



## Work Package 7

### List of revised guidelines, tools and implementation methods for antibiotic stewardship

#### LEVEL OF CARE

#### Community/Primary care

### Antibiotic Stewardship Programmes (ASPs)

#### Antimicrobial Stewardship in Australian Health Care

<i>Publishing year</i>	2018
<i>Author(s)</i>	Australian Commission on Safety and Quality in Health Care
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	Australia
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Book on antimicrobial stewardship in Australian health care with a summary of the current evidence on antimicrobial stewardship, strategies for implementing and sustaining antimicrobial stewardship programmes, and a description of the roles of different clinicians.

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#### Antimicrobial stewardship: From principles to practice

<i>Publishing year</i>	2018
<i>Author(s)</i>	British Society for Antimicrobial Chemotherapy
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Practical e-book on global antimicrobial stewardship with (among other chapters) key steps in the development of antimicrobial stewardship programmes, a toolkit and practical recommendations and examples for different settings.

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## EU Guidelines for the prudent use of antimicrobials in human health

<i>Publishing year</i>	2017
<i>Author(s)</i>	European Commission
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Non-binding guidelines to promote the prudent use of antimicrobials in humans. It includes measures, good clinical practice, activities, resources, systems and processes targeting to all actors involved in the use of antimicrobials.

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## Building a national Infection Intelligence Platform to improve antimicrobial stewardship and drive better patient outcomes: the Scottish experience. (J Antimicrob Chemother)

<i>Publishing year</i>	2017
<i>Author(s)</i>	Bennie et al.
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	Scotland
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	A summary of the experience with and the capabilities of a new national platform for infection-related health data (NHS Scotland Infection Intelligence Platform - IIP) to improve antimicrobial stewardship and drive better patient outcomes.

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## Guidelines on Implementation of the Antimicrobial Strategy in South Africa: One Health Approach & Governance

<i>Publishing year</i>	2017
<i>Author(s)</i>	Department of Health, South Africa
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	South-Africa
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	From source: These guidelines are intended to act as a blueprint for the steps to be taken by South African healthcare and veterinary workforce to enact AMS at national, provincial, district and health establishment levels as appropriate, in line with the Strategic Framework and Implementation Plan. It aims to provide a practical, step-by-step or 'how to' guide, addressing the governance framework at each level of the health system.

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### Antimicrobial stewardship overview. NICE Pathways

<i>Publishing year</i>	2017
<i>Author(s)</i>	National Institute for Health and Care Excellence (NICE)
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Interactive topic-based flowcharts that allow navigating NICE recommendations on Antimicrobial stewardship.

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### Antibiotic Stewardship Implementation Framework for Health Departments

<i>Publishing year</i>	2017
<i>Author(s)</i>	Centers for Disease Control and prevention
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	This framework describes what activities state and local health departments can do to implement antibiotic stewardship: 1) Establish leadership in health departments, 2) Conduct surveillance, 3) Coordinate activities, 4) Provide and develop education and tools, 5) Develop a communications plan, 6) Inform the legislative process.

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### Acceptability of antibiotic stewardship measures in primary care.

<i>Publishing year</i>	2016
<i>Author(s)</i>	Giry M, Pulcini C, Rabaud C, Boivin JM, Mauffrey V, Birgé J.
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	France
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	The aim was to assess the acceptability of antibiotic stewardship measures by family physicians. An online cross-sectional survey was conducted in 2015 with a sample of family physicians practicing in a specific French region.

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### Antimicrobial stewardship: Quality Standard

<i>Publishing year</i>	2016
<i>Author(s)</i>	The National Institute for Health and Care Excellence (NICE)
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	From source: This quality standard covers the effective use of antimicrobials to reduce the emergence of AMR (loss of effectiveness of antimicrobials). It covers all settings, all formulations of antimicrobials (oral, parenteral and topical agents) and is for health and social care practitioners, organisations that commission, who provide or support the provision of care, as well as people using antimicrobials and their carers.

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### Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use. Recommendations

<i>Publishing year</i>	2016
<i>Author(s)</i>	National Institute for Health and Care Excellence (NICE)
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Recommendations for organisations (commissioners and providers): Antimicrobial stewardship programmes

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### Antimicrobial stewardship: tools and resources

<i>Publishing year</i>	2016
<i>Author(s)</i>	National Institute for Health and Care Excellence (NICE)
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Tools to help you put the guidance into practice: Implementation advice; Tailored service improvement support; Guidance into practice - practical steps

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## The Core Elements of Outpatient Antibiotic Stewardship

<i>Publishing year</i>	2016
<i>Author(s)</i>	Centers for Disease Control and prevention
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	USA
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	Summary on the core elements of successful outpatient antibiotic stewardship programs, taking into account commitment, action for policy and practice, tracking and reporting, and education and expertise.

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## The Core Elements of Outpatient Antibiotic Stewardship - Facility Checklist

<i>Publishing year</i>	2016
<i>Author(s)</i>	Centers for Disease Control and prevention
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	USA
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	This checklist is a baseline to be used for assessing policies and practices that are in place for antibiotic stewardship in outpatient settings at the facility level. The checklist can then be used to review progress in expanding stewardship activities on a regular basis.

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## The Core Elements of Outpatient Antibiotic Stewardship - Clinician Checklist

<i>Publishing year</i>	2016
<i>Author(s)</i>	Centers for Disease Control and prevention
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	USA
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	This checklist is a baseline to be used for assessing policies and practices that are in place for ASP in outpatient settings at the clinical level. Then use the checklist to review progress in expanding stewardship activities on a regular basis.

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## Protocol on Antimicrobial Stewardship Program in Healthcare Facilities

<i>Publishing year</i>	2014
<i>Author(s)</i>	Ministry of Health Malaysia
<i>Type of document</i>	Antibiotic Stewardship Programme (ASP)
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Malaysia
<i>Setting(s)</i>	Hospital care Community/primary care

*Short summary* This protocol serves as a practical guide for all health care professionals in delivering an appropriate antimicrobial management through a systematic approach. Describes the structure, function and activities of an antimicrobial stewardship program.

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### **Antimicrobial stewardship: English Surveillance Programme for Antimicrobial Utilization and Resistance (ESPAUR).**

*Publishing year* 2013  
*Author(s)* Ashiru-Oredope D1, Hopkins S; English Surveillance Programme for Antimicrobial Utilization and Resistance Oversight Group.

*Type of document* Antibiotic Stewardship Programme (ASP)

*Scope/aim* Nation-wide

*Country/region* United Kingdom

*Setting(s)* Hospital care  
Community/primary care

*Short summary* The programme will bring together the elements of antimicrobial utilization and resistance surveillance in both primary and secondary care settings, alongside the development of quality measures and methods to monitor unintended outcomes of antimicrobial stewardship and both public and professional behaviour interventions. This article reports on the background to the programme development, the current oversight group membership and the public reporting structure.

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### **Improving the quality of antibiotic prescribing in the NHS by developing a new Antimicrobial Stewardship Programme: Start Smart—Then Focus (J Antimicrob Chemother)**

*Publishing year* 2012

*Author(s)* Ashiru-Oredope et al.

*Type of document* Antibiotic Stewardship Programme (ASP)

*Scope/aim* Nation-wide

*Country/region* United Kingdom

*Setting(s)* Hospital care  
Community/primary care

*Short summary* Description of the current activities in England to support antimicrobial stewardship, national audits and the introduction of new national antimicrobial stewardship programmes in primary and secondary care (Start Smart - Then Focus).

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### **Achievements of the Belgian Antibiotic Policy Coordination Committee (BAPCOC)**

*Publishing year* 2008

*Author(s)* Goossens H, Coenen S, Costers M, De Corte S, De Sutter A, Gordts B, Laurier L, Struelens M J

*Type of document* Antibiotic Stewardship Programme (ASP)

*Scope/aim* Locally developed

*Country/region* Belgium

*Setting(s)* Hospital care  
Community/primary care

*Short summary* Achievements of BAPCOP until 2008: objectives, activities, and campaigns

## Commentaries, Statements and Opinions

### Antimicrobial stewardship and infection prevention—leveraging the synergy: A position paper update (American Journal of Infection Control)

<i>Publishing year</i>	2018
<i>Author(s)</i>	Manning et al.
<i>Type of document</i>	Commentary/Statement/Opinion
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Update of the position paper of APIC (The Association for Professionals in Infection Control and Epidemiology)/SHEA (The Society for Healthcare Epidemiology of America) (Moody et al. 2012, ID43) on the importance of antimicrobial stewardship. The critical role of infection preventionists and health care epidemiologists is reaffirmed and the synergistic strategy of infection prevention and control and antimicrobial stewardship programmes is highlighted.

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### Metrics of Antimicrobial Stewardship Programs

<i>Publishing year</i>	2018
<i>Author(s)</i>	Brotherton AL.
<i>Type of document</i>	Commentary/Statement/Opinion
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	This article reviews the various antimicrobial stewardship metrics that have been described in the literature, evidence to support these metrics, controversies surrounding metrics, and areas in which future research is necessary.

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### The pharmacy contribution to antimicrobial stewardship

<i>Publishing year</i>	2017
<i>Author(s)</i>	Royal Pharmaceutical Society, UK
<i>Type of document</i>	Commentary/Statement/Opinion
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care

*Short summary* Long-term facility care  
This policy focuses on the pharmacist's role as part of a multidisciplinary approach in tackling the challenges of inappropriate use of antibiotics.

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### **Guidance for the Knowledge and Skills Required for Antimicrobial Stewardship Leaders (Infection control and hospital epidemiology)**

*Publishing year* 2014  
*Author(s)* Cosgrove et al. (The Society for Healthcare Epidemiology of America)  
*Type of document* Commentary/Statement/Opinion  
*Scope/aim* International relevance  
*Country/region* USA  
*Setting(s)* Hospital care  
Community/primary care  
Long-term facility care  
*Short summary* Overview of the core knowledge and skills that are needed to lead and maintain an antimicrobial stewardship program.

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### **Public Health England Antibiotic prescribing and stewardship competencies**

*Publishing year* 2013  
*Author(s)* Department of Health, Expert Committee on Antimicrobial Resistance and Healthcare Associated Infections (ARHAI) and Public Health England through an independent multi-professional development group.  
*Type of document* Commentary/Statement/Opinion  
*Scope/aim* Nation-wide  
*Country/region* United Kingdom  
*Setting(s)* Hospital care  
Community/primary care  
*Short summary* Antimicrobial stewardship competencies were designed to complement the National Institute for Health and Care Excellence (NICE) National Prescribing Centre's (NPC) generic competency framework for all prescribers. Competencies are described as a "combination of knowledge, skills, motives and personal traits", development of which should help individuals to continually improve their performance and to work more effectively. The NPC competency framework provides an outline framework of "generic prescribing competencies that, if acquired and maintained, can help prescribers to continually develop their prescribing practice". It is intended for any independent prescriber, doctor, dentist or non-medical. The vision is to provide a "starting point for discussion of competencies required by an individual, or groups of, prescribers at all levels of practice, from new (or training) prescribers, through to those practicing at a specialist level." There is also an emphasis on multidisciplinary expertise. These five competencies complement the NPC document and each has an overarching statement that describes the activity or outcome that prescribers should be able to demonstrate.

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### **Policy Statement on Antimicrobial Stewardship by the Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), and the Pediatric Infectious Diseases Society (PIDS). (Infect Control Hosp Epidemiol 2012)**

<i>Publishing year</i>	2012
<i>Author(s)</i>	SHEA/IDSA/PIDS
<i>Type of document</i>	Commentary/Statement/Opinion
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Policy paper on antimicrobial stewardship with recommendations for the mandatory implementation of antimicrobial stewardship throughout health care, process and outcome measures to monitor interventions, and attention for deficiencies in education and research.

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### **Antimicrobial stewardship: A collaborative partnership between infection preventionists and health care epidemiologists (American Journal of Infection Control)**

<i>Publishing year</i>	2012
<i>Author(s)</i>	Moody et al. (The Association for Professionals in Infection Control and Epidemiology/The Society for Healthcare Epidemiology of America)
<i>Type of document</i>	Commentary/Statement/Opinion
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Position paper from The Association for Professionals in Infection Control and Epidemiology (APIC) and the Society for Healthcare Epidemiology of America (SHEA) on the critical role of health care epidemiologists and infection preventionists in effective antimicrobial stewardship programs.

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## **Reports**

### **ARNA project: Antimicrobial resistance and causes of non-prudent use of antibiotics in human medicine in the EU.**

<i>Publishing year</i>	2017
<i>Author(s)</i>	John Paget et al. (European Commission)
<i>Type of document</i>	Report
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Final report of the ARNA ('Antimicrobial resistance and the causes of non-prudent use of antibiotics') project, funded by the European Commission, which aimed

to: 1) investigate the use of antibiotics without a prescription, 2) assess the level of enforcement of 'prescription-only' legislation, 3) document good practices for the prudent use of antibiotics, 4) develop policy options.

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### Global Framework for Development & Stewardship to Combat Antimicrobial Resistance

<i>Publishing year</i>	2017
<i>Author(s)</i>	WHO
<i>Type of document</i>	Report
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	International
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Description of the current state and the future tasks of WHO for the establishment of a global development and stewardship framework (background information to the 'Global Action Plan on Antimicrobial Resistance' of WHO).

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### Prudent use of antimicrobial agents in human medicine: third report on implementation of the Council recommendation

<i>Publishing year</i>	2016
<i>Author(s)</i>	European Commission
<i>Type of document</i>	Report
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Analysis of countries' reports on the implementation of the Council recommendation of 15 November 2001 (2002/77/EC) on the prudent use of antimicrobial agents in human medicine.

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### DRIVE-AB WP1A: Quality Indicators and Quantity Metrics of Antibiotic Use

<i>Publishing year</i>	2015
<i>Author(s)</i>	Driving reinvestment in research and development and responsible antibiotic use (DRIVE-AB)
<i>Type of document</i>	Report
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Overview of quality indicators and quantity metrics of antibiotic use, identified in the Drive-AB project (work package 1A)

### Global Action Plan on Antimicrobial Resistance

<i>Publishing year</i>	2015
<i>Author(s)</i>	WHO
<i>Type of document</i>	Report
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	International
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Sets out the key actions structured around 5 strategic objectives: 1) effective communication, education and training; 2) surveillance and research, 3) effective sanitation, hygiene and infection prevention measures; 4) optimize the use of antimicrobial medicines in human and animal health, 5) develop the economic case for sustainable investment and increase investment in new medicines, diagnostic tools etc.

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### Ensuring Prudent Use of Antimicrobials In Human Medicine In The European Union.

<i>Publishing year</i>	2005
<i>Author(s)</i>	Werner & Bronzwaer (Eurosurveillance)
<i>Type of document</i>	Report
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Report on the main actions in the EU Member States to implement the 'Council Recommendation on the prudent use of antibiotics in human medicine (2002)': national strategies and intersectoral mechanism, surveillance systems for antimicrobial resistance and use, control and preventive measures, education/training and commission support for EU action.

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## Researches

### The Current State of Antimicrobial Stewardship: Challenges, Successes, and Future Directions (Current Infectious Disease Reports)

<i>Publishing year</i>	2018
<i>Author(s)</i>	Emberger et al.
<i>Type of document</i>	Research
<i>Scope/aim</i>	Nation-wide

<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Review on the current state (2018, USA) of the field of antimicrobial stewardship with key challenges, successes and future directions.

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### **What is antimicrobial stewardship? (Clinical Microbiology and Infection)**

<i>Publishing year</i>	2017
<i>Author(s)</i>	Dyar et al. (ESCMID Study Group for Antimicrobial stewardship)
<i>Type of document</i>	Research
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Review on the emergence and evolution of the term ‘antimicrobial stewardship’.

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### **ESGAP inventory of target indicators assessing antibiotic prescriptions: a cross-sectional survey. (J Antimicrob Chemother)**

<i>Publishing year</i>	2017
<i>Author(s)</i>	Howard et al. (ESCMID Study Group for Antimicrobial stewardship)
<i>Type of document</i>	Research
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Results of a European survey among all ESGAP (ESCMID Study Group for Antimicrobial stewardship) members, on indicators assessing antibiotic prescriptions at a national levels is presented, with both targets and incentives

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### **A global call from five countries to collaborate in antibiotic stewardship: united we succeed, divided we might fail (Lancet Infect Dis)**

<i>Publishing year</i>	2017
<i>Author(s)</i>	Goff et al.
<i>Type of document</i>	Research
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	International
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care

*Short summary* Review on different approaches for antibiotic stewardship in five countries: USA, South Africa, Colombia, Australia, and the UK.

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**Antibiotic stewardship in low- and middle-income countries: the same but different? (Clinical Microbiology and Infection)**

*Publishing year* 2017

*Author(s)* Cox et al.

*Type of document* Research

*Scope/aim* International relevance

*Country/region* International

*Setting(s)* Hospital care  
Community/primary care  
Long-term facility care

*Short summary* A literature review of antibiotic stewardship programs in low- and middle-income countries, highlighting challenges in LMICs. Examples of national programs are listed.

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**Managing responsible antimicrobial use: perspectives across the healthcare system (Clinical Microbiology and Infections)**

*Publishing year* 2017

*Author(s)* ESCMID Study Group for Antimicrobial stewardshiP (ESGAP) (Dyar et al.)

*Type of document* Research

*Scope/aim* International relevance

*Country/region* International

*Setting(s)* Hospital care  
Community/primary care  
Long-term facility care

*Short summary* To review real-world examples of how healthcare systems can promote responsible antimicrobial use, focusing on the role of governance and managers. Based on literature review, official documents (governments and agencies), and the experience that ESGAP has gained on the topic.

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**Optimising the quality of antibiotic prescribing in out-of-hours primary care in Belgium: a study protocol for an action research project**

*Publishing year* 2017

*Author(s)* A.Colliers, S. Coenen, H.Philips, R.Remmen, S.Anthierens

*Type of document* Research

*Scope/aim* Locally developed

*Country/region* Belgium

*Setting(s)* Community/primary care

*Short summary* Research project on optimising antibiotic prescription in out-of-hours primary care in Belgium.

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### Antimicrobial Stewardship for Neonates and Children: A Global Approach (Pediatric Infectious Disease Journal)

<i>Publishing year</i>	2015
<i>Author(s)</i>	Bielicki et al. (European Society for Paediatric Infectious Diseases)
<i>Type of document</i>	Research
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	Review on the basic principles and strategies of pediatric antimicrobial stewardship and application in different settings.

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### Antibiotic Stewardship Initiatives as Part of the UK 5-Year Antimicrobial Resistance Strategy (Antibiotics)

<i>Publishing year</i>	2015
<i>Author(s)</i>	Johnson et al.
<i>Type of document</i>	Research
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	In 2013, a five-year national strategy for tackling antimicrobial resistance was published in the UK. This article reviews a number of stewardship activities implemented in England in support of the five-year national strategy for controlling antibiotic resistance.

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### Antibiotic stewardship challenges in the management of community-acquired infections for prevention of escalating antibiotic resistance (Journal of Global Antimicrobial Resistance)

<i>Publishing year</i>	2014
<i>Author(s)</i>	Garau et al.
<i>Type of document</i>	Research
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	Europe
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	Review on antibiotic stewardship strategies and other preventative approaches that support the management of community-acquired infections.

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## Importance of antimicrobial stewardship to the English National Health Service.

<i>Publishing year</i>	2014
<i>Author(s)</i>	Dixon J, Duncan CJ.
<i>Type of document</i>	Research
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	Here we provide a concise summary to clarify the current position and importance of AMS within the NHS and review the evidence base for AMS recommendations.

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## Antimicrobial Stewardship Initiatives Throughout Europe: Proven Value for Money.

<i>Publishing year</i>	2017
<i>Author(s)</i>	Edwin J.M. Oberjé, Marit A.C. Tanke Patrick P.T. Jeurissen2,
<i>Type of document</i>	Research
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	Netherlands
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	The aim of this study is to highlight some of the success stories of proven cost-effective interventions, and to describe the actions that have been taken, the outcomes that have been found, and the difficulties that have been met. In some cases we came across substantial scope for real-life cost savings. Although the best approach to effectively hinder the spread of antimicrobial resistance remains unclear and may vary significantly among settings, several EU-wide examples demonstrate that cost-effective antimicrobial stewardship is possible. Such examples can encourage others to implement (the most cost-effective) elements in their system.

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## Inventory of antibiotic stewardship programs in general practice in France and abroad.

<i>Publishing year</i>	2015
<i>Author(s)</i>	Wang S, Pulcini C, Rabaud C, Boivin JM, Birgé J.
<i>Type of document</i>	Research
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	France
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	The authors conducted a survey of measures implemented in France and abroad for a better use of antibiotics in general practice. A literature review was conducted from January 2000 to July 2014. Emails were sent to every infectious diseases department, to all regional health authorities (ARS), to the health insurance offices (CPAM) with the highest and lowest antibiotic use, and to the ministry of health to make an inventory of all antibiotic stewardship programs. The ministry of health, the board of general practitioners, infectious diseases

specialists, pharmacists, and the medical and pharmacy schools of the nation's capital were contacted in 17 countries of Europe and North America.

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## Tools and educational resources

### Antimicrobial Stewardship: A competency-based approach

<i>Publishing year</i>	2018
<i>Author(s)</i>	WHO
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	International
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	From source: This course will equip clinicians who frequently prescribe antimicrobials with knowledge and tools to improve their use in daily clinical practice. Through case based examples, the course will highlight how antimicrobial stewardship principles can be applied to common clinical scenarios.

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### Antimicrobial Stewardship: Managing Antibiotic Resistance (online course)

<i>Publishing year</i>	2018
<i>Author(s)</i>	The British Society for Antimicrobial Chemotherapy (BSAC)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	Course aims to help participants understand antibiotic resistance, and how antimicrobial stewardship can slow down or reduce it. The course is free.

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### TARGET Antibiotic Toolkit (website)

<i>Publishing year</i>	2018
<i>Author(s)</i>	Royal College of General Practitioners (UK)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	A website with information and resources for antibiotics use in the primary care setting. Targeting mainly antibiotic prescribers but also their patients. Collectively, the TARGET

resources will support practices in planning, implementing and reviewing activity in delivering quality improvement programmes relating to antimicrobial stewardship

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### TARGET Antibiotic Training Modules

<i>Publishing year</i>	2018
<i>Author(s)</i>	Public Health England (PHE), the British Society for Antimicrobial Chemotherapy (BSAC)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	From source: Webinars describing actions to take to help improve antibiotic prescribing in the primary care setting.

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### CDC's Antibiotic Stewardship Training Series

<i>Publishing year</i>	2018
<i>Author(s)</i>	Centers for Disease Control and prevention
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	USA
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	From source: Interactive web-based course designed to help clinicians optimize antibiotic use to combat antibiotic resistance and improve healthcare quality and patient safety. Includes information about antibiotic resistance and threats and explanations of the benefits of antibiotic stewardship.

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### Antimicrobial Stewardship (AMS), Volume Two (book)

<i>Publishing year</i>	2017
<i>Author(s)</i>	ESCMID study group on antibiotic policies (ESGAP)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	International
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	A 'hands on', practical approach, tips to increase success, a description of the most common mistakes, a global picture (out- and inpatient settings, all countries) and a short list of 10-20 landmark references.

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## Antimicrobial stewardship: changing risk related behaviours in the general population

<i>Publishing year</i>	2017
<i>Author(s)</i>	National Institute for Health and Care Excellence (NICE)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Hospital care Community/primary care Long-term facility care
<i>Short summary</i>	This guideline covers making people aware of how to correctly use antimicrobial medicines (including antibiotics) and the dangers associated with their overuse and misuse. It aims to change people's behaviour to reduce antimicrobial resistance and the spread of resistant microbes. The website also has Tools and Evidence with resources.

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## NECS e-learning: antibiotic prescribing and antimicrobial stewardship in primary care

<i>Publishing year</i>	2016
<i>Author(s)</i>	National Institute for Health and Care Excellence (NICE)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	United Kingdom
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	Working across 11 Clinical Commissioning Groups (CCGs) in the North East and Cumbria, the North of England Commissioning Support (NECS) team developed an e-learning package to promote antimicrobial stewardship and prudent prescribing amongst primary care clinicians across the North East & Cumbria.

The package (Shared learning database) is designed to support local implementation of NICE CG69 (respiratory tract infections (self-limiting): prescribing antibiotics), especially the decision making process when considering whether or not to prescribe an antibiotic.

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## Boletín farmacoterapéutico: La ventana farmacoterapéutica: Uso prudente de antimicrobianos en atención primaria

<i>Publishing year</i>	2013
<i>Author(s)</i>	Unidad de Gestión Clínica de Farmacia de Atención Primaria de Sevilla (Andalucía)
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	Locally developed
<i>Country/region</i>	Spain
<i>Setting(s)</i>	Community/primary care
<i>Short summary</i>	Recommendations on the proper use of antimicrobials

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### Blog: PROAntibióticos

<i>Publishing year</i>	2012
<i>Author(s)</i>	H.U.La Paz (Madrid); H.C.U.de Zaragoza
<i>Type of document</i>	Tool and/or educational resource
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	Spain
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	Blog and/or forum with Information and tools for the correct use of antibiotics.

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## Other Publications

### Success stories of implementation of antimicrobial stewardship: a narrative review

<i>Publishing year</i>	2014
<i>Author(s)</i>	B.Huttnera, S.Harbartha, D.Nathwanibon behalf of the ESCMID Study Group for Antibiotic Policies (ESGAP)
<i>Type of document</i>	Other Publications
<i>Scope/aim</i>	International relevance
<i>Country/region</i>	International
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	The aim of this review is to highlight some of the success stories of AMS strategies and to describe the actions that have been taken, the obtained outcomes and the obstacles that have been met. Although the best approach to effective AMS remains elusive and may vary significantly among settings, these diverse examples from a range of healthcare contexts demonstrate that effective AMS is possible. Such examples will inform others and encourage them to formally evaluate and share their results with the global stewardship community.

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### Plan estratégico y de acción para reducir el riesgo de selección y diseminación de la resistencia a antibióticos

<i>Publishing year</i>	2014
<i>Author(s)</i>	Spanish Agency of medicines and health products (AEMPS)
<i>Type of document</i>	Other Publications
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	Spain
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	Strategic plan to reduce the risk of selection and dissemination of antibiotic resistance.

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## Action Plan of the National Antibiotic Program for the period 2011-2013

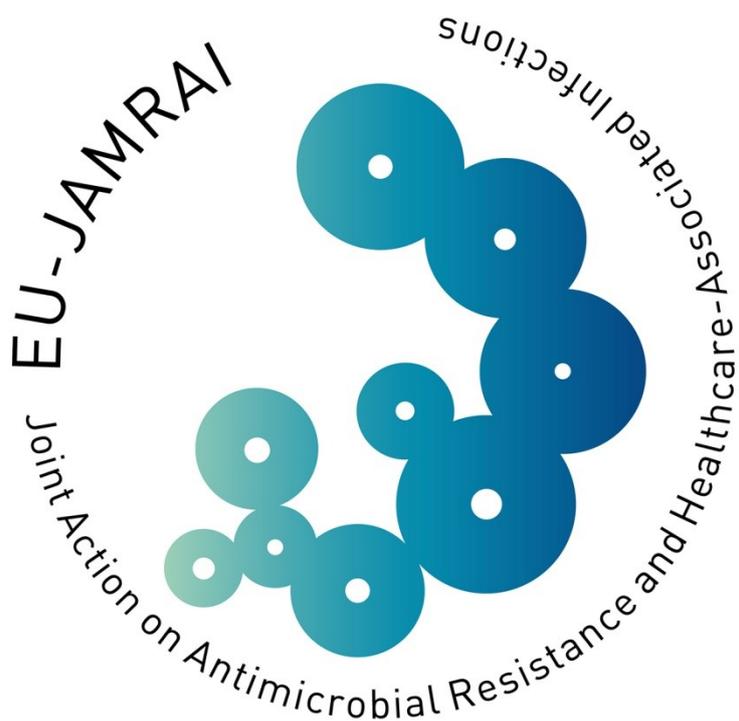
<i>Publishing year</i>	2011
<i>Author(s)</i>	Ministry of Health of the Czech Republic
<i>Type of document</i>	Other Publications
<i>Scope/aim</i>	Nation-wide
<i>Country/region</i>	Czech Republic
<i>Setting(s)</i>	Hospital care Community/primary care
<i>Short summary</i>	National Antibiotic Action Plan for 2011-2013 ("AP NAP") of Czech Republic.

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