

**Executive Summary for SAGE Session 10:**

Opportunities for early warning and preventive action.

Case study: Diphtheria outbreak in Cox's Bazaar.

**Background:**

Despite overall high vaccination coverage in most countries, pockets with low coverage can leave significant parts of populations vulnerable to outbreaks of vaccine preventable diseases (VPD). The recent past has provided evidence of significant VPD outbreaks. Vaccination campaigns conducted during an outbreak represent a reactive response and until these measures are fully implemented there is unnecessary suffering and death of susceptible individuals. Outbreak response measures also have significant cost implications both in terms of opportunity costs and finances.

**Session Objective:**

The objective of this session is to discuss programme data available for identifying populations at risk for VPD outbreaks and ways to improve the data or analysis to better anticipate or prevent outbreaks.

**Session Summary:**

The session will be broken down into five parts:

- 1) Introduction. The introduction section of the session will review the objectives and frame the session. The presenter will provide examples of different outbreaks that have occurred recently and common themes among these outbreaks. Since our time is limited, we will only look in detail at the Diphtheria outbreak in Cox's Bazaar.
- 2) Case study. A second presenter will provide a quick overview of the outbreak in Cox's Bazaar and consider the factors that came together to create an environment where this outbreak was able to occur and flourish. Specific attention will be given to the challenges that occurred in managing this outbreak. The presenter will consider what interventions could have pre-emptively prevented this outbreak and what actions could have diminished the impact and resource mobilization required.
- 3) Mapping of global programme data and gaps. In the next section we will map the characteristics of data we would ideally need in order to optimally prevent and or anticipate outbreaks. We will consider three different domains of data: immunization coverage, surveillance and policy tools. The presenter will review the data that currently exists at the international level within these three different domains and highlight work that is being done and current opportunities to improve this data in order to better inform our ability to anticipate VPD outbreaks.
- 4) Risk assessment tool to analyse the current available data for vaccination coverage, case reporting and disease burden from the time-period 2007-2016; data, vaccination strategies and country instability information. This risk assessment tool could help to predicted epidemics during the period
- 5) Another approach is to use subnational vaccination coverage rates and disease surveillance data are now available for many countries. In the United States, many states have recently made school-level vaccination coverage data publicly available and at WHO, district-level vaccination

coverage data are being collected since 2016. Using subnational data for risk analysis to strengthen vaccination strategy recommendations.

6) Discussion.

**Background Reading (Yellow Book):**

- Diphtheria Position Paper (2017) – This document provides the most recent WHO position paper on Diphtheria. It provides recommendations on the optimal number of doses of diphtheria vaccine, timing of administration, the use of combination vaccines and their alignment in the routine immunization schedule and provides guidance on the use of diphtheria boosters later in life.
- Vaccination in Acute Humanitarian Emergencies (2017). Only the executive summary of this document is included. This document is a framework for vaccination in humanitarian emergencies and is intended to assist users to thoughtfully, deliberately, ethically, and rationally determine whether or not the delivery of one or more vaccines to specific target populations during the acute phase of an emergency would result in an overall saving of lives, a reduction in the population burden of disease, and generally more favourable outcomes than would otherwise be the case.
- Update on Supply of Diphtheria Antitoxin (DAT) and the Ad-Hoc Working Group on DAT: This note provides background on the supply issues related to DAT and an update on the activities of the Ad-Hoc Group on DAT.

**Background Reading (Web):**

- Diphtheria Surveillance Standards – These recently published surveillance standards provide the WHO recommended standards for conducting surveillance for diphtheria.
- Concept note on Vaccine Decision Information System
- Narrative description of the risk assessment tool to anticipate outbreaks
- WHO/UNICEF guidance note ensuring sustained protection against diphtheria: replacing TT with Td vaccine.