such HBV, HBsAg. A comprehensive search was carried out in PubMed/Medline, Google Scholar, Science Direct and the Web of Science with combination of MeSH terms and key words used in research equation with 'OR' and 'AND' logical operators. Detailed of such a search strategy for PubMed was “((hepatitis B[Mesh]) OR (hepatitis surface antigen[-Mesh])) AND (seroprevalence[Mesh]) AND (Burkina Faso[Mesh]). This search strategy was subsequently modified and adapted to other databases. Overall and subgroup prevalence estimates were conducted using the random effects model that takes into account uncertainty in pooled estimates due to between study heterogeneity.

Results: A total of 1436 titles and abstract (54 from PubMed/Medline 382 from Science Direct, 935 from Google Scholar, 63 from the Web of Science and two manually added studies) were screened to identify eligible studies. Forty full texts were retrieved and assessed in detail among them 22 studies were included. Of an aggregate sample size of 99,672 individual assessed, the overall hepatitis B prevalence was 11.2 %. After adjustment by subgroups analysis, the prevalence was 9.4 %, 11.1 %, 11.7 % and 12.6 % in the general population, pregnant women, blood donors and HIV - positive persons respectively. The impact of decade hepatitis B vaccination was

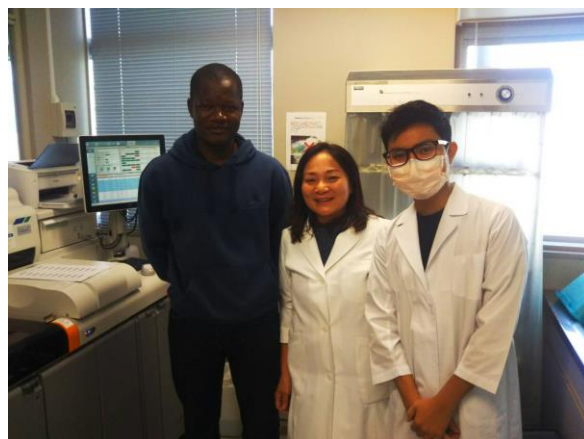
noticeable with an appreciable reduction of hepatitis B prevalence from 12.8 % to 11.1 % after ten years of routine hepatitis B vaccination. The prevalence was highest in the rural area (17.3 %). Regional variations were observed with 12.7 % in the western regions of the country, 14.7 % in the boucle of Mouhoun region and 14.6 % in the centre-west region. Few data were available in rural area and the children population that directly benefit from the immunization program was not evaluated.

Conclusion: This study depicts the heavy burden of hepatitis B infection in Burkina Faso (1.8 and 2.1 million HBsAg chronic carriers) and this challenges the national health care system. However, nationwide studies are necessary to provide details geographic variations and guide adequate resource allocation. Furthermore, children infection level should be documented and mother to child vertical transmission investigated to formulate the needed intervention that will help achieve the elimination target.

Photos



Final presentation of thesis defense



Laboratory work in Hiroshima University