

CoSTAR-HS: Facility Cores

Facility Core 1: Primary Care Antimicrobial Stewardship Analytics and Education Core

Hosted at NUP, this facility aims to meet this collaborative proposal's primary care antimicrobial stewardship analysis and intervention needs. We anticipate collecting and analyzing 4,000 urine culture samples and 2,500 wound swab culture samples to support the routine antibiogram and surveillance proposed in the various themes in this proposal. Crucial to the Core's purpose of continuing to deliver timely, clinically important data of this Facility Core aims to expand the Core's analysis capacity by acquiring additional equipment, such as laptops and statistics software. The Facility core will provide funding for educational interventions and IT systems configuration and maintenance for data analysis.

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Facility Core 2: Health Systems & Economics Unit

Hosted at NUHS, the purpose is to retain and build the manpower capacity and expertise on economics, health systems, and mathematical modeling research relevant to AMR. Other functions include maintaining access to specialized software and other equipment necessary for such research and facilitating access to cross-institutional clinical and health economics data relevant to AMR research.

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Facility Core 3: Clinical Trials Support

Hosted at NUHS, this facility aims to support local sites for both international and local clinical AMR trials.

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Facility Core 4: Genomes, Metagenomics & Bioinformatics Facility Core

Hosted at NCID, this facility aims to meet this collaborative proposal's whole-genome and metagenomic sequencing and analysis needs. We anticipate that the current collaborative group will require dedicated sequencing capability. In the initial iteration of CoSTAR-HS, demand for sequencing exceeded our projected amount, although we could eventually support this work via funding from competitive grants. We anticipate that we will sequence and analyze at least 4,500 samples to support the translational work proposed in the various themes in this proposal. Crucial to the Core's purpose of delivering timely and clinically important data, the facility aims to expand the Core's sequencing and analysis capacity by acquiring additional equipment. Please use [attached form](#) for the use of the facility.

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Facility Core 5: Data Management and Analysis

Hosted at SGH, the purpose of this facility core is to build appropriate infrastructures and platforms in Computational Biology and Artificial Intelligence for data accessing, storage, sharing and analysis of omics data together with electronic health records in real-time to enable public health and clinical management, clinicians, and researchers to easily access the data and derive meaningful information to improve medicine, healthcare services and performance. Moreover, it enables data interoperability and sharing easy and secure across different institutions.

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Facility Core 6: Novel Diagnostic Core

Hosted at SGH, this facility aims to provide bacteria omics and flow cytometry expertise to meet the needs of this collaborative platform. These include:

1. Resistance determinant discovery
2. Untargeted bacteria proteomics
3. Quantitative bacteria proteomics
4. High-throughput screening for antimicrobial susceptibility
5. Single-cell assessment of bacteria responses to antimicrobials

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Facility Core 7: Research Translation Unit

Hosted at NUHS, the purpose of this facility core is to improve the translational research environment, specifically for AMR. It will work with research teams within CoSTAR-HS to connect their work with policymakers, healthcare institutions and industry. It will specifically facilitate the achievement of several proposed translational outcomes and indicators of CoSTAR-HS.

The key functions are:

1. Dissemination of research findings.
2. Working with stakeholders to implement research findings as relevant evidence-based policies and/or clinical practice.

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