

Joint Action  
Antimicrobial Resistance and  
Healthcare-Associated Infections

## D6.5

# Experience from non-EU country teams of introducing an implementation model

WP6 | Policies for prevention of Healthcare Associated Infections and their implementation

Leader acronym | FOHM

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Reviewer(s) | WP6.2 lead team, coordination team

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## WP6.2.2 Participants

Country	Name of the participating organization
Georgia	National Center for Disease Control and Public Health Tbilisi
Moldova	National Agency for Public Health
Ukraine	The University Clinic of the Kharkiv National Medical University
Sweden	Public Health Agency of Sweden

## **Acronyms**

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<b>AMR</b>	Antimicrobial resistance
<b>AP</b>	Action period
<b>BTS</b>	Breakthrough Series Model for Improvement
<b>CAUTI</b>	Catheter Associated Urinary Tract Infection
<b>CTL</b>	Country Team Leader
<b>EU-JAMRAI</b>	European Joint Action on Antimicrobial Resistance and Healthcare Associated Infections
<b>HCAI</b>	Healthcare Associated Infection
<b>HCW</b>	Healthcare Worker
<b>IHI</b>	Institute for Healthcare Improvements
<b>IPC</b>	Infection Prevention and Control
<b>LS</b>	Learning session
<b>PDSA</b>	Plan Do Study Act
<b>WP</b>	Work Package

## Summary

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This deliverable summarizes the accumulated results and experiences so far of WP6.2.2 in EU-JAMRAI. WP6.2.2. is a project with the same overall objective as WP6.2 but separately financed by the Swedish Institute and with participants from non-EU countries, Georgia, Moldova and Ukraine.

The overall objective of WP6.2 was structured implementation of guidelines for prevention of Catheter Associated Urinary Tract Infection (CAUTI) using an evidence based implementation model, the Breakthrough Series Model for Improvement (BTS). The design of the implementation process is quality improvement work. The Breakthrough Series Model for Improvement (BTS) provides a structure and includes key elements for a successful implementation process. The BTS is providing a bottom-up approach by including the perspectives and expertise of the Health care workers

The routines used to reduce CAUTI are based on the Institute for Healthcare Improvements (IHI) guidelines, see references.

Four components of care are recommended for all patients to prevent or reduce the risk of CAUTI. They should be performed as a bundle, meaning that all four components have to be addressed at the same time for optimal outcome.

A first implementation pilot started in a number of hospitals in all three participating countries during 2018-2019. A few wards had some good results in this first pilot phase, but it proved hard to mediate the theories and working methods correctly all the way to the hospital staff, more support from the project lead team was needed. It was therefore decided that the project would focus more on teaching the Process of Improvement and the Breakthrough Series model in particular.

Due to the covid-19 pandemic all work came to a halt in February 2020, but early results from the wards pointed in the right direction at the time. Being keen to continue this work The Public Health Agency of Sweden has applied for an extension of the project period to the Swedish Institute, decision is pending.

## Introduction

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The partnership/collaboration between The Public Health Agency and organizations in the Baltic Sea region and Eastern Europe goes back many years. We have worked together in a number of areas relating to AMR over the years and have learned that many of the challenges, as well as the solutions, are the same. We have a lot of positive experience from mutual exchange of experience between professionals in the area through the Baltic Antibiotic Resistance collaborative Network (BARN)

coordinated by PHAS. This project and the partnerships are a result of the work done in BARN. The reason that we approached Moldova, Georgia and Ukraine is that they report high levels of AMR and that we believe that much can be done to a low cost by improving the quality of infection prevention and control measures.

We also wish to promote that the same working routines are used throughout Europe, regardless of whether the country is a member of EU or not.

It takes time to incorporate evidence-based practices into practice in health care, and the need for a systematic implementation process is often underestimated. With an increased awareness of the importance of structured implementation to integrate evidence into practice, a higher compliance to Infection prevention and control (IPC) measures in clinical settings can be reached.

Antimicrobial resistance (AMR) is an increasing public health threat and calls for global, coordinated action. Infection prevention and control is an important tool to limit the spread and the development of resistant bacteria. If you limit the number of HCAI you reduce the need for antibiotics and consequently you contribute to the control of AMR.

Within the framework of the EU-JAMRAI, different aspects of IPC are covered in order to identify and bridge the barriers of implementation and of compliance to IPC programs. In line with the EU-JAMRAI objectives WP6.2 aimed to implement guidelines preventing CAUTI using an evidence based implementation model, The Breakthrough Series model for improvement.

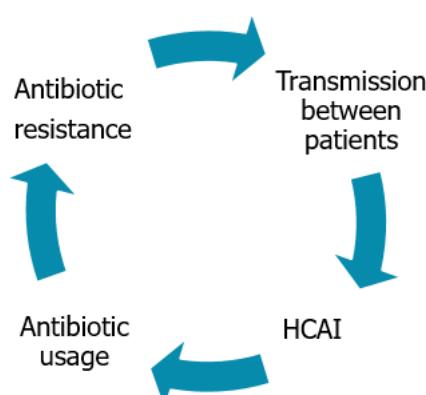


Figure1. The relationship between HCAI and AMR

## Description of WP6.2

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### Objective

The objective of WP6.2 was to promote a bottom-up approach from clinical practice to policy level by implementing evidence-based guidelines and existing policies using an established implementation model and working in country teams as well as hospital teams.

The design of the implementation process was quality improvement work (i.e., the goal was to achieve concrete changes in practice, not to conduct a research study). The two focus areas were CAUTI prevention and structured implementation, using the BTS model in a small-scale fashion in pilots in hospital wards.

To reach the objective the following tasks were included:

Task 6.2.1 Introduce an evidence-based implementation model.

Task 6.2.2 Promote that similar working routines are implemented in non-EU countries in Europe.

### Catheter Associated Urinary Tract Infections

One task in the pre-work phase of the project was to agree among the partners on which topic to focus on. CAUTI prevention was chosen for several reasons; indwelling urinary catheters are common, estimated to be placed in up to 16% of patients admitted to hospitals, and patients with urinary catheters are found in various kinds of health care. CAUTI is one of the most frequently reported HCAI globally. Also the principles of preventing CAUTI are similar to how to prevent other device associated infections.

### The Breakthrough Series Model for Improvement

The Breakthrough Series Model for Improvement (BTS) was developed in 2003 at the Institute for Healthcare Improvements (IHI) in Boston, USA. The model provides a structure and includes key elements for a successful implementation process.

The structure of the BTS is designed for learning and action, promoting improvement and collaboration between different levels in health care.

The model has a generic character and is suitable for different kinds of improvement work within healthcare. The work process is combining workshops and action periods using the so called PDSA-process (Plan-Do-Study-Act).

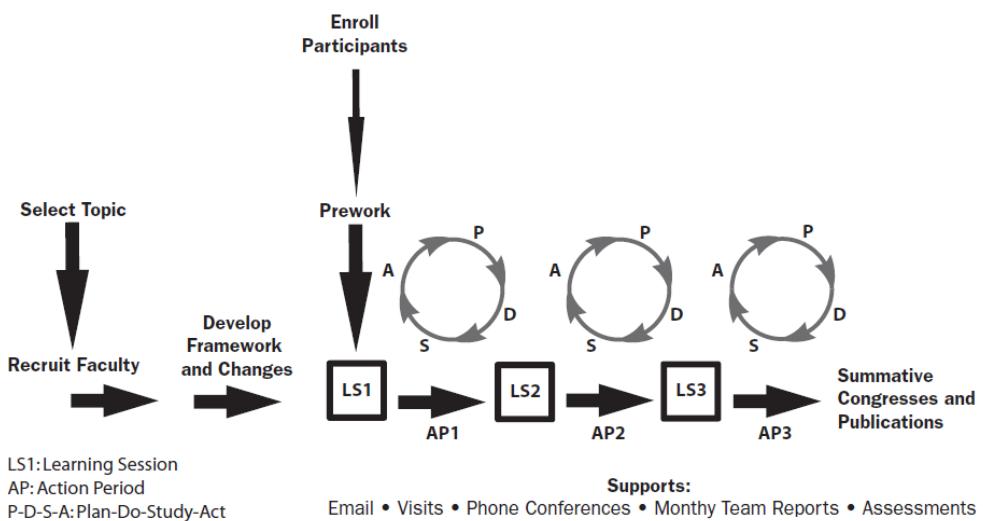


Figure 2. Breakthrough Series Model for Improvement, developed at the Institute for Healthcare Improvements, IHI, Boston, USA.

The BTS is providing a bottom-up approach by including the perspectives and expertise of the healthcare workers (HCW). The ward teams are actively involved in identifying and prioritizing the changes based on the results of a self-assessment. The changes are tested in small-scale and if effective scaled up and implemented, or revised and tested again or sometimes dismissed. The purpose of small-scale testing is to work through practical obstacles and minimize any disapproval of modified practice.

The model was chosen as implementation model during the time of writing the application for the Joint Action.

## Implementation Process in WP6.2.2

The implementation process timeline differed between the EU and the non-EU countries.

The national project participants in Georgia, Moldova and Ukraine enrolled hospitals and wards in their respective countries. The hospitals enrolled were asked to sign a mutual agreement with the Public Health Agency of Sweden on the intentions and aims of the project.

Country	No of Hospitals	Total no of pilot wards	Kick off/ workshops (LS)	Country team/ward team
Georgia	1	2	Yes/No	Yes/Yes
Moldova	1	3	Yes/Yes	Yes/Yes
Ukraine	3	6	Yes/Yes	Yes/Yes

Table 1. Number of pilot hospitals and wards per participating country

The original plan at the time of application included three phases; prework, a first pilot and an expanded pilot.

The prework was divided in central and national preparation, including developing a framework and documents, learning about implementation theory and practice, particularly the BTS model, organizing national teams and sharing former experiences and ideas.

The national prework included building a national organization including enrolling pilot wards, as well as translating and adapting the project documents to local context.

Common CAUTI related documents developed for the project included tables for data collection and measurements, a ward form and a ward survey and a template for monthly reporting of results. The documents in the project were translated to the each national language as well as Russian.

The overall aim was to reduce CAUTI, but measuring the number of patients diagnosed with CAUTI was not possible for a majority of the participants when the project started, and the agreed measurements were instead process related:

- new catheterized patients (new catheters/1000 patient days) and
- number of catheter days (catheter days/1000 patient days)

The over-all goal of the project was: “By June 2020, the wards participating in the project will have reduced their number of new catheters and catheter days by at least 20%”.

Hospitals/wards participating in the project were also encouraged to set an individual aim with goals related to how much of this work could reasonably be accomplished during the cycle of the project.

The preventive measures used to reduce CAUTI are based on the Institute for Healthcare Improvements (IHI) as well as other internationally accepted guidelines, see references.

Four components of care are recommended for all patients to prevent or reduce the risk of CAUTI. They should be performed as a bundle, meaning that all four components have to be addressed at the same time for optimal outcome.

### **Bundle - actions included**

- Avoid unnecessary urinary catheters
- Insert urinary catheters using aseptic technique
- Maintain urinary catheters based on recommended guidelines
- Review urinary catheters necessity daily and remove promptly

The preventive measures in the bundle were adapted to the national situation, resources and needs.

Kick-off meetings were held in Georgia, Moldova and Ukraine. These meetings gave an introduction to CAUTI, the bundle approach and also to the BTS-model. The participants were hospital staff and hospital management.

The participants were active and engaged at the meetings and the outcome was positive, some hospitals introduced preventive measures and definition of CAUTI and some even started to register CAUTI.

These meetings were effective in spreading knowledge of CAUTI (also much needed), at the same time they proved not as effective in teaching the improvement model.

After the meetings were held a first implementation pilot started in a number of hospitals in all three participating countries during 2018-2019. A few wards had some good results in this first pilot phase, but it proved hard to mediate the theories and working methods correctly all the way to the hospital staff, more support from the project lead team was needed. It was therefore decided that the project would focus more on teaching the Process of Improvement and the Breakthrough Series model in particular. A stricter adherence to the working methods developed by IHI was planned.

### **Learning Sessions**

The plan was to have three two-day Learning Sessions. Learning Sessions are face-to-face meetings bringing together participating hospital teams and project teams to exchange ideas in person.

The third Learning Session would also include development of a spread strategy.

### **Teams**

Hospital teams formed a “travel team” (recommend 2 key members).

A much larger “home team” was formed to help guide the work and execute the tests of change.

### **Action Periods**

Between Learning Sessions, participating hospitals would engage in Action Periods

Actions Periods included the following supports:

- Monthly Reporting System: PHAS developed a monthly reporting system to collect and review progress on implementation tasks from each hospital. The Project lead team will review each report monthly to provide feedback to teams. An example of a monthly report sent by a ward in Kharkiv, Ukraine can be found in Appendix A.

Due to the covid-19 pandemic all work came to a halt in February 2020, but early results from the hospitals and wards pointed in the right direction at the time. One example is Sfanta Treime (Holy Trinity) Hospital in Chisinau, Moldova, who registered an increase in CAUTI cases, from 7 cases in 2017 to 23 cases in 2018. An increase is in this case good news since it shows a rise in awareness and improved reporting procedures.

## Using the BTS model - experiences and results

The project participants were asked to share their experience of working in the project through follow-up questionnaires and at workshops. The overall experiences of using the BTS model for structured improvement work are mainly positive, reported as useful, effective and contributing to an increased interest in quality improvement work. Nevertheless, some cultural aspects are reported to complicate the work, there is e.g. often a strict hierarchy in the workplaces that makes the bottom-up principle more demanding. Another challenge is to convince the hospital staff that the reason for identifying problem areas is to find measures for improvement and not to punish.

### Facilitators and barriers

Examples of facilitating factors for using the BTS are; management support, teamwork, professional competency and continued training.

However also barriers are reported; frequent change or lack of nurses, lack of resources, complicated procurement procedures, resistance of medical staff to change and cultural aspects. Some participants reported the model as time consuming. Some details and nuances of BTS model appears as not entirely easy to grasp, the PDSA cycle in particular.

### Sustainability - the implementation model and future national work

The dissemination plan was supposed to be developed during Learning Session 3 which was cancelled due to the pandemic

However, dissemination has been discussed at several occasions. Here are some quotes from a workshop exercise on “What factors that are important to achieve sustainability?” that we did with hospital staff in Ukraine in 2019:

- The interest and understanding of the Head of the Hospital (Hospital Management) in the need for a new approach for the prevention of CAUTI;
- Sustainable financing;
- Staff training supported by the hospital and keeping them in the workplace;
- Constant audit of medical staff skills: the control of theoretical knowledge and the implementation of practical skills;
- Increase staff motivation (material / non-material - competition between wards, the best nurse of the month, special badges for the best health workers);
- Overcoming the “human” factor by working in a team, conducting team trainings, changing the format of communication between team members. Clear identification of areas of responsibilities of medical staff;

# Appendix 1



Collaborative Assessment Scale

## Assessment Scale for Collaboratives

This scale gives information on how to assess a team's progress throughout a Collaborative Improvement Project.

**This tool contains:**

- ☒ Collaborative Assessment Scale

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The yellow marking in 3.5 is the team's assessment of their progress.



## Assessment Scale for Collaboratives

<b>Assessment/Description</b>	<b>Definition</b>
1.0 Forming team	Team has been formed; target population identified; aim determined and baseline measurement begun.
1.5 Planning for the project has begun	Team is meeting, discussion is occurring. Plans for the project have been made.
2.0 Activity, but no changes	Team actively engaged in development, research, discussion but no changes have been tested.
2.5 Changes tested, but no improvement	Components of the model being tested but no improvement in measures. Data on key measures are reported.
3.0 Modest improvement	Initial test cycles have been completed and implementation begun for several components. Evidence of moderate improvement in process measures.
3.5 Improvement	Some improvement in outcome measures, process measures continuing to improve, PDSA test cycles on all components of the Change Package, changes implemented for many components of the Change Package.
4.0 Significant improvement	Most components of the Change Package are implemented for the population of focus. Evidence of sustained improvement in outcome measures, halfway toward accomplishing all of the goals. Plans for spread the improvement are in place.
4.5 Sustainable improvement	Sustained improvement in most outcomes measures, 75% of goals achieved, spread to a larger population has begun.
5.0 Outstanding sustainable results	All components of the Change Package implemented, all goals of the aim have been accomplished, outcome measures at national benchmark levels, and spread to another facility is underway.

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## Monthly Report

Date: 29.01.2020

Hospital, ward: Regional Children's Clinical Hospital №1, Anesthesiology and Intensive Care Ward

Regional Children's Clinical Hospital №1, Ward of anesthesiology and intensive care of newborns

Name of reporter: Khalturina Tetyana

### Aim(s):

prevention of CAUTI

### Changes:

- a lot of staff involved;
- a training plan has been developed with a higher than usual frequency of classes

### Breakthroughs:

- marking the bed of patient with catheter;
- improved documentation of the handling of the urinary catheter;

### Barriers:

- lack of special holders for urine collection bags in Ukraine.

### Learning from tests of change:

necessary

- to conduct training of staff directly at the patient's bedside;
- unplanned testing of staff.

**Next Steps:**

- continue the “undertakings”
- feedback from staff;
- preparation for a seminar with all medical staff of the hospital on the topic “What is CAUTI. Preventive measures ”;
- checking hand hygiene of staff out of plan;
- analysis of the collected data.

**Data:**

Any other questions for the project leaders:

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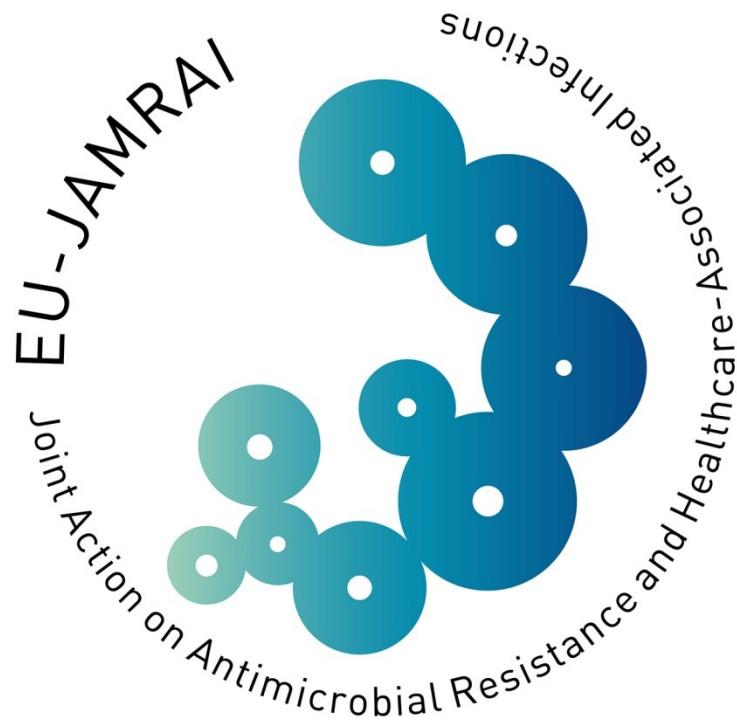
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