



**Project title and acronym:** AB-ICU – Antibacterial and antifungal use in intensive care units – A retrospective observational study

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## 1. Project background/ Introduction

There is a clear association between the use of antimicrobials and the development of antimicrobial resistance (AMR). Antimicrobials have a crucial and lifesaving role in severe infections. However, given their role in driving AMR, it is vital that they are used judiciously and only in well-targeted situations. Approximately 70% of all patients admitted to an Intensive Care Unit (ICU) are, at some point, treated with antibiotics and it has been estimated that up to a third of this antibiotic use is redundant. Antimicrobial stewardship (AMS) programs are designed to improve the use of appropriately prescribed antibiotics in terms of choice, initiation, and duration of therapy. Measuring antibiotic consumption is key to evaluating change and comparing antibiotic use in different settings and can be used to monitor and benchmark between departments or healthcare facilities to encourage improvement.

## 2. Project Scope

The overall aim is to investigate antibiotic use – agent and quantity – in primarily European ICUs with a comparison of inter-country and inter-hospital variability as well as in relation to country-specific antimicrobial susceptibility patterns.

## 3. Methodology

Retrospective collection - the years 2018 – 2022 – of:

ICU-specific delivery or use of antibiotics, specified on a yearly basis as Daily Defined Dosis. Antibiotics will be grouped according to their 5-digit ATC code.

Data for categorization of the ICUs such as yearly number of beds, ICU admissions, occupied bed days and mean severity scores.

Data on frequency microbiologic resistance such as percentage of meticillin-resistant *Staphylococcus aureus* (MRSA) and 3rd-generation cephalosporin-resistant *Escherichia coli* (3GCR *E. coli*), *Klebsiella pneumoniae* with combined resistance to aminoglycosides, fluoroquinolones and 3rd-generation cephalosporins measured and vancomycin resistant enterococci.

## 4. Results/ Expected results

We hypothesise that there is a large variation in antibiotic usage associated with hospital level, country and specific antimicrobial susceptibility patterns. Also, we hypothesise that there are national, regional and local variations in antibiotic usage not based on objective quantitative or qualitative data.

## 5. Timeframe

Estimated end of collection of data for the study mid-2024.



## 6. Additional information

a. *How can I participate in the project?*

Please contact: Fredrik Sjövall on [fredrik.sjovall@med.lu.se](mailto:fredrik.sjovall@med.lu.se)

b. *Do I need an IRB approval?*

The need of ethical permission will depend on and should adhere to local legislation

c. *Acknowledgment (contributors and collaborators)*

Primary investigator for each country will be listed as author.

Contributors of data will be listed as collaborators in future manuscripts which then includes indexing in Medline.

## 7. Additional documents

Sjövall et al. *Infect Dis (Lond)*. 2022 Oct;54(10):713-721. doi: 10.1080/23744235.2022.2081717.