Transatlantic Taskforce on Antimicrobial Resistance (TATFAR)

Summary the modified Delphi process for common structure and process indicators for hospital antimicrobial stewardship programs

Authors: Lori A. Pollack, Diamantis Plachouras, Heidi Gruhler, Ronda Sinkowitz-Cochran
Senior Advisors: Dominique L. Monnet, J. Todd Weber

June 12, 2015

Executive Summary

The Transatlantic Task Force on Antimicrobial Resistance (TATFAR) fosters cooperation between the European Union (EU) and the United States (US) on the issue of antimicrobial resistance. The first TATFAR recommendation refers to appropriate use of antimicrobials in human medicine through hospital Antimicrobial Stewardship Programs (ASPs) and, specifically, to the development of common structure and process indicators of ASP. These indicators should allow characterization of programs and comparisons among healthcare systems in EU and US.

To this end, a multidisciplinary expert panel, coordinated by the European Centre for Disease Prevention and Control (ECDC) and US Centers for Disease Control and Prevention (CDC), was formed. The group consisted of 20 experts including representation of nine EU member states and six US states. The expert panel participated in a structured consensus process (modified Delphi method) to facilitate the international collaboration and ensure the equal involvement of all experts. The process was conducted between March and May 2014 and was concluded by a group consensus meeting in June 2014. An initial list of indicators was developed based on previous indicators, available guidance and a review of the literature, including published systematic reviews. The domains assessed were: Governance and Management; Human Resources; Laboratory; Information Technology; Education; Policies for Appropriate Use; Guidelines, Activities and Interventions; and Monitoring of Appropriate Use. The indicators were rated for feasibility, clinical importance and relevance to minimizing antimicrobial resistance. Three rounds of rating followed by the in-person meeting led to a final set of 33 indicators. Among them 17 indicators were considered essential to characterize an ASP and therefore were included in a core set of indicators. The remaining 16 indicators were considered optional indicators and included in a supplemental set.

Implementation of the TATFAR-developed core indicators in multiple nations would contribute to a comprehensive, comparative description of infrastructure, policies, and practices of ASPs internationally. These findings could, in turn, lead to an understanding of best practices of ASPs through further investigation into the relation of different ASP approaches to antimicrobial use and resistance. Current public health surveillance systems or special studies may also be candidates for the addition of ASP questions to baseline surveys. Furthermore these indicators are envisaged as drivers for improvement and alignment of best practices. Piloting, implementation and evaluation of the impact of the indicators constitute important next steps for the optimization of antimicrobial use.

Expert Panel

Names	Institutional Affiliations	Country
Anastasia Antoniadou	University Hospital Attikon	Athens , Greece
Bojana Beovic	University Medical Centre	Ljubljana , Slovenia
Franky Buyle	Ghent University Hospital	Ghent, Belgium
Sara Cosgrove	Johns Hopkins Medical Institutions	Baltimore (MD), USA
Peter Davey	Medical Research Institute	Dundee, UK
Elizabeth S. Dodds Ashley	University of Rochester Medical Center	Rochester (NY), USA
Catherine Dumartin	Bordeaux University Hospital	Bordeaux, France
Alison Holmes	Department of Medicine, Imperial College London	London, UK
Winfried Kern	University of Freiburg Medical Centre	Freiburg, Germany
Maria Luisa Moro	Regional Agency for Health and Social Care of Emilia-Romagna	Bologna, Italy
Dilip Nathwani	Department of Medicine, University of Dundee	Dundee, UK
Jeanne Negley	Georgia Department of Public Health	Atlanta (GA), USA
Melinda Neuhauser	VHA Pharmacy Benefits Management Services	Hines (IL), USA
Christopher A. Ohl	Wake Forest University School of Medicine	Winston-Salem (NC), USA
Diamantis Plachouras	European Centre for Disease Prevention and Control (ECDC)	Stockholm, Sweden
Lori A. Pollack	Centers for Disease Control and Prevention (CDC)	Atlanta (GA), USA
Jeroen Schouten	Senior Researcher, Scientific Institute for Quality of Healthcare	Nijmegen, Netherlands
Ed Septimus	HCA Healthcare System	Houston (TX), USA
Marc Struelens	European Centre for Disease Prevention and Control (ECDC)	Stockholm, Sweden
Agnes Wechsler- Fördös	Department of Antibiotic and Infection Control	Wien, Austria

Coordinators

Diamantis Plachouras
Expert in Antimicrobial Resistance and Healthcare Associated Infections
Surveillance and Response Support Unit
European Centre for Disease Prevention and Control (ECDC)
Tomtebodavägen 11A, Solna, Sweden
SE-171 83 Stockholm, Sweden
diamantis.plachouras@ecdc.europa.eu

Lori A. (Loria) Pollack
Medical Officer, US Public Health Service
Centers for Disease Control and Prevention
Division of Healthcare Quality Promotion
National Center for Emerging and Zoonotic Infectious Diseases
Atlanta, GA.
USA
lpollack@cdc.gov

Senior Advisors

Dominique L. Monnet
Head, Antimicrobial Resistance and Healthcare-associated Infections (ARHAI) Programme
European Centre for Disease Prevention and Control (ECDC)
Tomtebodavägen 11A, Solna, Sweden
SE-171 83 Stockholm, Sweden
dominiquel.monnet@ecdc.europa.eu

J. Todd Weber
Chief, Prevention and Response Branch
Centers for Disease Control and Prevention
Division of Healthcare Quality Promotion
National Center for Emerging and Zoonotic Infectious Diseases
Atlanta, GA. USA
jweber@cdc.gov

Final Set of Core and Supplemental Indicators for Hospital Antimicrobial Stewardship Programs

CORE INDICATORS for hospital antimicrobial stewardship programs		
Infrastructure	C1	Does your facility have a formal **antimicrobial stewardship program** accountable for ensuring appropriate antimicrobial use?
	C2	Does your facility have a **formal organizational structure** responsible for antimicrobial stewardship (e.g., a multidisciplinary committee focused on appropriate antimicrobial use, pharmacy committee, patient safety committee or other relevant structure)?
	C3	Is an antimicrobial stewardship **team** available at your facility (e.g., greater than one staff member supporting clinical decisions to ensure appropriate antimicrobial use)?
	C4	Is there a physician identified as a **leader** for antimicrobial stewardship activities at your facility?
	C5	Is there a **pharmacist** responsible for ensuring appropriate antimicrobial use at your facility?
	C6	Does your facility provide any **salary support** for dedicated time for antimicrobial stewardship activities (e.g., percentage of full-time equivalent (FTE) for ensuring appropriate antimicrobial use)?
	C7	Does your facility have the **IT capability** to support the needs of the antimicrobial stewardship activities?
Policy and Practice	C8	Does your facility have **facility-specific treatment recommendations** based on local antimicrobial susceptibility to assist with antimicrobial selection for common clinical conditions?
	C9	Does your facility have a written policy that requires prescribers to **document an indication** in the medical record or during order entry for all antimicrobial prescriptions?
	C10	Is it routine practice for specified antimicrobial agents to be approved by a physician or pharmacist in your facility (e.g., **pre-authorization**)?
	C11	Is there a formal procedure for a physician, pharmacist, or other staff member to review the appropriateness of an antimicrobial at or after 48 hours from the initial order (**post-prescription review**)?
Monitoring and Feedback	C12	Has your facility produced a **cumulative antimicrobial susceptibility report** in the past year?
	C13	Does your facility **monitor if the indication** is captured in the medical record for all antimicrobial prescriptions?
	C14	Does your facility audit or **review surgical antimicrobial prophylaxis** choice and duration?
	C15	Are results of antimicrobial audits or reviews **communicated directly** with prescribers?
	C16	Does your facility **monitor antimicrobial use** by grams [Defined Daily Dose (DDD)] or counts [Days of Therapy (DOT)] of antimicrobial(s) by patients per days?
	C17	Has an **annual report** focused on antimicrobial stewardship (summary antimicrobial use and/or practices improvement initiatives) been produced for your facility in the past year?

C = Core Indicator

SUPPLEMENTAL INDICATORS for hospital antimicrobial stewardship programs		
Infrastructure	**NA**	**S1.** Does your facility have a named **senior executive officer with accountability** for antimicrobial leadership?
	C3	Is an antimicrobial stewardship team available at your facility (e.g., greater than one staff member supporting clinical decisions to ensure appropriate antimicrobial use)? **S2.** If YES, Is an **infection preventionist or hospital epidemiologist** involved in stewardship activities? **S3.** If YES, Is a **microbiologist (laboratory staff)** involved in stewardship activities? **S4.** Is clinical **infectious disease (ID) consultation** available at your facility?
	C4	Is there a physician identified as a leader for antimicrobial stewardship activities at your facility? **S5.** If YES, are stewardship **duties included in the job description** and/or annual review? **S6.** If YES, has this **physician had specialized training** in infectious diseases, clinical microbiology and/or antimicrobial stewardship?
	C5	Is there a pharmacist responsible for ensuring antimicrobial use at your facility? **S7.** If YES, has this **pharmacist had specialized training** in infectious disease management or stewardship?
Policy and Practice	**C9**	Does your facility have facility-specific treatment recommendations based on local antimicrobial susceptibility to assist with antimicrobial selection for common clinical conditions: **S8**. If YES, for **surgical prophylaxis**? **S9.** If YES, for **community-acquired pneumonia**? **S10.** If YES, for **urinary tract infection**? **S11.** If YES to any of the clinical conditions above, are these **treatment recommendations easily accessible** to prescribers on all wards (printed 'pocket guide' or electronic summaries at workstations)?
	C11, C12	Are any of the following actions implemented in your facility to improve antimicrobial prescribing? **S12.** Standardized criteria for changing from **intravenous to oral** antimicrobial therapy in appropriate situations? **S13.** **Dose optimization** (pharmacokinetics/pharmacodynamics) to optimize the treatment of organisms with reduced susceptibility? **S14**. Discontinuation of specified antimicrobial prescriptions after a **pre-defined duration**?
Monitoring	**NA**	**S15**. Does your facility measure the **percentage of antimicrobial prescriptions that are consistent with the local treatment recommendations** for either UTI or CAP?
	C15	Does your facility audit or review surgical antimicrobial prophylaxis choice and duration? **S16.** If YES, are antimicrobial prescriptions for **surgical prophylaxis compliant with facility-specific guidelines** in >80% of sampled cases in your facility?

C = Core Indicator

S = Supplemental Indicator

NA = Not applicable to a specific Core Indicator