



# Spanish Action Plan on Antibiotic Resistance

---

## **PROA Team Certification Standard**

---

**Community**



MINISTERIO  
DE SANIDAD



agencia española de  
medicamentos y  
productos sanitarios

**Spanish Agency for Medicines  
and Medical Devices (AEMPS)**

Calle Campezo, 1, Edificio 8 • E-28022 Madrid  
<https://www.aemps.gob.es>

Date of publication: February 2023  
NIPO: 134-24-019-1





# TABLE OF CONTENTS

■ Authors .....	5
■ Letter from the Director .....	8
■ Introduction .....	10
■ Structure of PROA team certification.....	12
■ Self-certification and certification process .....	16
■ Community PROA team Certification Standards .....	18
■ Typology I. Organisational aspects .....	18
■ Typology II. Institutionalisation .....	24
■ Typology III. Human and scientific-technical resources .....	26
■ Typology IV. Measures to support safe prescribing and dispensing of antimicrobials .....	30
■ Typology V. Analysis and monitoring of consumption and clinical outcomes .....	34
■ Typology VI. Educational interventions .....	40
■ Typology VII. Measures to promote coordination between healthcare levels and continuity of healthcare.....	44
■ ANNEX I .....	52
■ ANNEX II. Out-of-hospital microbiological map: antibiotic sensitivity map to antibiotics in the community, target microorganisms and special-surveillance antibiotics.....	54
■ ANNEX III. Summary tables .....	58



# GLOSSARY OF TERMS

<b>A/C</b>	Amoxicillin/Clavulanic acid
<b>AB</b>	Antibiotics
<b>AC</b>	Autonomous Community
<b>AEMPS</b>	Spanish Agency for Medicines and Medical Devices
<b>AEPAP</b>	Spanish Association of Primary Care Paediatrics
<b>AMOX</b>	Amoxicillin
<b>AMP</b>	Ampicillin
<b>CD</b>	Clindamycin
<b>CIBERINFECT</b>	CIBER thematic area of Infectious Diseases
<b>CIP</b>	Ciprofloxacin
<b>CRO</b>	Ceftriaxone
<b>CTX</b>	Cefotaxime
<b>CXM</b>	Cefuroxime
<b>DNI</b>	National Identity Card
<b>ERI</b>	Erythromycin
<b>ESBL</b>	Extended-spectrum beta-lactamases
<b>EUCAST</b>	<i>European Committee on Antimicrobial Susceptibility Testing</i>
<b>FD</b>	Nitrofurantoin
<b>FOS</b>	Fosfomycin
<b>FUS</b>	Fusidic Acid
<b>GM</b>	Gentamicin
<b>I</b>	Susceptible, increased exposure
<b>IDIVAL</b>	Marqués de Valdecilla Research Institute
<b>INGESA</b>	National Institute for Health Management
<b>ISCIII</b>	Carlos III Health Institute
<b>MBDS</b>	Minimum Basic Data Set
<b>MRSA</b>	Methicillin-resistant <i>Staphylococcus aureus</i>
<b>MSSA</b>	Methicillin-sensitive <i>Staphylococcus aureus</i>
<b>MUP</b>	Mupirocin



# GLOSSARY OF TERMS

<b>N/A</b>	Not Applicable
<b>OXA</b>	Oxacillin
<b>PEN</b>	Penicillin
<b>PRAN</b>	Spanish National Action Plan on AMR
<b>PROA</b>	Antimicrobial Stewardship Program
<b>R</b>	Resistant
<b>S</b>	Susceptible, standard dosing regimen
<b>SNS</b>	Spanish National Health System
<b>SXT</b>	Trimethoprim-sulfamethoxazole or co-trimoxazole
<b>TET</b>	Tetracycline
<b>TOB</b>	Tobramycin



# AUTHORS

## Coordination

CASTILLO VÁZQUEZ, Reyes. Coordination Unit of the Spanish National Action Plan on AMR (PRAN) - Spanish Agency for Medicines and Medical Devices (AEMPS)

## Coordination of the Community PROA working groups

FERNÁNDEZ URRUSUNO, Rocío. SEFAP

## Authors (in alphabetical order)

### Spanish National Action Plan on AMR (PRAN)

CASTILLO VÁZQUEZ, Reyes

LÓPEZ NAVAS, Antonio

### Spanish Association of Primary Care Paediatrics (AEPAP)

ALBAÑIL BALLESTEROS, Rosa

GARCÍA VERA, César

### Spanish Society of Primary Care Pharmacists (SEFAP)

ANAYA ORDÓÑEZ, Sonia

MADRIDEJOS MORA, Rosa

ARÁNGUEZ RUIZ, Aránzazu

MARCH LÓPEZ, Pablo

ARIZA COPADO, M<sup>a</sup> Ángeles

LALLANA ÁLVAREZ, María Jesús

FERNÁNDEZ URRUSUNO, Rocío

NICIEZA GARCÍA, Marisa

GARCÍA DÍAZ-GUERRA, Reyes

OLMO QUINTANA, Vicente

IGLESIAS IGLESIAS, Ana Aurelia

PINA GADEA, Belén

IZQUIERDO PALOMARES, José Manuel

PRADO PRIETO, María Ana

JAMART SÁNCHEZ, Lucía

MATEU GARCÍA, Mónica Susana

### Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC)

ALKORTA GURRUTXAGA, Miriam

SERRANO MARTINO, Carmen

ASPIROZ SANCHO, Carmen

### Spanish Society of Primary Care Physicians (SEMERGEN)

LINARES RUFO, Manuel

VELA GONZÁLEZ, Teresa

### Spanish Society of Family and Community Medicine (SEMFYC)

COTS YAGO, Josep M<sup>a</sup>

MORAGAS MORENO, Ana María

LLOR VILA, Carles



# AUTHORS

## Spanish Society of General and Family Physicians (SEMG)

JORGE BRAVO, María Teresa

## Spanish Society of Extra-hospital Paediatrics and Primary Health Care (SEPEAP)

DE LA FLOR BRU, Josep

## External Reviewers

ALCALDE ENCINAS, MAR. PROA Scientific Technical Coordinator for Murcia

ALDAZ HERCE, Pablo. Director of the San Juan Health Centre. Pamplona

ALONSO IRUJO, Laura. PRAN Coordination Unit, AEMPS

ANDREU SALETE, Cristina. PRAN regional representative in Extremadura

ARNAIZ DE LAS REVILLAS ALMAJANO, Francisco. Infectious Diseases Service of the Marqués de Valdecilla University Hospital IDIVAL.CIBERINFEC, ISCIII

BLANCO GALÁN, M<sup>a</sup> Antonia. Subdirector of Healthcare of the National Institute for Health Management (INGESA)

CANADELL VILARRASA, Laura. PROA Scientific Technical Coordinator for Catalonia

CASADO BOLAÑOS, Natalia. PRAN Coordination Unit, AEMPS

CISNEROS HERREROS, José Miguel. SEIMC

FERNÁNDEZ I POLO, Aurora. SEFH

GARCÍA ORTIZ, Alejandra. Technician of the pharmaceutical inspection and provision service in primary healthcare. Directorate General for Health Care and Humanisation. Regional Health Management Board of the Castile and Leon Regional Government

GIL NAVARRO, M<sup>a</sup> Victoria. SEFH

GONZALEZ GARCÍA, Jonathan. PROA Scientific Technical Coordinator for the Canary Islands

GRAU CERRATO, Santiago. SEIMC

GUTIERREZ URBÓN, José M<sup>a</sup>. PROA Scientific Technical Coordinator for Galicia

HORCAJADA GALLEGO, Juan Pablo. Head of the Infectious Diseases Service. Hospital del Mar. Barcelona. SEIMC. CIBERINFEC

MACARRO MARTÍN, Noelia. PRAN Coordination Unit

MEHAIDLI RUEDA, Ismael. PRAN Coordination Unit

MERINO LUCAS, Esperanza. PROA Scientific Technical Coordinator for the Valencian Community

NICOLÁS PICÓ, Jordi. SEFH

OLIVER PALOMO, Antonio. SEIMC

PAÑO PARDO, José Ramón. SEIMC

PAREDERO DOMÍNGUEZ, José Manuel. General Subdirector of Pharmacy and Healthcare Products. Regional Ministry of Health of Madrid

PEIRO, Enrique. Coordination of Public Health and Patient Safety Programmes. Directorate of Healthcare of the Basque Country

PERIAÑEZ PÁRRAGA, C. SEFH

PINA, Belén. Primary Healthcare Pharmacist of the Zaragoza II sectors in Aragon

ROJO MOLINERO, Estrella. PROA Scientific Technical Coordinator for the Balearic Islands

ROMÁN CASARES, Encarnación. Director of the Prevention, Promotion and Health Surveillance Unit. Southern Seville Healthcare Management Area

RUIZ GARBAJOSA, Patricia. SEIMC

SANTACREU GARCÍA, María. PRAN Coordination Unit

SANZ FRANCO Mercedes. PROA Scientific Technical Coordinator for La Rioja

SUÁREZ MIER, Belén. Patient Safety at the Regional Ministry of Health, Principality of Asturias

TORIJANO CASALENGUA, M<sup>a</sup> Luisa. Directorate General for Healthcare. Castilla-La Mancha Health Service





## Participating organisations

**AEMPS.** Spanish Agency for Medicines and Medical Devices

**AEPAP.** Spanish Association of Primary Care Paediatrics

**PRAN.** Spanish National Action Plan on AMR

**SEIMC.** Spanish Society of Infectious Diseases and Clinical Microbiology

**SEFAP.** Spanish Society of Primary Care Pharmacists

**SEFH.** Spanish Society of Hospital Pharmacists

**SEMERGEN.** Spanish Society of Primary Care Physicians

**SEMFYC.** Spanish Society of Family and Community Medicine

**SEMG.** Spanish Society of General and Family Physicians

**SEPEAP.** Spanish Society of Out-Of-Hospital Paediatrics and Primary Care



# LETTER FROM THE DIRECTOR

It is an honour to have the opportunity to present one of the most ambitious projects to date of the Spanish National Action Plan on AMR (PRAN) in the area of human health: Certification standards for Antimicrobial Stewardship Programs (PROA).

Spain's commitment to reducing bacterial resistance has been notable since the PRAN was created in 2014. In 2021, almost 100% of hospitals claimed to have some PROA initiative in place, as is the case at the community level. We are proud to see the interest of health professionals and their willingness to get involved in this global problem.

Given the importance of these programmes, it is necessary that the characteristics and activities to be implemented by PROA teams, while adapted to local circumstances, have, as a starting point, a common basis that is defined and sufficiently homogeneous at the national level. In order to achieve this objective, and taking into account the multidisciplinary nature of the PROA teams, PRAN has teamed up with healthcare professionals from different fields and specialities in the development of the PROA Certification Standards for community and hospital teams.

Both the hospital and community PROA Team Certification Standards adopt the characteristics and optimisation strategies specific to each setting, but the effort goes further, as the link between hospital and community settings has been established. In this way, healthcare coordination takes on special relevance, as it leads to improved communication and multidisciplinary collaboration between PROA teams from different healthcare levels, as well as setting common objectives, protocols and procedures.

As with any lever for change, the implementation of the Standards is a challenge for both regional health ministries and the health professionals involved in these programmes. In this regard, I would like to highlight the National Health System's commitment to achieving quality benchmarks, for which the provision of technical and human resources is essential.

I must add the great value of the consensus achieved thanks to the joint work of the authors of both documents who, with a global perspective of patients' needs, have agreed on actions and measures aimed at guaranteeing the coordination and continuity of healthcare; so important in dealing with infections caused by multidrug-resistant bacteria.

Furthermore, the support of all the autonomous communities that endorse both certification standards and the approval by the Interterritorial Council of the National Health System provides these programmes with the institutional framework that had been demanded. To guarantee this, PRAN provides the PROA teams with **CertificaPROA**, a tool that allows for self-certification and certification to give these quality programmes the recognition they deserve.

On behalf of PRAN and the Spanish Agency for Medicines and Medical Devices (AEMPS), I would like to express my sincere thanks to each of the individuals and institutions that have participated in and support this project.



**María Jesús Lamas Díaz**

Director, Spanish Agency for Medicines and Medical Devices





# INTRODUCTION

The complexity of infectious diseases and the increase in resistance make it essential to set up Antimicrobial Stewardship Programs (PROA) in hospital and community settings. This programme aims to optimise antibiotic prescribing, ensure optimal clinical outcomes, minimise the adverse effects of antibiotic use, control the development of resistance and ensure the use of cost-effective treatments<sup>1</sup>.

From the outset, PROAs have been integrated into the Spanish National Action Plan on AMR (PRAN) strategy and a national, regional and institutional regulatory framework was created in 2017 to enable PROAs to be successfully developed in different health settings<sup>1</sup>. In order for PROAs to be implemented, it was necessary to establish a standard that would serve as a working guide and define the best practices and prerequisites to be met by centres with a PROA in place.

Furthermore, in order to achieve maximum recognition, institutional support and homogeneous implementation at the hospital and community level throughout the country, as well as acceptance of the programme by all professionals, it was essential for the centres to be certified. To this end, the PRAN has developed not only the Standards, but also a tool that gives recognition to best practices carried out in the hospital or primary healthcare centres: **CertificaPROA**.

## Development of the PROA Certification Standards

A quality survey of PRAN partners in 2020 revealed that 94% of respondents confirmed that they had some PROA initiative in hospitals. The community level showed a similar percentage, with 93.4% of respondents stating that they had a PROA initiative in their health area<sup>2</sup>.

The PROAs are a reality for most centres thanks to the work of health professionals and the efforts of the administrations. However, the different level of implementation and the geographical variety reflect the need to standardise the work of PROA teams. It is within this framework that the PROA Standards are born, as the necessary tool to promote implementation, adapted to local circumstances, but methodologically homogeneous throughout Spain. Together with CertificaPROA, it will allow comparison and identification of centres according to their degree of commitment to the good use of antimicrobials<sup>3</sup>.

<sup>1</sup>Spanish Agency for Medicines and Medical Devices (AEMPS). Spanish National Action Plan on AMR (PRAN). Antibiotic Stewardship Programmes (PROA). Madrid: AEMPS; 2017.

<sup>2</sup>Spanish Agency for Medicines and Medical Devices (AEMPS). Spanish National Action Plan on AMR (PRAN). Strategic and Action Plan to Reduce the Risk of Selection and Spread of Antibiotic Resistance 2022-2024. Madrid: AEMPS; 2022.

<sup>3</sup>J. Rodríguez-Baño et al / Enferm Infecc Microbiol Clin. 2012;30(1):22.e1–22.e23.



To start developing the hospital PROA certification standard, the document published by SEIMC and SEFH '*Standards for the certification of hospital PROAs*'<sup>4</sup>, and for the community level, a proposal was developed in which AEPap, SEMG, SEFAP, SEMERGEN, SEMFYC, SEPEAP, SEIMC and PRAN participated. Both documents were submitted for consultation to the Autonomous Communities and the PRAN.

The PRAN coordinated and participated in the revision exercise, with the aim of homogenising and harmonising the structure of both documents, ensuring continuity of healthcare by orchestrating the agreement between the scientific societies involved, which came from different healthcare settings, reinforcing the evidence of the benchmarks, as they are fundamental to the process of self-certification and certification of PROAs, and including the perspective of the autonomous communities.

This work resulted in a first document which was subsequently reviewed by multidisciplinary groups of experts from the community and hospital sectors with recognised experience in the implementation of PROA.

In parallel, PRAN has been working on the design and development of an electronic tool (CertificaPROA) with the aim of facilitating the process of self-certification and certification of PROAs.

Finally, on 18 May 2022, the benchmarks for the Standards for the certification of hospital and community PROA teams were approved by the representatives of the autonomous communities in the PRAN Coordinating Committee and, on 19 December 2022, by the Interterritorial Council of the National Health System.

<sup>4</sup>Standards for the certification of SEIMC-SEFH hospital PROAs. 2016.



# STRUCTURE OF COMMUNITY PROA TEAM CERTIFICATION



The Community PROA Team Certification Standard consists of 43 benchmarks. Each benchmark defines the prerequisite to be met for the implementation of PROAs. The prerequisites are classified according to the degree of development of the PROA, the associated prerequisite can be at the basic, advanced or excellent level:

- **Basic:** a measure that should be implemented in all Primary Healthcare Centres.
- **Advanced:** recommended measure in centres with a more mature implementation of the programmes.
- **Excellent:** optimal measure, which will generally be applied in referral health areas.

They are further classified as mandatory or non-mandatory.

Given the complexity of implementing some of the benchmarks, some of them have been broken down into different levels of compliance and, in some instances, even into three levels of compliance (basic, advanced and excellent) in order to recognise and facilitate their achievement.

This results in different combinations giving a total of 53 prerequisites:

	 Mandatory	 Non-mandatory	Total
Basic ▲	18	1	19
Advanced ▲ ▲	16	2	18
Excellent ▲ ▲ ▲	4	12	16
Total			53



The benchmarks are structured in the document as follows:

**Benchmark number**

**Definition:** description of the benchmark. When the benchmark has only one level, the definition indicates the prerequisite to be met.

**Clarification**

**Level:** indicates the classification of the benchmark according to the degree of development of the desired PROA.

**Level prerequisite:** when the benchmark consists of several levels, the level description indicates the prerequisite to be met.

**Evidence:** information substantiating compliance with the benchmark.

**BM9. The implementation of the PROA is included in the strategic objectives of the organisation and some of the objectives are linked to incentives for primary healthcare professionals, primary healthcare emergency units and oral health units.**

- **Clarifications**  
As evidence of the organisation's commitment to the PROA, the implementation of the PROA should be included in the organisation's strategic objectives (programme agreement, clinical management agreements, etc.). It is recommended that some of the strategic objectives of the PROA be prioritised and linked to financial incentives. This measure helps to stimulate the commitment of professionals to the programme.
- **Benchmark level**  
**Advanced mandatory** ▲▲●  
The PROA objectives are included in the organisation's strategic objectives.
- **Evidence**  
Confirmation that the objectives of the PROA are included among the strategic objectives of the organisation according to the system for establishing objectives in each autonomous community (programme agreements, clinical management agreements, etc.).
- **Excellent mandatory** ▲▲●  
The PROA objectives are included in the organisation's strategic objectives.
- **Evidence**  
Confirmation that the objectives of the PROA are included among the strategic objectives of the organisation according to the system for establishing objectives in each autonomous community (programme agreements, clinical management agreements, etc.).

# STRUCTURE OF COMMUNITY PROA TEAM CERTIFICATION

## The benchmarks are distributed into the following typologies:

**Typology I. Organisational aspects.** It includes those benchmarks that describe organisational and functional aspects, as well as the development of a framework document where the strategies that best fit the centre's situation are selected. The PROA teams report to the Primary Healthcare structure, and consist of a multidisciplinary team responsible for the design, development, implementation, monitoring and dissemination of programme results.

**Typology II. Institutionalisation.** All those benchmarks that imply a commitment of centre management to the PROA are included. The PROAs are cross-sectional quality programmes that extend across primary healthcare centres in each autonomous community. This institutional character is essential, both to facilitate the acceptance of the programme by all professionals and to secure the necessary resources, as it normalises the activities of the team responsible for the programme, considering them as important as any other healthcare activity.

**Typology III. Human and scientific-technical resources** It includes the minimum human and technical resources to be made available in order to implement the programme. For proper implementation of the PROA, planning and coordination of human resources available to carry out proposed actions is needed<sup>3</sup>. Depending on the desired degree of excellence, it may be necessary to include staff specifically dedicated to the programme. The main scientific-technical resource is the [Antimicrobial Therapy Guide of the National Health System](#), which provides a basis for training activities, is a prescription support tool and can be used for evaluating the suitability of prescriptions. The technical resources have been shaped according to the diagnostic needs at the point of patient care.

**Typology IV. Measures to support safe prescribing and dispensing of antibiotics.** It includes measures to aid decision making and identify potential prescribing issues. As well as the development of specific strategies at the Community level to promote the prudent use of antibiotics.

**Typology V. Analysis and monitoring of consumption and clinical outcomes.** Includes various analysis based on the framework document '[Antibiotic use indicators in Primary Healthcare](#)' published by the PRAN. The described indicators detail the frequency of measurements and, depending on the strategic relevance of the indicator and the desired degree of excellence, some of the data will be individualised. Monitoring of different types of indicators is essential to be able to assess the situation of the centre, prioritise needs, design activities and assess their impact in an appropriate way. In addition, it is important to regularly circulate the results among the centre's professionals in clinical sessions or via the centre's website, and to the Management of the relevant Primary Healthcare structure as part of the annual monitoring report.

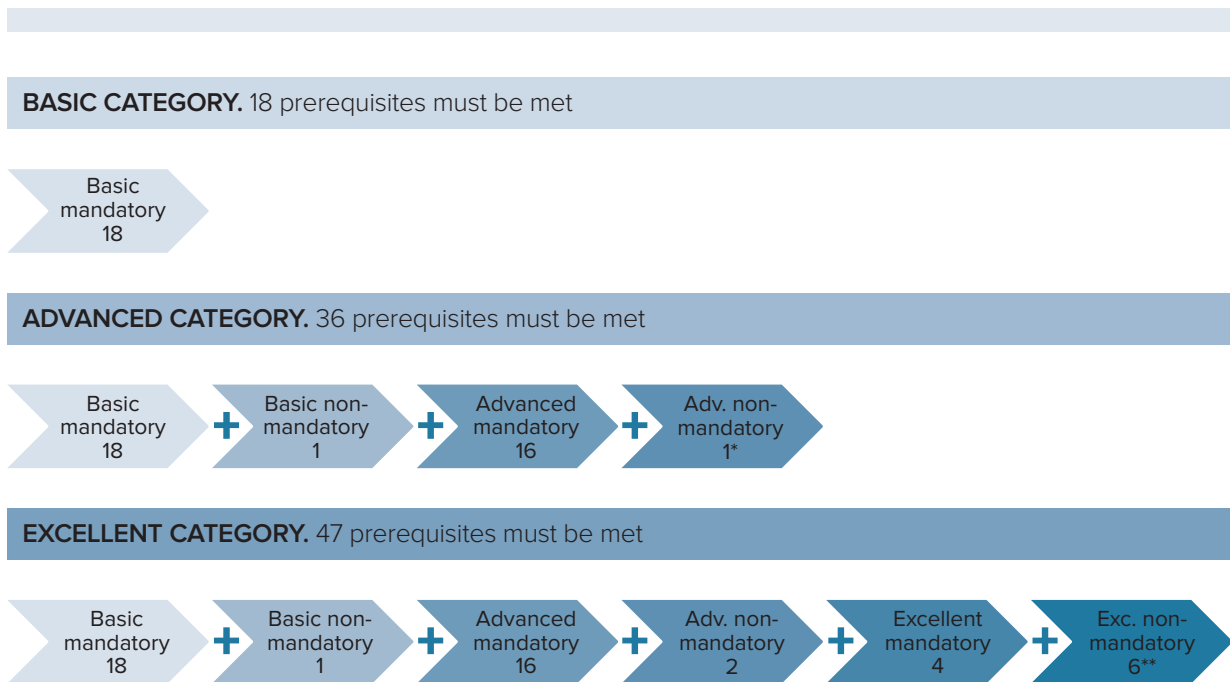
**Typology VI. Educational interventions.** It includes training for professionals on antibiotic use. Training activities are one of the key interventions of PROAs with the aim of improving antibiotic prescribing habits and assessing the quality of prescribing. These activities are aimed at all healthcare professionals involved in the prevention, diagnosis and treatment of infections.





**Typology VII. Measures to promote coordination between healthcare requirements and assure continuity of healthcare.** This typology is common in the hospital PROA team certification standard. It includes specific agreed measures for coordination and communication between hospital and community PROA teams. Having common objectives, liaison professionals, agreed processes (guides and protocols) and vertical information systems that help to improve patient monitoring are undoubtedly actions that will favour coordination and continuity of healthcare<sup>5</sup>.

### How to obtain the excellence rating?



\* To be chosen from the 2 non-mandatory benchmarks.

\*\* To be chosen from the 12 non-mandatory benchmarks.

<sup>5</sup>R. Terraza et al/ Gac Sanit vol.20 no.6 Barcelona Nov./Dec. 2006




# SELF-CERTIFICATION AND CERTIFICATION PROCESS

The process consists of two phases:

- 1. Self-certification:** Statement of undertaking made by the applicant centre substantiating compliance with benchmarks in the absence of certification. To corroborate that the information is accurate, regional administrations will request evidence of the so-called “strategic requirements”, which have been identified with a key in the PROA team certification standards. This self-certification will be valid until the certification is completed.

The process involves the following steps:

- Completion of a questionnaire by the applicant centre. Based on the responses, the tool automatically assigns the relevant excellence rating.
  - Submission of documentary evidence to substantiate compliance with strategic requirements (identified throughout the document with a keys symbol   - Review of the documents by a PROA regional representative.
- 2. Certification of PROA teams:** audit process coordinated by the Inspection Coordination Commission, under the General Directorate of Professional Organisation of the Ministry of Health. In order to obtain certification, the applicant centre must attach all other documents with supporting evidence for both the category authorised by the regional representative and any lower categories.

Self-certified and certified centres will be published on an [interactive map on the website \(https://resistenciaantibioticos.es\)](https://resistenciaantibioticos.es), thus conferring a distinction beyond the recognition itself.







## Typology I.

### Organisational aspects

**BM1. The health area constitutes and appoints a PROA team under the direction of the relevant primary healthcare structure (medical board, health board or equivalent). ▲ ●**

■ **Clarifications**

N/A

■ **Benchmark level**

Basic mandatory

**Evidence**

A request will be issued for the minutes of the management of the relevant primary healthcare structure (medical board, health board or equivalent) in which the PROA team is constituted and approved.

**BM2. The PROA team in the area is multidisciplinary. It is composed of at least one family doctor, one paediatrician, one primary healthcare pharmacist, one microbiologist, one doctor and one paediatrician from the emergency department of the referral hospital and one manager of the relevant primary healthcare structure. ▲ ●**

■ **Clarifications**

The core team should consist of at least one family doctor, one paediatrician, one primary healthcare pharmacist, one microbiologist, one doctor and one paediatrician from the hospital emergency department and one manager of the relevant primary healthcare structure, one of them being the coordinator of the PROA team. It is recommended that the microbiologist who joins the team be the primary healthcare referral microbiologist (**see benchmark D**).

To enrich the core team, whenever possible, the professionals listed in the document '[Antibiotic use optimisation programmes \(PROA\)](#)' published by the PRAN, can be included.

■ **Benchmark level**

Basic mandatory

**Evidence**

A request will be issued to PROA team members for evidence of each member's professional status (qualifications).



**BM3. Definition of the roles of all PROA team members. ▲●**

■ **Clarifications**

N/A

■ **Benchmark level**

Basic mandatory

**Evidence**

A request will be issued for the list of functions of the members of the PROA team.





# Typology I.

## Organisational aspects

### BM4. PROA Framework Document. ▲ ●

#### ■ Clarifications

A PROA Framework Document is to be prepared. It should include the following points:

- Analysis of the local situation: antimicrobial prescribing profile (quantitative and qualitative indicators), population profile (paediatric population, percentage of people over 65 and 75 years of age, number of people living in social-health centres, etc.), resources needed for the primary healthcare PROA, availability of a reference microbiology laboratory and local resistance data.
- The design of a PROA adapted to the characteristics of the area: number of doctors per population, distance to the referral hospital, degree of geographical dispersion, number of centres, emergency care facilities, social-health centres including their characteristics (number of places, availability of in-house doctor and other healthcare staff, etc.), by disadvantaged areas and by rural areas.
- List of human resources needed for developing the PROA. A list of PROA members should be provided, together with the representatives for the different PROA activities and a description of the roles of all participants.
- Specification as to whether the reference guide of the PROA will be the Antimicrobial Therapy Guide of the National Health System or a local adaptation.
- Definition of overall PROA objectives related to antimicrobial use, control of bacterial resistance and achievement of clinical objectives.
- Planning interventions to optimise antimicrobial prescribing.
- Strategies for disseminating PROA among all professionals involved in the area to ensure their involvement in PROA's mission and objectives.

#### ■ Benchmark level

Basic mandatory

#### Evidence

A request will be issued for the PROA Framework Programme, signed by the management of the relevant primary healthcare structure to show that it includes the points detailed in the benchmark.



## **BM5. Organisation and recording of PROA team activities: meetings, taking minutes and follow-up of decisions. ▲ ●**

### ■ Clarifications

The frequency of the meetings of the PROA team depends on the organisation of each area. At least 3 meetings are recommended the first year and 2 meetings a year after full deployment.

### ■ Benchmark level

Basic mandatory

#### **Evidence**

A request will be issued to the PROA team for the minutes of the meetings held and the follow-up of the decisions. They will be included in the annual monitoring report.

## **BM6. Coordination mechanisms are in place between primary healthcare centres and social-health centres in the area for the development of PROA activities. ▲▲●**

### ■ Clarifications

It is recommended that PROA activities and the adoption or adaptation of the [Antimicrobial Therapy Guide of the National Health System](#) be carried out in collaboration with the physicians and healthcare staff working in the social-health centres, in order to ensure proper implementation of PROAs in these centres.

### ■ Benchmark level

Advanced non-mandatory

#### **Evidence**

A request will be issued for documentation substantiating the implementation of coordinated PROA activities in social-health centres.





## Typology I. Organisational aspects

**BM7.** In order to ensure that the activities developed by the PROA team reach all health professionals, a PROA representative is appointed for each discipline in each health centre or organisational unit with specific functions and coordinated with the PROA team.

### ■ Clarifications

It is recommended that representatives be appointed for family doctors and paediatricians, if the organisation of the area allows it. In addition, the appointment of representatives for out-of-hospital emergency and oral health units is recommended. The representative can be appointed per organisational unit by grouping together neighbouring basic health zones depending on the distribution of each health area.

### ■ Benchmark level

#### Basic mandatory

The health centres or organisational units have the assistance of a PROA family and paediatrics representative. ▲○

#### Evidence

A request will be issued for the list of the PROA family and paediatrics representatives in each organisational unit, with reference to the number of centres in the area.

#### Advanced mandatory

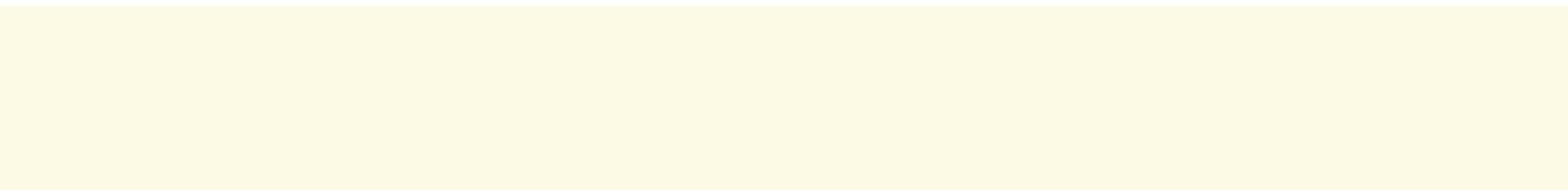
In addition, representatives are appointed for out-of-hospital emergency and oral health units(if they exist). ▲▲○

#### Evidence

A request will be issued for the list of the PROA family, paediatrics, out-of-hospital emergency and oral health representatives (if they exist in the area) in each organisational unit, with reference to the number of centres in the area.









## Typology II. Institutionalisation

### **BM8. Explicit support from the management of the primary healthcare structure.**



#### ■ Clarifications

The aim of this benchmark is that there is a clear commitment from management. Management is responsible for fostering the activities foreseen in the Framework Programme, monitoring and analysing PROA indicators and circulating the results.

#### ■ Benchmark level

Basic mandatory

#### **Evidence**

A request will be issued for the following:

- Certificate ([Annex I](#)) attesting that the primary healthcare structure's management is responsible for promoting the activities set out in the Framework Programme, for indicator monitoring and analysis and for circulating results.
- The minutes of the management of the relevant primary healthcare structure to document the constitution and approval of the centre PROA team.



**BM9. The implementation of the PROA is included in the strategic objectives of the organisation and some of the objectives are linked to incentives for primary healthcare professionals, primary healthcare emergency units and oral health units.**

■ **Clarifications**

As evidence of the organisation's commitment to the PROA, the implementation of the PROA should be included in the organisation's strategic objectives (programme agreement, clinical management agreements, etc.). It is recommended that some of the strategic objectives of the PROA be prioritised and linked to financial incentives. This measure helps to stimulate the commitment of professionals to the programme.

■ **Benchmark level**

Advanced mandatory

**The objectives of the PROA are included in the strategic objectives of the organisation.**

▲▲●

**Evidence**

Confirmation that the objectives of the PROA are included among the strategic objectives of the organisation according to the system for establishing objectives in each autonomous community (programme agreements, clinical management agreements, etc.).



Excellent mandatory

**Inclusion of financial incentives (through inclusion in management agreements, professional career or other type of financial incentive considered by the Regional Health Service) linked to the strategic objectives of the PROA. ▲▲▲●**

**Evidence**

Documentation certifying that the Autonomous Community provides financial incentives (through inclusion in management, professional career or other type of financial incentive agreements considered by the Regional Health Service) to the services related to PROA activities that meet the objectives set by the community PROA team.





## Typology III.

### Human and scientific-technical resources

#### **BM10. Estimation of human resources needed for implementing the PROA.**

##### ■ Clarifications

The calculation of the weekly hours is the result of adding up the dedication of the members of the PROA team according to the needs identified in the area.

##### ■ Benchmark level

###### Basic mandatory

**A needs analysis is carried out, and the weekly dedication time of each person in the team who is assigned to the programme is calculated. ▲ ●**

##### Evidence

A request will be issued for a report with the human resources needs analysis, specifying the weekly time that would be necessary for each member of the PROA team and the people involved in it.

###### Advanced mandatory

**Availability of professionals with specific part-time availability (minimum 56-90 hours per month distributed among the members of the multidisciplinary team) for PROA activities. ▲▲●**

##### Evidence

In addition to the evidence of the basic mandatory level, a request will be issued for the document accrediting the availability of part-time professionals for PROA activities of 56-90 hours during the working day.

###### Excellent non-mandatory

**Availability of professionals with specific full-time availability (minimum 90-120 hours per month distributed among the members of the multidisciplinary team) for PROA activities. ▲▲▲●**

##### Evidence

In addition to the evidence of the basic mandatory level, a request will be issued for the document accrediting the availability of full-time professionals for PROA activities of 90-120 hours during the working day.



**BM11. The Antimicrobial Therapy Guide of the National Health System or a local adaptation is adopted as reference for PROA training activities. ▲ ●**

■ **Clarifications**

Where local guides are developed, they should be in line with the [Antimicrobial Therapy Guide of the National Health System](#) and justified adaptations based on local resistance data. They are also continuously updated based on national guide updates and local resistance data. In any case, they should be used as:

- Basis for all training activities, both group and individual (advisories).
- Basis for prescription support tools.
- Quality criteria for assessing the adequacy of prescriptions.

■ **Benchmark level**

Basic mandatory

**Evidence**

Evidence shall be provided that the [Antimicrobial Therapy Guide of the National Health System](#) has been adopted or the need for a local guide shall be justified on the basis of local resistance patterns.





## Typology III.

### Human and scientific-technical resources

**BM12. A software application is available to monitor antimicrobial consumption through prescriptions charged to the Spanish National Health System (SNS) disaggregated to the levels of basic area, health centre and prescriber.**

#### ■ Clarifications

It is recommended that the software application for monitoring antimicrobial prescribing should provide information on the source of prescriptions: primary healthcare and hospital services. The availability of this information depends on the capacity of regional information systems.

#### ■ Benchmark level

Basic mandatory

**Global antimicrobial prescribing in primary healthcare is monitored. ▲ ●**

Advanced mandatory

**Antimicrobial prescribing in primary healthcare is monitored in a disaggregated way according to the level of provenance of the prescription. ▲▲ ●**

#### Evidence

A request will be issued for information on the software application where it can be verified that it allows the monitoring of antimicrobial prescribing.

**BM13. An IT platform is in place where antimicrobial consumption data are included. ▲▲ ●**

#### ■ Clarifications

These data include both individual data and comparative data with the rest of the professionals and data for the area and the autonomous community. These data can be anonymised.

#### ■ Benchmark level

Advanced mandatory

#### Evidence

Confirmation that consumption data are available on the intranet and accessible to all healthcare professionals.

**BM14. An IT platform is in place where antimicrobial resistance data are included.**

▲▲▲●

■ Clarifications

N/A

■ Benchmark level

Excellent mandatory

**Evidence**

Confirmation that resistance data are available on the intranet and accessible to all healthcare professionals.



**BM15. Rapid diagnostic tests for *Streptococcus pyogenes*, a protocol for their use and a system for recording test results in the medical history are available.**

■ Clarifications

N/A

■ Benchmark level

Basic mandatory

A rapid diagnostic test for *Streptococcus pyogenes*, a protocol for its use and a tests performed is available. ▲●

**Evidence**

A request will be issued for the report on the test used as well as the protocols for the use of the tests and the record of the number of tests performed.

Advanced mandatory

There is a system for recording test results in the medical history. ▲▲●

**Evidence**

In addition, a request will be issued for evidence of records of the results of the use of the rapid diagnostic tests for *Streptococcus pyogenes* in the medical history.





## Typology IV.

### Measures to support safe prescribing and dispensing of antimicrobials

**BM16.** The area has a standardised procedure for the inclusion/exclusion of antimicrobials from the medicine cabinets of the health centres, points of continuous care and other specific areas. ▲●

■ **Clarifications**

The services in the area that include antimicrobials in their medicines lists, such as the emergency unit, the oral health unit or the public health unit to cover public health alerts, are identified.

■ **Benchmark level**

Basic mandatory

**Evidence**

A request will be issued for the list of antibiotics included in the centre's pharmacotherapy guide, as well as the standardised procedure for inclusion/exclusion of antimicrobials.

**BM17.** A strategy is in place to promote delayed prescription of antimicrobials in those situations where a favourable benefit/risk balance is shown. ▲●

■ **Clarifications**

This benchmark aims to promote delayed prescribing as an option to reduce the inappropriate use of antibiotics when there is uncertainty about the antibiotic indication in mild community infections that can be cleared over time.

■ **Benchmark level**

Basic non-mandatory

**Evidence**

A request will be issued for evidence of the availability of strategies to promote delayed prescribing of antimicrobials.



**BM18. The Antimicrobial Therapy Guide of the National Health System is incorporated into the digital medical history as a decision-making support tool.**



■ **Clarifications**

This tool also reports on antibiotics subject to safety alerts or antibiotic prescriptions in special populations, and identify patients with contraindications or special precautions for antibiotic use: patients with kidney or liver failure, or other special situations that might require a dose adjustment. In these cases, the steps to be taken in each case (switching to an alternative, adjusting the dose, etc.) should be indicated.

■ **Benchmark level**

Excellent non-mandatory

**Evidence**

Evidence that the guide is included in the digital medical history as an electronic decision-making support tool at the point of patient care, and that it can be used in real time.

**BM19. A system of electronic prescribing linked to clinical diagnosis is available.**



■ **Clarifications**

It is considered essential that the prescribing system prevents the prescription of antibiotics for non-bacterial processes.

■ **Benchmark level**

Excellent non-mandatory

**Evidence**

A request will be issued for information on the diagnosis-linked prescribing system.





## Typology IV.

### Measures to support safe prescribing and dispensing of antimicrobials

**BM20. The area has a protocol that reflects the participation or collaboration of community pharmacists from the Community Pharmacies in their geographical area in the activities of the PROA team. ▲▲▲●**

■ **Clarifications**

This protocol is agreed between the primary healthcare PROA team and the community pharmacists in the area or the relevant Professional Association of Pharmacists.

■ **Benchmark level**

Excellent non-mandatory

**Evidence**

A request will be issued for a protocol that includes the joint activities of the primary healthcare PROA team and community pharmacists.

**BM21. The area has a protocol specifying the PROA activities that include the participation or collaboration of dentists from the SNS and private practices in its geographical area. ▲▲▲●**

■ **Clarifications**

This protocol will be agreed between the primary healthcare PROA team, the oral health units and the relevant Professional Association of Dentists and Stomatologists.

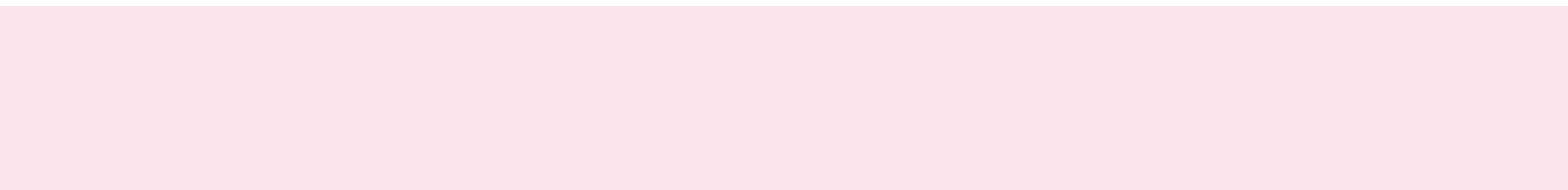
■ **Benchmark level**

Excellent non-mandatory

**Evidence**

A request will be issued for the protocol for joint activities of the primary healthcare PROA team and the Professional Association of Dentists and Stomatologists.







## Typology V.

### Analysis and monitoring of consumption and clinical outcomes

#### **BM22. Overall antimicrobial consumption is analysed using the PRAN indicators to monitor outpatient prescribing at different levels of disaggregation.**

##### ■ Clarifications

The PRAN consumption indicators are used for both general and paediatric populations using the methodology proposed by the framework document [Antibiotic use indicators in Primary Healthcare](#).

Analysis of these indicators will allow monitoring of consumption rates as well as determining the relative use profile of different groups and subgroups of antimicrobials on a regular basis. It is recommended that this monitoring be monthly or quarterly, and in any case at least annually. Analysis can focus on strategic antibiotics (beta-lactamase sensitive penicillins, amoxicillin, amoxicillin-clavulanate, cloxacillin, azithromycin, clarithromycin, clindamycin, levofloxacin, moxifloxacin, ciprofloxacin, fosfomicin, nitrofurantoin, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> generation cephalosporins, trimethoprim-sulfamethoxazole, mainly), with closer monitoring of antibiotics with the greatest ecological impact and those of critical importance for human medicine.

If the information systems of the Autonomous Community allow it, it is recommended that this information be provided disaggregated by age group, sex and place of residence or origin (specify whether the data come from the Emergency Department of the referral hospital or from social-health centres).

##### ■ Benchmark level

Basic mandatory

**Annual analysis of age-disaggregated data. ▲ ●**

##### Evidence

Consumption data records disaggregated by age. The results of the indicators shall be consigned in the annual monitoring report.

Advanced mandatory

**Annual analysis disaggregated by age and sex. ▲▲ ●**

##### Evidence

Consumption data records disaggregated by age and sex. The results of the indicators shall be consigned in the annual monitoring report.



Excellent non-mandatory

Annual analysis disaggregated by age, sex and place of origin (specifying whether the data come from the Emergency Department of the referral hospital or from social-health centres).



#### Evidence

Consumption data records disaggregated by age, sex and place of origin. The results of the indicators shall be consigned in the annual monitoring report.

**BM23. The quality of antimicrobial prescribing in the most prevalent infectious processes in primary healthcare is analysed using the PRAN prescribing adequacy indicators.** ▲▲▲●

#### ■ Clarifications

It is recommended that an analysis be performed of the quality of prescribing using the PRAN indicators, both for family medicine and paediatrics, following the methodology proposed by the framework document [Antibiotic use indicators in Primary Healthcare](#). The availability of these results, which involves linking prescriptions to diagnoses, depends on the information systems of the autonomous community.

#### ■ Benchmark level

Excellent non-mandatory

#### Evidence

Annual registration of consumption data by pathology.





## Typology V.

### Analysis and monitoring of consumption and clinical outcomes

#### **BM24. Cross-sectional studies are conducted to assess the adequacy of antimicrobial prescribing to the reference antimicrobial therapy guide. ▲▲▲●**

##### ■ Clarifications

The assessment is carried out taking into account concordance with recommendations of the reference antimicrobial therapy guide in terms of indication/need for antimicrobial therapy, antibiotic selection, correct regimen, dose and treatment duration. Particular emphasis is placed on the assessment of the appropriateness of antibiotics of critical importance for human medicine. Areas for further improvement are identified based on the analysis and outcome of these evaluations.

##### ■ Benchmark level

Excellent mandatory

##### Evidence

A request will be issued for the results of annual cross-sectional studies in order to assess the adequacy of prescriptions.

#### **BM25. The evolution of local bacterial resistance rates is analysed. ▲▲●**

##### ■ Clarifications

This indicator depends on the provision or publication of cumulative bacterial susceptibility reports by the referral hospital's microbiology laboratory on samples from the community (primary healthcare and hospital emergency).

##### ■ Benchmark level

Advanced mandatory

##### Evidence

Annual records of the evolution of bacterial resistance data from the microbiology laboratories of the referral hospitals will be analysed.

**BM26. There is an annual analysis of the incidence of hospital admissions due to complications in respiratory and urinary tract infections. ▲▲▲●**

■ **Clarifications**

This report is produced with data from the MBDS (Minimum Basic Data Set) of the hospitals where patients in the area have been admitted. It is recommended that this data be provided as an admission rate: number of hospital admissions due to complications in respiratory and urinary tract infections in patients in the healthcare area per 1,000 population-days.

■ **Benchmark level**

Excellent non-mandatory

**Evidence**

Annual report with data on the rate of hospital admissions for complications of respiratory and urinary tract infections following the standard MBDS coding system.

**BM27. The PROA team is responsible for carrying out an annual analysis of the level of compliance with the objectives according to the PROA indicators and then drawing up improvement plans. ▲●**

■ **Clarifications**

It is recommended that the PROA team report at least once a year.

■ **Benchmark level**

Basic mandatory

**Evidence**

A request will be issued for a report on the analysis of the results and monitoring of the objectives, according to the indicators, as well as improvement plans already implemented. This information will be included in the annual monitoring report.





## Typology V.

### Analysis and monitoring of consumption and clinical outcomes

**BM28. An annual monitoring report is drawn up and must be certified by the signature of the management of the relevant primary healthcare structure. ▲ ●**

#### ■ Clarifications

The annual monitoring report, carried out by the PROA team, encompasses the outcome of various benchmarks developed in the Community PROA Team Certification Standard so that the management of the relevant primary healthcare structure is satisfied with the updates and has an overview of the outcome of the PROA activities in the area. At the discretion of the PROA team, it can be circulated in full or in part among primary healthcare teams.

The documentation to be included is:

- The minutes of the PROA team meetings described in [benchmark 5](#).
- The report on the level of compliance with the PROA objectives and improvement plans, described in [benchmark 27](#).
- Set of reports from [Typology V](#) (Analysis and monitoring of consumption and clinical outcomes).
- The records of the advisories carried out at the centre, provided they are carried out as defined in [benchmark 30](#).
- The analysis of the results of the PROA process indicators, antimicrobial consumption, and bacterial sensitivity data, defined in [benchmark 31](#).
- Any modification of the PROA Framework Document.

#### ■ Benchmark level

Basic mandatory

#### Evidence

A request will be issued for annual monitoring reports to substantiate that the points detailed in the benchmark are included. Confirmation that they have been signed by the management of the relevant primary healthcare structure.









## Typology VI.

### Educational interventions

**BM29. A continuous training programme on the appropriate use of antimicrobials is developed and delivered to all healthcare professionals in the area. ▲ ●**

#### ■ Clarifications

The training programme is aimed at professionals involved in the indication, dispensing or administration of antimicrobials and is adapted to different professional groups. In health centres with places for specialist training, it is also aimed at family medicine, paediatrics and nursing residents.

#### ■ Benchmark level

Basic mandatory

#### Evidence

Report confirming that the common continuing education programme for all primary healthcare teams, including emergency units, oral health units and residents (in the case of teaching centres) has been developed and implemented. A request will be issued for records substantiating that the training programme, training course planning, attendance lists, training support documentation, information emails, etc. have been carried out.



## **BM30. Clinical advisories or other individual training activities are conducted for health professionals in the health area. ▲▲○**

### ■ Clarifications

The health centre PROA representatives ([see benchmark 7](#)) or other professionals in the area carry out the advisories. These are, in principle, given to all professionals in the area. Given that this activity entails the release of other responsibilities of both the PROA representative and the professional who receives it, it is recommended that the PROA team prepare an annual schedule of the number of advisories that can be carried out. If there are insufficient resources, it is recommended that priority be given to advisories for practitioners using pre-specified quality indicators.

### ■ Benchmark level

Advanced mandatory

#### Evidence

Report detailing the number of advisories based on real clinical cases and training activities carried out by the representatives, as well as a record analysis.



## **BM31. An analysis of the results of the PROA process indicators, antimicrobial consumption and bacterial susceptibility data is circulated annually among primary healthcare teams. ▲○**

### ■ Clarifications

The results of the indicators are sent to physicians employing the channel that the autonomous community normally uses to send pharmaceutical prescription quality indicators and bacterial resistance data. The dissemination of these results is accompanied by information on the clinical justification for adjusting antimicrobial prescribing, highlighting the relevance of safety and healthcare quality aspects.

### ■ Benchmark level

Basic mandatory

#### Evidence

A request will be issued for records substantiating that annual results have been circulated among primary healthcare teams. These analyses will be included in the annual monitoring report.





## Typology VI.

### Educational interventions

#### **BM32. Information/education activities for the general population on the prudent use of antibiotics are carried out. ▲▲○**

##### ■ Clarifications

In centres where these are organised, Public Health resources with municipalities, local health plans or collaborations with neighbourhood associations, patient associations, local media, etc. can be used.

##### ■ Benchmark level

Advanced mandatory

##### **Evidence**

A request will be issued for records substantiating the dissemination of patient information materials (information sheets, posters, multimedia materials) or specific meetings, workshops and other activities on the prudent use of antibiotics aimed at these population groups.

#### **BM33. Specific training programmes are developed for health professionals in the social-health centres in the area. ▲▲▲○**

##### ■ Clarifications

In order to develop this activity, it is necessary to establish a framework of collaboration with the management of these centres.

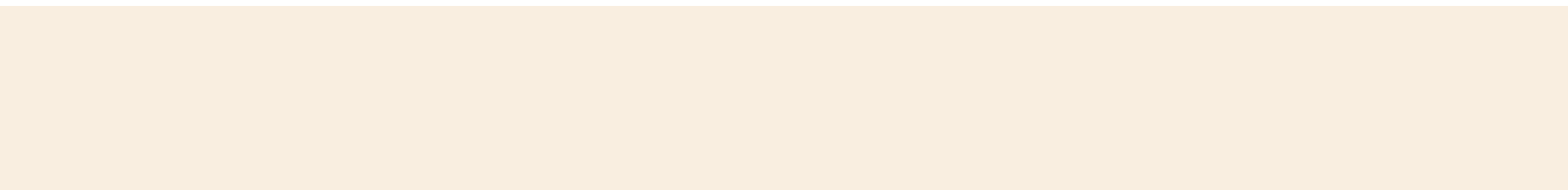
##### ■ Benchmark level

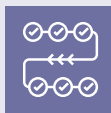
Excellent mandatory

##### **Evidence**

Report confirming that the training programme for professionals in social-health centres has been developed and implemented. A request will be issued for records substantiating that the training programme, training course planning, attendance lists, training support documentation, information emails, etc. have been carried out. As well as the list of centres in which it has been implemented.







## Typology VII.

Measures to promote coordination between healthcare levels and continuity of healthcare

**A. Standardisation of the activities of the PROA teams for community patients and hospital patients. In order to achieve the objectives indicated in the following benchmarks, there is a for communicating and coordinating among the teams in different areas, with at least one meeting per year to discuss common goals.**



### ■ Clarifications

For coordination between the two healthcare levels, it is recommended that at least one meeting be held annually. The coordinators of the community and hospital PROAs or, failing that, the members of the PROA team appointed by the coordinator, are responsible for this coordination. Participation of core team of community and hospital PROA teams is recommended. The meetings of the community and hospital PROA teams will be held with the following objectives:

- Evaluating the results of the previous year's objectives.
- Agreeing on objectives for the new year.
- Detecting areas for improvement.
- Deciding on intervention measures to be carried out.
- Reaching a consensus on the approach to the treatment of infections in outpatients, using the reference antimicrobial therapy guide for infections in the community as a basis.
- Developing coordination mechanisms to promote the achievement of common quality benchmarks for PROA certification.

### ■ Benchmark level

Advanced mandatory

#### Evidence

A request will be issued to community and hospital PROA teams for the following:

- Minutes of the meetings held.
- Reports justifying shared actions.
- Objectives, showing that they have been followed up.
- Coordination or collaboration agreements.
- Agreed guide on antimicrobial therapy of community-acquired infections.



## **B. Annual local sensitivity data for the most frequent pathogens in the community are available for professionals working in primary healthcare and the hospital according to the PRAN indicators (updated in Annex II).**

### ■ Clarifications

This indicator depends on the activity of the microbiology laboratory of the referral hospital(s) and the provision of cumulative bacterial sensitivity reports from samples from the community (primary healthcare, hospital emergency and, if possible, hospital outpatient clinics). One isolate per patient must be included. The breakpoints recommended by the [European Committee on Antimicrobial Susceptibility Testing \(EUCAST\)](#) are used. The selection of microorganisms, resistance mechanisms and antibiotics for these reports should be in line with those established by the PRAN for Community PROAs, listed in [Annex II](#). It is recommended that the data be disaggregated by age, sex and place of origin (specifying whether the data come from the Emergency Department of the referral hospital or from social-health centres).

### ■ Benchmark level

Basic mandatory

**Annual local sensitivity data for the most frequent pathogens in the community are available to professionals working in primary healthcare and in the hospital. ▲ ●**

#### Evidence

A request will be issued to community and hospital PROA teams for evidence of the availability of annual sensitivity data from the referral hospital's microbiology laboratory following the standards set out by [EUCAST](#).

Advanced mandatory

**Annual local sensitivity data, disaggregated by age, for the most prevalent pathogens in the community are available to professionals working in primary healthcare and in the hospital.**

▲▲●

#### Evidence

A request will be issued to community and hospital PROA teams for evidence of the availability of annual sensitivity data (disaggregated by age) from the referral hospital's microbiology laboratory following the standards set out by [EUCAST](#).





## Typology VII.

Measures to promote coordination between healthcare levels and continuity of healthcare

Excellent non-mandatory

Annual local sensitivity data, disaggregated by age, sex and place of origin, of the most frequent pathogens in the community, are available to professionals working in primary healthcare and in the hospital. ▲▲▲●

### Evidence

A request will be issued to community and hospital PROA teams for evidence of the availability of annual sensitivity data (disaggregated by age, sex and place of origin) from the referral hospital's microbiology laboratory following the standards set out by [EUCAST](#).

**C. An antibiogram template for primary healthcare is designed by agreement between the primary healthcare area and the reference laboratory, adapted to the type of samples from community infections. ▲▲▲●**

### ■ Clarifications

The antibiogram issued to primary healthcare should be easily interpretable and report the clinical category – sensitive to standard exposure (S), increased exposure (I) or resistant (R) – of the antibiotics included in the SNS antimicrobial therapy guides.

### ■ Benchmark level

Excellent non-mandatory

### Evidence

A request will be issued to community and hospital PROA teams for evidence of the availability of the sensitivity report or antibiogram adapted to primary healthcare.





**D. A referral microbiologist and a clinician with expertise in diagnosing and treating hospital-acquired infectious diseases (for adults and paediatrics) are assigned to advise the community PROA team in their referral area. ▲▲●**

■ **Clarifications**

It is recommended that a representative microbiologist be appointed for the community PROA, as well as an expert in hospital infectious diseases (adult and paediatrics). Both should preferably be members of the hospital PROA team. If the area has more than one referral hospital, a microbiologist and an infectious disease physician should be available for each one.

■ **Benchmark level**

Advanced mandatory

**Evidence**

A request will be issued for records of the availability of a microbiologist and an infectious disease expert for consultations and records of the activity.

**E. Hospital referral protocols are available for the most prevalent infectious pathologies agreed with the referral hospital(s). ▲▲●**

■ **Clarifications**

These protocols or criteria may be incorporated in the reference antimicrobial guide and may be requested to accredit this benchmark.

■ **Benchmark level**

Advanced non-mandatory

**Evidence**

A request will be issued for protocols or criteria for referral to hospital services implemented in coordination with the referral hospital(s) for patients requiring shared management, or the agreed antimicrobial therapy guide for infections in the community where this information is included.





## Typology VII.

Measures to promote coordination between healthcare levels and continuity of healthcare

### **F. The health area has computerised access to the analytical, microbiological and radiological results of the patients attending the referral hospital. ▲▲●**

#### ■ Clarifications

This indicator depends on the activity of the referral hospital and should be available for primary healthcare.

#### ■ Benchmark level

Advanced mandatory

#### **Evidence**

A request will be issued for community and hospital PROA teams to provide evidence that professionals working in primary healthcare have computerised access to patients' analytical, microbiological and radiological results in real time.

### **G. There is a procedure to check for suspected antibiotic allergy and recording it in the patient's medical history. ▲▲▲●**

#### ■ Clarifications

Any suspected allergy to antibiotics, especially beta-lactams, should be studied and confirmed or ruled out and the result should be correctly recorded in the patient's medical history. This procedure should include a specific referral circuit to the allergy service for examination in this unit when necessary. The results must be correctly recorded in the digital medical history and the alert included in the prescription.

#### ■ Benchmark level

Excellent non-mandatory

#### **Evidence**

A request will be issued to community and hospital PROA teams for evidence of the availability of a procedure to check for suspected allergies by the allergology and/or immunology service.



**H. Alert mechanisms are in place (coordinated between the referral hospital and the primary healthcare area) to identify patients discharged from hospital or patients in the community who are admitted to hospital with an infection or colonisation by multidrug-resistant microorganisms, to facilitate their follow-up and optimise recommended steps. ▲▲▲●**

■ **Clarifications**

In the case of patients in the community, these are patients with known colonisation or infection with multidrug-resistant bacteria.

■ **Benchmark level**

Excellent non-mandatory

**Evidence**

A request will be issued to community and hospital PROA teams to provide information on the programmes implemented in coordination between the referral hospital and the primary healthcare area, and which are activated when a transition of care of a patient with infection or colonisation by multidrug-resistant microorganisms is detected, with specific recommendations on approach (treatments, isolation measures, etc.).

**I. Coordinated action protocols are in place for the detection, reporting and response to episodes of bacteraemia in outpatients. ▲▲●**

■ **Clarifications**

In particular, action will be envisaged for patients discharged from hospital emergency departments and followed up in primary healthcare.

■ **Benchmark level**

Advanced mandatory

**Evidence**

A request will be issued to community and hospital PROA teams for protocols for action and detection of bacteraemia in outpatients.



## Typology VII.

Measures to promote coordination between healthcare levels and continuity of healthcare

**J. Protocols are in place for detection, reporting and action in cases of identification of microorganisms of particular clinical and/or epidemiological relevance detected in samples (not blood cultures) from outpatients. ▲▲●**

### ■ Clarifications

These cases would include multidrug-resistant bacteria and microorganisms without oral treatment options.

### ■ Benchmark level

Advanced mandatory

### Evidence

A request will be issued to community and hospital PROA teams for protocols for action in the event of identification of microorganisms of particular clinical and/or epidemiological relevance detected in samples (not blood cultures) from outpatients.







**UNDERTAKING  
OF THE MANAGEMENT OF THE PRIMARY  
HEALTHCARE STRUCTURE TO THE COMMUNITY PROA TEAM**

..... with ID no. ...., director  
of the primary healthcare structure ..... in the  
Autonomous Community of ..... UNDERTAKES to promote the  
activities foreseen in the PROA Framework Programme, to monitor and analyse the indicators, and  
to disseminate the results of the PROA that has been set up in the hospital.

On ..... 20 .....

Signed: .....

(name and surname)



Spanish Action Plan  
on Antibiotic  
Resistance







## Annex II. Out-of-hospital microbiological map

### Map of antibiotic sensitivity in the community, target microorganisms and special-surveillance antibiotics

#### Provenance of samples

The scope of out-of-hospital cumulative reports is the health area or equivalent. Only samples of non-hospital origin are included and samples from hospital emergencies are excluded. For certain microorganisms of community origin such as Salmonella or Campylobacter, it could be considered to also include hospital samples. Samples for epidemiological surveillance are excluded.

Data are calculated using the first isolation of each patient and year.

If the total number of isolated microorganisms is less than 30, aggregation of data from several years can be considered.

**Minimum frequency:** annual.

#### Target microorganisms, sample type and % sensitivity to the following antibiotics (AB):

GRAM- microorganisms	Sample	AB1	AB2	AB3	AB4	AB5	AB6	AB7	AB8	AB9	AB10
<i>Escherichia coli (E. coli)</i>	Urine	AMP/AMOX	A/C	CXM	CTX/CRO	CIP	FOS	FD	SXT	-	-
<i>E. coli</i> resistant to 3 <sup>rd</sup> generation cephalosporins/ESBL	Urine	-	A/C	-	CTX/CRO	CIP	FOS	FD	SXT	-	-
<i>Klebsiella pneumoniae</i>	Urine	AMP/AMOX	A/C	CXM	CTX/CRO	CIP	FOS	FD	SXT	-	-
<i>Klebsiella pneumoniae</i> resistant to 3 <sup>rd</sup> generation cephalosporins/ESBL	Urine	AMP/AMOX	A/C	CXM	CTX/CRO	CIP	FOS	FD	SXT	-	-
<i>Proteus mirabilis</i>	Urine	AMP/AMOX	A/C	CXM	CTX/CRO	CIP	FOS	-	SXT	-	-
<i>Haemophilus influenzae</i>	Respiratory tract	AMP/AMOX	A/C	-	CTX/CRO	CIP/LEVO	-	-	-	-	-





GRAM+ microorganisms	Sample	AB1	AB2	AB3	AB4	AB5	AB6	AB7	AB8	AB9	AB10
Methicillin-sensitive <i>Staphylococcus aureus</i> (MSSA)	All	OXA/ CLOXA	ERI	CD	MUP	CIP/ LEVO	GM	TOB	SXT	FUS	TET
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	All	OXA/ CLOXA	ERI	CD	MUP	CIP/ LEVO	GM	TOB	SXT	FUS	TET
<i>Streptococcus pyogenes</i>	Pharyngeal exudate	-	ERI	CD	-	-	-	-	-	-	-
<i>Streptococcus pneumoniae</i>	Respiratory tract	PEN/ AMOX	ERI	CD	CTX/ CRO	LEV	-	-	-	-	-

A/C: amoxicillin/clavulanate; AMP/AMOX: ampicillin/amoxicillin; ESBL: extended-spectrum beta-lactamases, (resistant to 3<sup>rd</sup> generation cephalosporins; not all 3<sup>rd</sup> generation cephalosporin resistances respond to ESBL production, although the vast majority does); CD: clindamycin; CXM: cefuroxime; CTX: cefotaxime; CRO: ceftriaxone (CTX and CRO are equivalent sensitivity effects); CIP: ciprofloxacin; ERI: erythromycin; FOS: fosfomicin; FUS: fusidic acid; FD: nitrofurantoin; GM: gentamicin; MUP: mupirocin; OXA: oxacillin (defines methicillin resistance); PEN: penicillin; SXT: trimethoprim-sulfamethoxazole or co-trimoxazole; TET: tetracycline; TOB: tobramycin.

### Other microorganisms to be considered in terms of overall incidence:

### Target microorganisms, sample type and % sensitivity to the following antibiotics (AB):

Microorganisms	Sample	AB1	AB2	AB3	AB4	AB5
<i>Salmonella</i> spp.	Faeces	AMP/ AMOX	CTX/ CRO	CIP	SXT	-
<i>Campylobacter</i> spp.	Faeces	-	-	CIP	-	ERI

AMP/AMOX: ampicillin/amoxicillin; CTX: cefotaxime; CRO: ceftriaxone; CIP: ciprofloxacin; SXT: trimethoprim-sulfamethoxazole; ERI: erythromycin (defines resistance to azithromycin).





## Annex II. Out-of-hospital microbiological map

### Indicators of multidrug-resistant bacteria

Microorganisms	Sample	No. of isolates	No. of resistant isolates	% of resistant isolates
<i>E. coli</i> resistant to amoxicillin/clavulanate	Urine			
<i>E. coli</i> resistant to ciprofloxacin	Urine			
<i>E. coli</i> ESBL	Urine			
<i>Klebsiella pneumoniae</i> ESBL	Urine			
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	All			
<i>Streptococcus pneumoniae</i> resistant to penicillin	Respiratory tract			
<i>Streptococcus pneumoniae</i> resistant to 3 <sup>rd</sup> generation cephalosporins	Respiratory tract			
<i>Streptococcus pyogenes</i> resistant to erythromycin	Respiratory tract			
<i>Haemophilus influenzae</i> resistant to amoxicillin-clavulanate	Respiratory tract			
<i>Salmonella</i> spp. resistant to ciprofloxacin	Faeces			







## Annex III. Summary tables

### Basic mandatory level ▲ ●

TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
I	1	Constitution of the PROA team.	Certificate from the management of the relevant primary healthcare structure (medical board, health board or equivalent).	Single document	<input type="radio"/>
	2	Appointment of core team.	Professional category of each member of the PROA team.	Latest update	<input type="radio"/>
	3	Definition of roles.	List of roles of the members of the PROA team.	Latest update	<input type="radio"/>
	4	Preparation of the PROA Framework Document.	PROA Framework Document (includes the points detailed in the benchmark) signed by the management of the primary healthcare structure.	Single document	<input type="radio"/>
	5	Recording and monitoring of PROA team activities.	Minutes of the meetings held and the follow-up of the decisions to the PROA team.	Previous year's record	<input type="radio"/>
	7	PROA family medicine and paediatrics representative with specific functions and coordinated with the PROA team.	List of PROA family and paediatrics representatives in each organisational unit, with reference to the number of centres in the area.	Latest update	<input type="radio"/>
II	8	Explicit support from the management of the relevant primary healthcare structure.	<ul style="list-style-type: none"> <li>Annex I.</li> <li>Statement of the relevant primary healthcare structure (medical board, health board or equivalent).</li> </ul>	Single document	<input type="radio"/>
III	10	Needs analysis, determining the necessary weekly dedication time of each member of the PROA team.	Report with the human resources needs analysis, specifying the weekly time that would be necessary for each member of the PROA team and the people involved in it.	Last update	<input type="radio"/>
	11	Availability of the Antimicrobial Therapy Guide of the SNS or a local adaptation as a reference for training activities.	Accreditation that the "SNS Antimicrobial Therapy Guide" has been adopted or justification of the need for a local guide based on local resistance patterns.	Last update	<input type="radio"/>
	12	Monitoring of overall antimicrobial prescribing through SNS-funded prescription.	Information on the software application.	Last update	<input type="radio"/>



TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
III	15	Rapid diagnostic test for <i>Streptococcus pyogenes</i> : <ul style="list-style-type: none"> <li>• Usage protocol.</li> <li>• Record of the number of tests performed.</li> </ul>	<ul style="list-style-type: none"> <li>• Report on the <i>Streptococcus pyogenes</i> test used.</li> <li>• Usage protocol.</li> <li>• Record of the number of tests performed.</li> </ul>	Last update	<input type="radio"/>
IV	16	Standardised work procedure for the inclusion or exclusion of antimicrobials from the medicine cabinets of the health centres, points of continuous care and other specific areas.	<ul style="list-style-type: none"> <li>• List of antibiotics included in the centre's pharmacotherapy guide.</li> <li>• Standardised procedure for inclusion/exclusion of antimicrobials.</li> </ul>	Last update	<input type="radio"/>
V	22	Analysis of antimicrobial consumption. Data disaggregated by age.	Consumption data records disaggregated by age.	Annual	<input type="radio"/>
	27	Evaluation of objectives and creation of improvement plans.	Report on the analysis of the results and monitoring of the objectives, according to the indicators, as well as improvement plans already implemented.	Annual	<input type="radio"/>
	28	Preparation of the annual monitoring report.	Annual monitoring report (including the items detailed in the benchmark) signed by the relevant primary healthcare structure.	Annual	<input type="radio"/>
VI	29	Lifelong learning programme.	<ul style="list-style-type: none"> <li>• Report confirming that the programme of continuing training has been developed and implemented.</li> <li>• Planning of comprehensive training programme.</li> <li>• Attendance records.</li> </ul>	Last update	<input type="radio"/>
	31	Circulation of the analysis of the results of the indicators among primary healthcare teams.	Records substantiating the circulation of annual results to primary healthcare teams.	Annual	<input type="radio"/>
VII	B	Following the indicators in Annex II, annual local sensitivity data for the most frequent pathogens in the community.	Evidence of availability of annual local sensitivity data for the most frequent pathogens in the community from the microbiology laboratory of the referral hospital(s) following the standards set out by EUCAST.	Annual	<input type="radio"/>



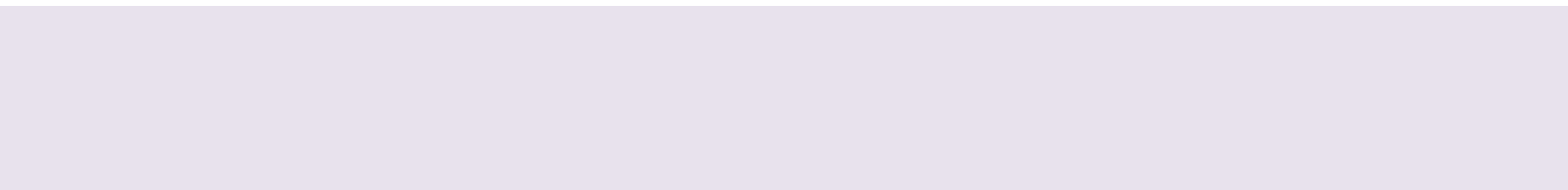


## Annex III. Summary tables

### Basic non-mandatory level ▲ ●

TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
IV	17	Strategy to promote delayed prescribing of antimicrobials.	Evidence of the availability of strategies to promote delayed prescribing of antimicrobials.	Last update	<input type="checkbox"/>







## Annex III. Summary tables

### Advanced mandatory level ▲▲●

TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
I	7	PROA representative for family medicine, paediatrics, out-of-hospital emergencies and oral health (if it exists in the area) with specific functions and coordinated with the PROA team.	List of PROA family, paediatrics, out-of-hospital emergency and oral health (if it exists in the area) representatives in each organisational unit, referencing the number of centres in the area.	Latest update	<input type="radio"/>
	9	Inclusion of the PROA in strategic objectives.	Hospital's strategic objectives to substantiate that the PROA is included among them.	Latest update	<input type="radio"/>
III	10	Professionals with specific part-time availability for PROA activities. Minimum 56-90 hours per month distributed among the members of the multidisciplinary team.	<ul style="list-style-type: none"> <li>Evidence of the basic mandatory level.</li> <li>Document accrediting the availability of part-time professionals (minimum 56-90 hours per month) for PROA activities during the working day.</li> </ul>	Latest update	<input type="radio"/>
	12	Monitoring of antimicrobial prescribing in primary healthcare in a disaggregated way according to the level of provenance of the prescription.	Information on the software application.	Latest update	<input type="radio"/>
	13	IT platform where antimicrobial consumption data are included.	Consumption data are available on the intranet and accessible to all healthcare professionals.	Latest update	<input type="radio"/>
	15	Rapid diagnostic test for <i>Streptococcus pyogenes</i> : <ul style="list-style-type: none"> <li>Usage protocol.</li> <li>Record of the number of tests performed.</li> <li>System for recording the result in the medical history.</li> </ul>	<ul style="list-style-type: none"> <li>Report on the test for <i>Streptococcus pyogenes</i> used.</li> <li>Usage protocol.</li> <li>Record of the number of tests performed.</li> <li>Recording of results in medical history.</li> </ul>	Latest update	<input type="radio"/>
	22	Analysis of antimicrobial consumption. Data disaggregated by age and sex.	Consumption data records disaggregated by age and sex.	Annual	<input type="radio"/>
V	25	Analysis of the evolution of local bacterial resistance rates.	Records of the evolution of bacterial resistance data from the microbiology laboratories of the referral hospitals.	Annual	<input type="radio"/>
	30	Clinical advisories are carried out.	<ul style="list-style-type: none"> <li>Report with the number of advisories and training activities carried out.</li> <li>Report with the record analysis.</li> </ul>	Latest update	<input type="radio"/>
VI	32	Information/education activities for the general population on the prudent use of antibiotics.	Records: <ul style="list-style-type: none"> <li>Dissemination of information materials.</li> <li>Meetings, conferences and other activities.</li> </ul>	Latest update	<input type="radio"/>





TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
VII	A	Mechanism of communication and coordination between the PROA teams of the hospital patient and the community patient, with at least one annual meeting to discuss common objectives.	<ul style="list-style-type: none"> <li>• Minutes of the meetings held.</li> <li>• Reports justifying shared actions.</li> <li>• Objectives, showing that they have been followed up.</li> <li>• Coordination or collaboration agreements.</li> <li>• Agreed antimicrobial therapy guide for community-acquired infections.</li> </ul>	Annual	<input type="radio"/>
	B	Following the indicators in Annex II, annual data (disaggregated by age) for local sensitivity to the most frequent pathogens in the community.	Evidence of availability of annual local sensitivity data (disaggregated by age) for the most frequent pathogens in the community from the microbiology laboratory of the referral hospital(s) following the standards set out by EUCAST.	Annual	<input type="radio"/>
	D	Appointment of a microbiologist and a clinician with expertise in diagnosing and treating hospital-acquired infectious diseases (for adults and paediatrics) to advise the community PROA team in their area of reference.	Record of the availability of a microbiologist and an infectious disease expert and records of the activity.	Latest update	<input type="radio"/>
	F	Access to the analytical, microbiological and radiological results of patients attending the referral hospital.	Evidence that professionals working in primary healthcare have computerised access to real-time analytical, microbiological and radiological results of patients.	Latest update	<input type="radio"/>
	I	Protocols for the detection, reporting and response to episodes of bacteraemia in outpatients.	Protocols for the detection, reporting and response to episodes of bacteraemia in outpatients.	Latest update	<input type="radio"/>
	J	Protocols for detecting, reporting and acting upon cases of identification of microorganisms of special clinical and/or epidemiological relevance found in samples (not blood cultures) from outpatients.	Protocols for detecting, reporting and acting upon cases of identification of microorganisms of special clinical and/or epidemiological importance.	Latest update	<input type="radio"/>





## Annex III. Summary tables

### Advanced non-mandatory level ▲▲●

TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
I	6	Coordination mechanisms between primary healthcare centres and area social-health centres for the development of PROA activities.	Documentation accrediting the implementation of coordinated PROA activities in the social-health centres.	Latest update	<input type="checkbox"/>
VII	E	Hospital referral protocols for the most prevalent infectious pathologies.	Protocols or criteria for referral to hospital services for patients requiring shared management, or agreed antimicrobial therapy guide for infections in the community where this information is included.	Last update	<input type="checkbox"/>





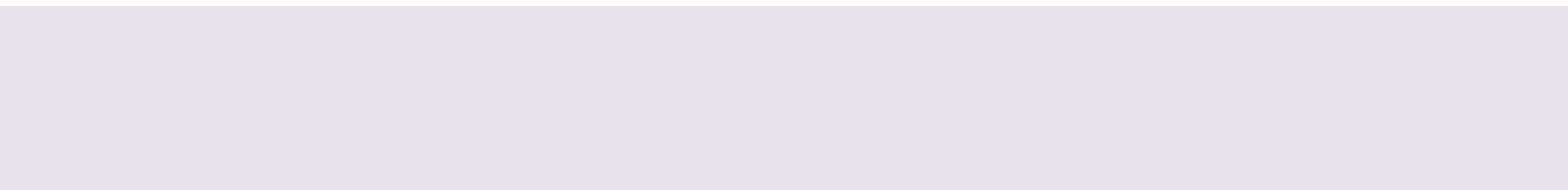


## Annex III. Summary tables

### Excellent mandatory level ▲▲▲●

TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
II	9	PROA objectives are linked to incentives.	Documentation certifying that the Autonomous Community provides financial incentives for meeting the strategic objectives of the Community PROA.	Latest update	<input type="radio"/>
III	14	IT platform where antimicrobial resistance data are included.	Resistance data are available on the intranet and accessible to all healthcare professionals.	Latest update	<input type="radio"/>
V	24	Evaluation of the quality of antimicrobial prescribing through cross-sectional studies.	Report on the cross-sectional study on the adequacy of antibiotic prescriptions.	Annual	<input type="radio"/>
VI	33	Specific training for healthcare professionals from the social-health centres in the area.	<ul style="list-style-type: none"> <li>• Report confirming that the training programme for professionals in social-health centres has been developed and implemented.</li> <li>• Planning of comprehensive training programme.</li> <li>• Attendance records.</li> <li>• List of centres where it has been carried out.</li> </ul>	Latest update	<input type="radio"/>







## Annex III. Summary tables

### Excellent non-mandatory level ▲▲▲●

TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
III	10	Exclusive full-time professionals for PROA activities. Minimum 90-120 hours per month distributed among the members of the multidisciplinary team.	<ul style="list-style-type: none"> <li>Evidence of the basic mandatory level.</li> <li>Document accrediting the availability of full-time professionals (minimum 90-120 hours per month) for PROA activities during the working day.</li> </ul>	Last update	<input type="radio"/>
IV	18	Incorporation of the SNS Antimicrobial Therapy Guide into the digital medical history.	SNS Antimicrobial Therapy Guide included in the digital medical history.	Last update	<input type="radio"/>
	19	A system of electronic prescribing linked to clinical diagnosis.	A request will be issued for information on the diagnosis-linked prescribing system.	Last update	<input type="radio"/>
	20	Protocol reflecting collaboration with community pharmacies.	Protocol outlining the joint activities of the primary healthcare PROA team and community pharmacists.	Last update	<input type="radio"/>
	21	Protocol reflecting the collaboration of SNS dentists and private practices.	Protocol that includes the joint activities of the primary healthcare PROA team and the Professional Association of Dentists and Stomatologists.	Last update	<input type="radio"/>
V	22	Analysis of antimicrobial consumption. Data disaggregated by age, sex and place of origin.	Consumption data records disaggregated by age, sex and place of origin.	Annual	<input type="radio"/>
	23	Analysis of the quality of antimicrobial prescribing in the most frequent infectious processes.	Records of consumption data by pathology.	Annual	<input type="radio"/>
	26	Analysis of the incidence of hospital admissions due to complications in respiratory and urinary tract infections.	Reports of hospital admission rate data for complications of respiratory and urinary tract infections (standard MBDS coding system).	Annual	<input type="radio"/>



TYP.	Benchmark	Summary	Evidence	Version to submit	Check-list
VII	B	Following the indicators in Annex II, annual local sensitivity data (disaggregated by age, sex and place of origin from social-health centres) for the most frequent pathogens in the community.	Evidence of availability of annual local sensitivity data (disaggregated by age, sex and origin from social-health centres) for the most frequent pathogens in the community from the microbiology laboratory of the referral hospital(s) following the standards set out by EUCAST.	Annual	<input type="radio"/>
	C	Antibiogram template for primary healthcare adapted to the type of infection samples from the community.	Resistance report or antibiogram adapted to primary healthcare.	Last update	<input type="radio"/>
	G	Procedure to check for suspected antibiotic allergy and recording it in the patient's medical history.	Availability of a procedure to check for suspected allergies by the allergology and/or immunology service.	Last update	<input type="radio"/>
	H	An alert mechanism to identify patients discharged from hospital or patients in the community who are admitted to hospital with infection or colonisation by multidrug-resistant microorganisms.	Programmes for patients with infection or colonisation by multidrug-resistant microorganisms with specific recommendations for their management (treatments, isolation measures, etc.).	Last update	<input type="radio"/>





# Spanish Action Plan on Antibiotic Resistance

