

Antimicrobial Resistance Surveillance in Bangladesh

Antimicrobial resistance (AMR) is a global public health problem. In May 2015, the 68th World Health Assembly adopted the Global Action Plan (GAP) on Antimicrobial Resistance. All countries are required to develop their own national action plan based on the GAP, and start implementing it at local level. Accordingly National Action plan for containment of Antimicrobial Resistance in Bangladesh 2017-2022 has been prepared. Surveillance of Antimicrobial resistance is an important issue in this plan.

Institute of Epidemiology, Disease Control and Research (IEDCR) has been conducting AMR surveillance since 2017 with technical support from US-CDC and WHO to find out the status of Antimicrobial Resistance in Bangladesh.

In February 2020, with the suggestion of National technical committee IEDCR is selected as the Sectoral AMR Surveillance Coordination Center for human health and also with the approval of Director General of Health Services, IEDCR has been selected as the National Reference Laboratory for human health for national AMR surveillance.

Surveillance activities started in 9 sites all over Bangladesh in 2 phases.

1st Phase

- Uttara Adhunik Medical College
- Mymensingh Medical College
- Rajshahi Medical College
- Rangpur Medical College
- Bangladesh Institute of Tropical ND Infectious Diseases (BITID)

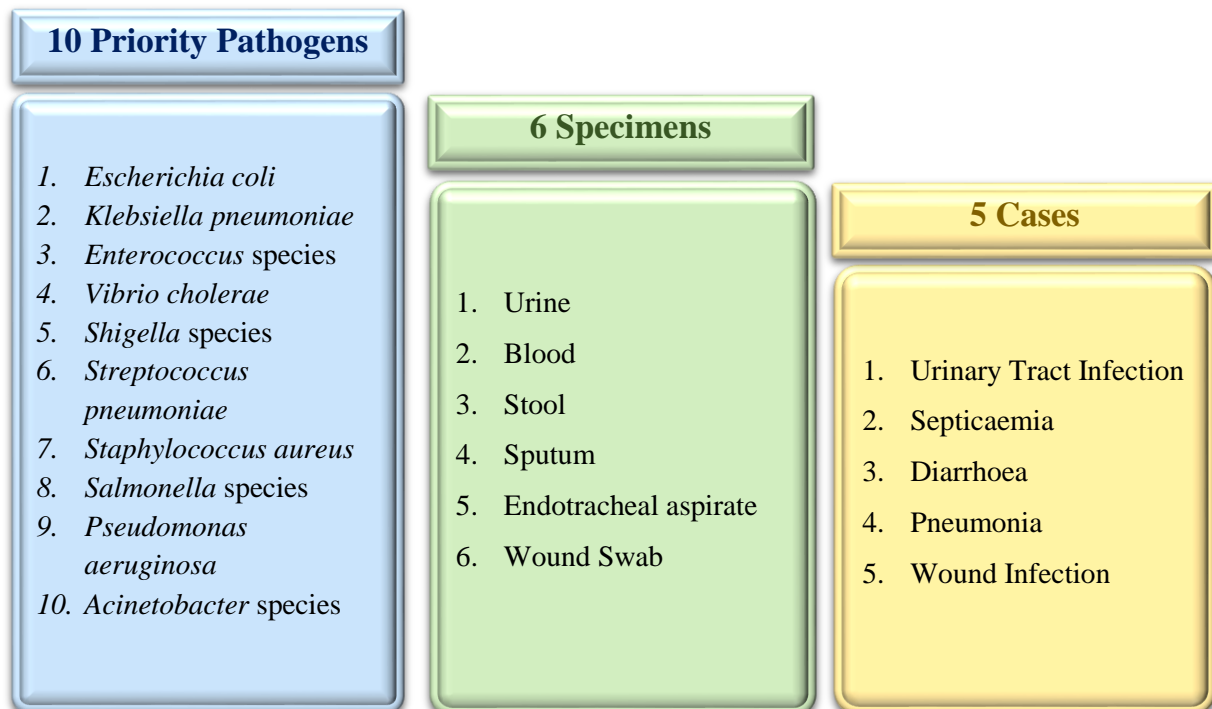
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2nd Phase

- Dhaka Medical College
- Khulna Medical College
- Sylhet MAG Osmani Medical College
- Cox's Bazar Medical College & Sadar Hospital

Patients with 5 different types of infectious conditions are enrolled by surveillance physicians according to case definitions and specific number of defined samples are collected from these patients.

Ten priority pathogens have been selected considering the GLASS (Global Antimicrobial Resistance Surveillance System) protocol by WHO as well as the country perspective.



Surveillance activities:

Collection of samples and epidemiological data and the entire laboratory testing including the Antimicrobial Sensitivity Testing (AST) is done at the sentinel sites. Laboratory works are performed strictly followed by the SOPs provided by AMR Reference Laboratory of IEDCR.

All the relevant epidemiological as well as laboratory data is compiled in a software hard copy is also maintained. At IEDCR data is cleaned and analyzed using WHONET software.

IEDCR provide logistics and technical support to the sites and preserves the isolates for further testing.

For external quality control a number of positive samples are retested time to time. IEDCR along with the sentinel sites participates in Proficiency Testing (PT) by College of American Pathologists (CAP).

Achievements so far:

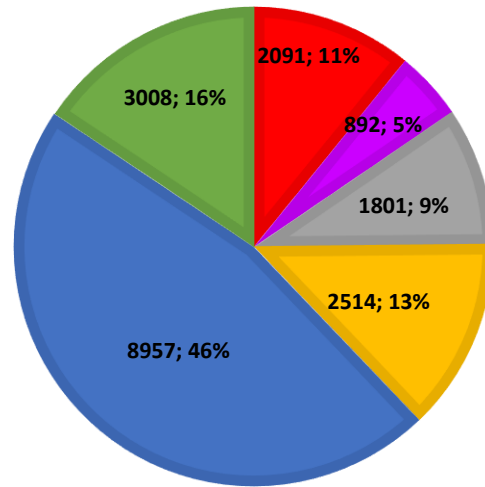
1. Total 19263 samples has been tested in the sentinel sites till 31st March 2020.
2. The analysis of the surveillance data has been disseminated to all the stakeholders at the five first phase sentinel sites in August & October, 2019.
3. Centrally AMR surveillance findings has been disseminated to stakeholders and the policy makers at IEDCR in November, 2019.
4. The graphical representation of AMR surveillance data is updated real time from the surveillance sites.
(Link for dashboard: http://119.148.17.100:8080/amr/summary_graph.php)
5. For the first time human AMR data is entered in GLASS platform from Bangladesh in 2019.



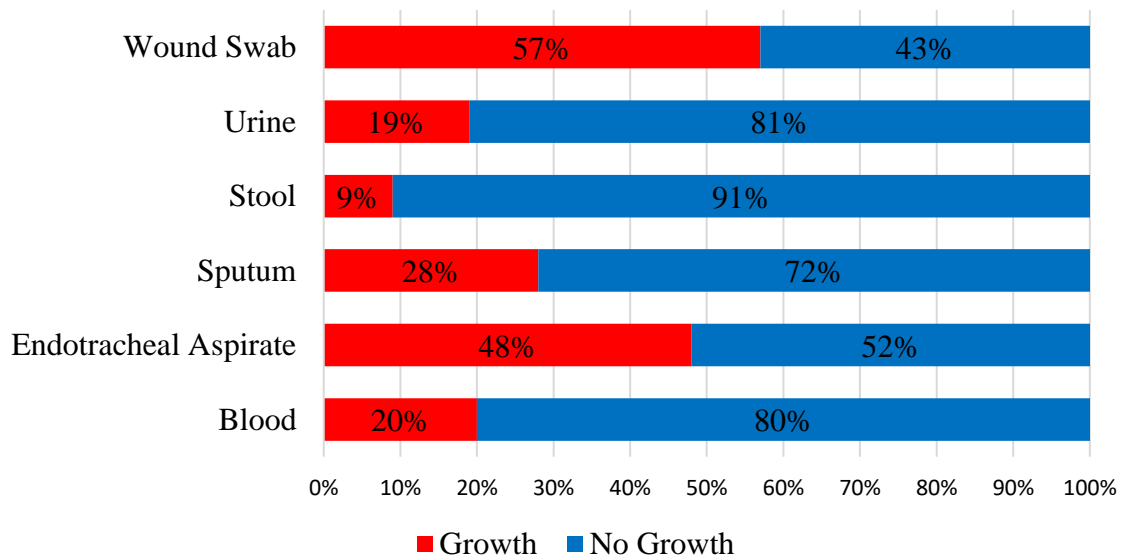
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DISTRIBUTION OF SAMPLES (FROM 2017-MARCH 2020)

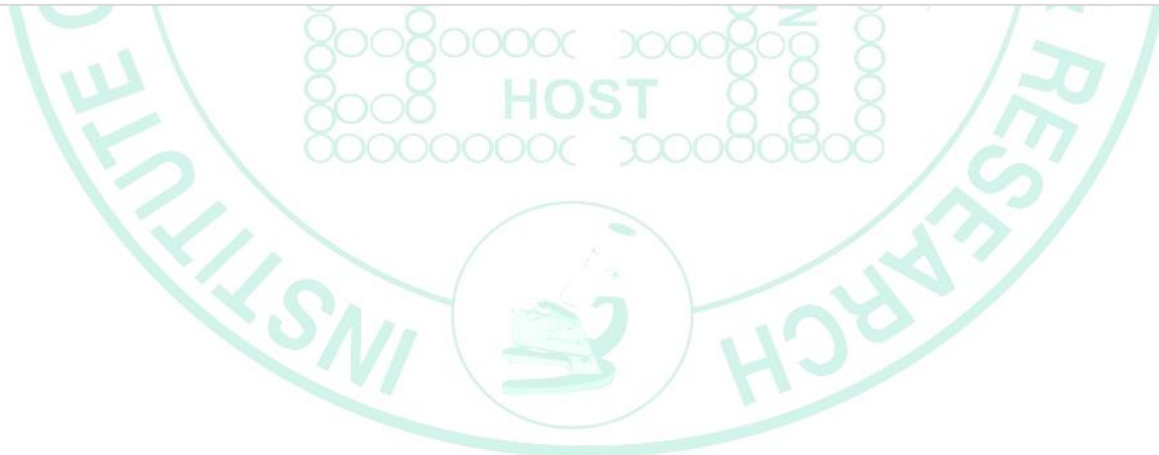
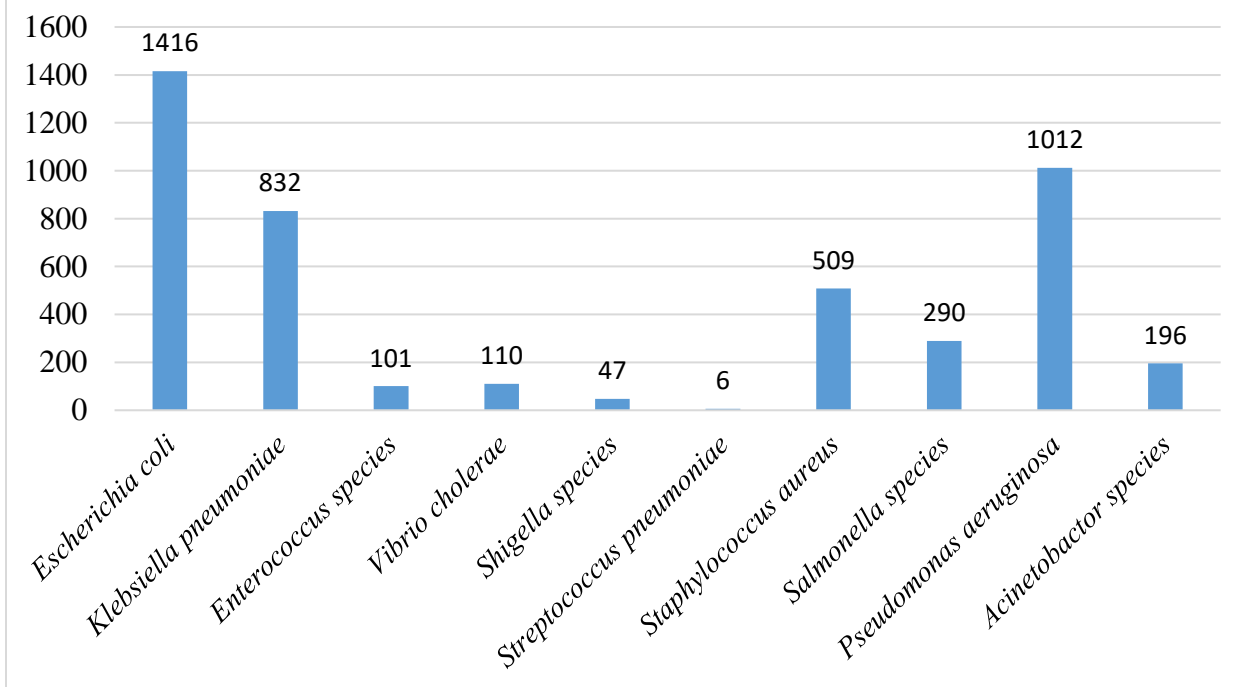
■ Blood ■ Endotracheal Aspirate ■ Sputum ■ Stool ■ Urine ■ Wound Swab



Growth vs No-growth of the samples tested



Distribution of Priority Pathogens Isolated



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