Quality of Data published from 2009-2019 on Noma, Can we do Better?

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Objective:

Noma is an oft written about condition occurring primarily in Sub-Saharan Africa. It is referred to as, "The Face of Poverty" and affects the poorest of the poor. It is thought to occur out of a constellation of predisposing factors including severe malnutrition, poor oral hygiene, malaria, measles, maternal health, and/or water sanitation[1]. To date, a clear cause and effect relationship has yet to be described. Currently, the acute polymicrobial facial gangrene is treated with empiric broad-spectrum antibiotics, aggressive re-hydration, nutrition, and debridement. Reconstructive efforts are then approached well after the defect has declared itself. In most patients, the delay to reconstruction is years, and in some it is decades. Reported mortality rates hover around 20% [2], where they were once reported as high as 90%. Although decreased mortality should be considered a "success", most stakeholders view the continued existence of noma in endemic regions as a failure. Accurate data on true incidence and prevalence, early preventive measures, or etiology have yet to be published or thoroughly studied. Despite reported increases in survivorship, morbidity can be incapacitating from both the overt physical disability and severe psychological impacts. The purpose of this study was to evaluate all publications on noma from January 01 2010 to July 30 2019 for type of publication and quality of evidence. The implication of the analysis was to look at the current available "data" with a critical eye and ask the following clinical question: "From the published articles in peer-reviewed journals, to what degree is the quality of evidence and from where is the data derived?"

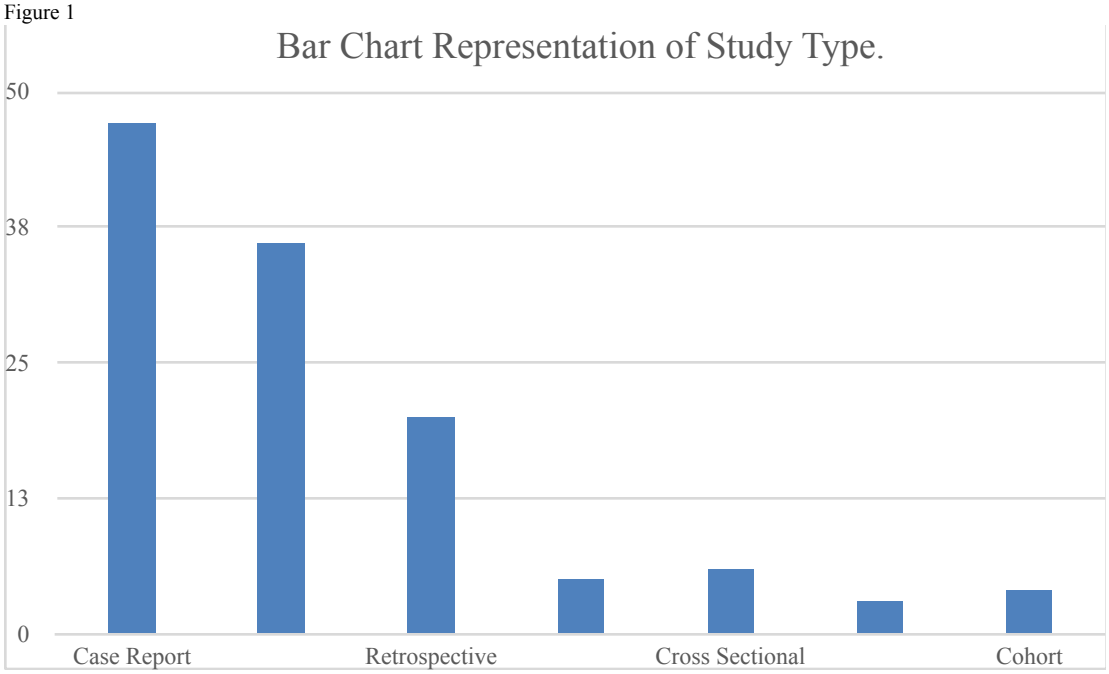
Study Design: We designed a scoping literature review from Jan 01 2009 – July 30 2019. All available literature was searched via PubMed and the "grey literature" was also searched via Google Scholar. The publications were then sorted by type of study, level of evidence, and country of origin.

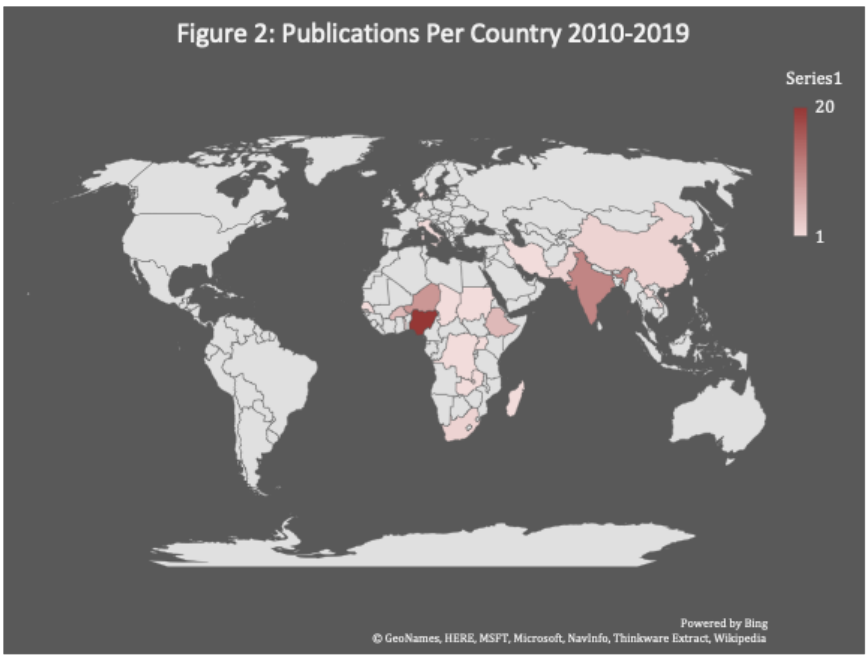
Results: A total of 121 articles were published during the study period. 47/121 (38.8%) were case reports, 36/121 (29.7%) were expert opinions. 77/121 (64%) were level IV evidence and 37/121 (30.5%) were level V. There were no studies published with Level I or II levels of evidence (Figure 1). A majority of the clinical studies were from Nigeria (20/69) followed by India (11/69) (Figure 2).

Conclusions: Despite an average of 10 publications per year, well designed publications were scarce if not absent completely. The study illustrated an overabundance of case reports and opinion pieces while true epidemiology, etiology and prevention data are severely lacking. Reliable estimates as to the incidence, prevalence and relative risk of noma could possibly lead to the reduction of case severity, increased containment, and/or decreased progression secondary to improved case identification. Furthermore, no

prevention trials in at-risk populations have been attempted, to date. Without a paradigm shift in the approach to research and reporting using evidence-based principles, the disease burden from noma is likely to remain unchanged. Given the projected scarcity of resources anticipated from climate change in noma affected countries, the disease burden of this preventable disease may increase over time.

Figure 1





1. Ibikunle A, Adeniyi S, Taiwo A, Braimah R, Gbotolorun O, Soyele O, Adeyemi M, Amoo A, Jaffar R, Bashir M *et al*: **Management of 159 cases of acute cancrum oris: Our experience at the noma children hospital, Sokoto**. *Archives of Medicine and Health Sciences* 2017, **5**(2):172-176.
2. Adeniyi SA, Awosan KJ: **Pattern of noma (cancrum oris) and its risk factors in Northwestern Nigeria: A hospital-based retrospective study**. *Ann Afr Med* 2019, **18**(1):17-22.