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Implementation of hospital antimicrobial stewardship in Europe using a data-driven behaviour change approach: insights from the drive-AMS EU project

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BACKGROUND & OBJECTIVES

Effective antimicrobial stewardship (AMS) requires a contextualised approach built on data-driven behaviour change interventions. The drive-AMS EU project (2022-2025) integrates two existing initiatives: the **Dutch AMS masterclass and expert consultancy programme** (Radboudumc), and the **Global Point Prevalence Survey** (Global-PPS; University of Antwerp). Using a cascaded **training-of-trainers (ToT) programme**, this project combines measurement, behaviour change training and implementation support to improve AMS capacity across four European countries.

METHODS

Multidisciplinary AMS teams participated in a **pre-course Global-PPS** to assess baseline antimicrobial prescribing patterns in their institutions. Using these data, participants developed **improvement projects** in a **face-to-face course** on AMS quality improvement and behaviour change. Post-course implementation support was provided through the **SPICE registry** of professionals with specific expertise. A ToT approach was used to scale up the drive-AMS course by training experts from leading hospitals, who then tailored and delivered the course locally in **Greece, Lithuania, Portugal, and Romania**. We report course metrics, course evaluation results, implementation project topics, implementation progress, and broader areas of impact from the ToT and the first wave of local courses.

RESULTS

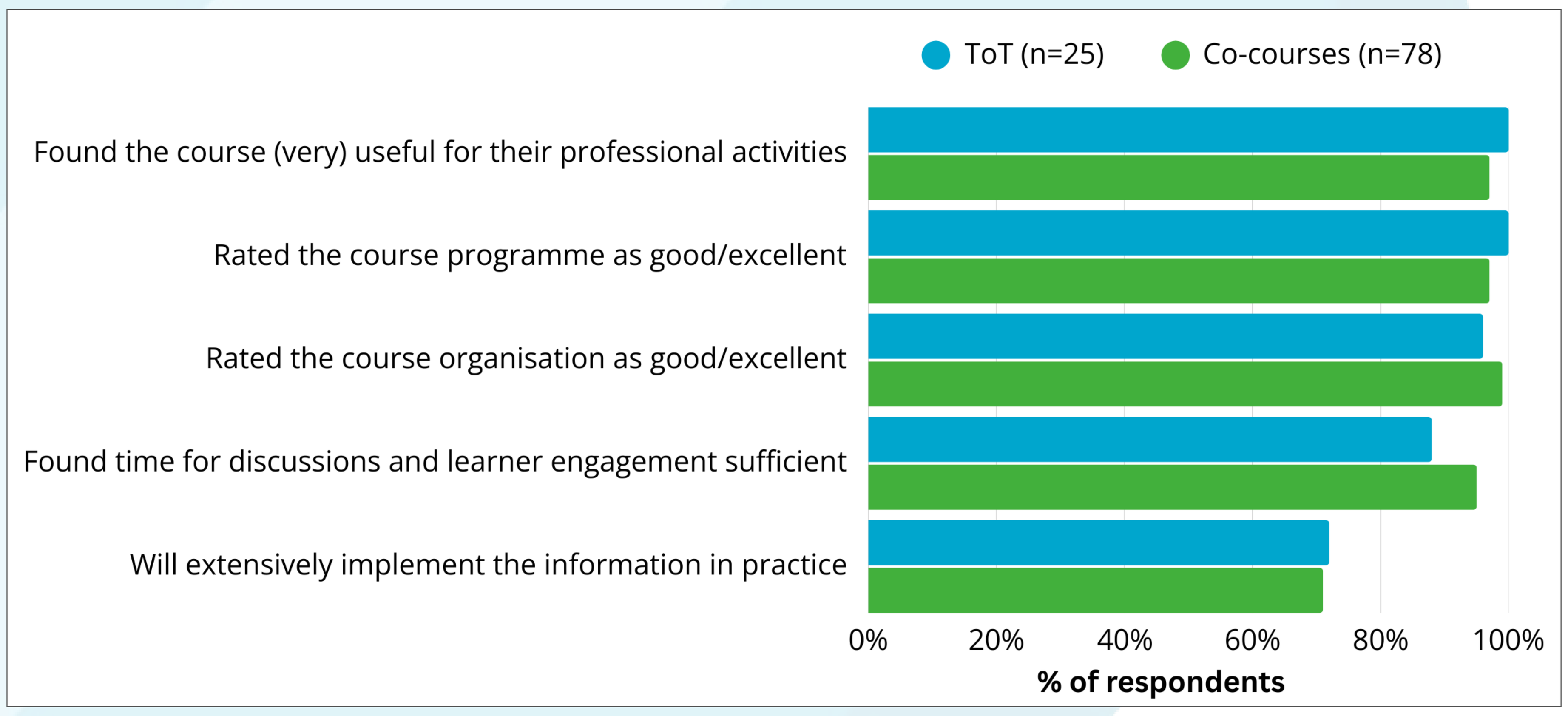
Course participation and evaluation

Thirty-four future trainers, representing 12 hospitals, attended the ToT course, and 177 participants (38 hospitals) participated in the first wave of local courses (table 1). A total of 40 pre-course Global-PPSs were conducted. Of 211 participants, 103 (48.8%) completed the course evaluation, with average course scores between 9.3 and 9.9 out of 10 (figure 1). Participants valued the **stepwise, hands-on course structure**, the **multidisciplinary approach**, and **level of interaction**. The **behaviour change aspects** were considered the most innovative yet most challenging.

Table 1. drive-AMS EU participation during the first two years (2023-2024)

	2023	2024			
Drive-AMS course participation	**ToT course**	**Co-course Greece**	**Co-course Lithuania**	**Co-course Portugal**	**Co-courses Romania**
Participants	34	39	40	40	58
Hospitals represented	12	8	6	8	16
Implementation projects	12	9	6	11	16
Global-PPS participation*	**ToT course**	**Co-course Greece**	**Co-course Lithuania**	**Co-course Portugal**	**Co-courses Romania**
Hospitals with pre-course Global-PPS	9/12	7/8	6/6	8/8	15/16
Hospitals with at least one post-course Global-PPS	9/12	2/8	1/6	4/8	2 /16
Hospitals with multiple post-course Global-PPSs	4/12	0/8	0/6	3/8	0/16

Figure 1. Participant feedback on the drive AMS training of trainers (ToT) and co-courses



Post-course implementation

Table 2. Examples of implementation project topics

Antimicrobial prescribing guidelines
- Reducing carbapenem use for community-acquired pneumonia
- Reducing antifungal prophylaxis in haemato-oncology patients
- Reducing antibiotic use for asymptomatic bacteriuria

Documentation
- Improving documentation of indication for antibiotics
- Improving documentation of antibiotic stop/review date

Duration and de-escalation
- De-escalation after urine culture results in urinary tract infections
- Reducing duration of surgical prophylaxis
- IV-PO switch in patients with community-acquired pneumonia

Microbiology
- Increasing collection of blood samples before starting antibiotics in suspected sepsis patients
- Increasing sputum sample collection in lower respiratory tract infections

All AMS teams developed improvement projects during the course to be implemented at their institutions (Table 2). At the end of the second project year, 36 hospitals (83.7%) completed a post-course implementation questionnaire.

Progress of implementation projects at the end of year 2 (n=36)
- 31 hospitals **clearly defined** their projects
- 24 hospitals **started implementing** their projects
- 8 hospitals conducted a **post-intervention measurement**
- 4 hospitals reported **improvements** in antimicrobial prescribing
- 5 started developing a **follow-up project**

Beyond hospital AMS programmes:
- **Policy level**: selected as part of Sustainable Health Pact 2024-2030 in Portugal
- **Education**: 2 postgraduate courses
- **Professional development**: 2 PhD's started
- **Scientific communication**: 12+ lectures, webinars at local conferences & symposia
- **Public engagement**: 2 WAAW campaigns

"It has been time-consuming, labour-intensive, but very rewarding and has had strong support from managers and great reception from clinicians."

"We hope that the results of the next PPS will depict our progress."

"We are observing small and slow changes for the better after the training sessions and the dissemination of information internally."

CONCLUSION

The drive-AMS EU project has established national hubs for AMS education and implementation in four European countries. Participants valued the course for its practical, interactive, and multidisciplinary approach, which enabled the development and implementation of improvement projects. Future efforts will aim to evaluate the sustainability of AMS implementation and overall programme impact, inform future courses, and create a model adaptable to other EU countries and different contexts.

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Scan for more info on drive-AMS