Autoridad Independiente de Responsabilidad Fiscal

Spending review 2019/2020 – Project No. 2

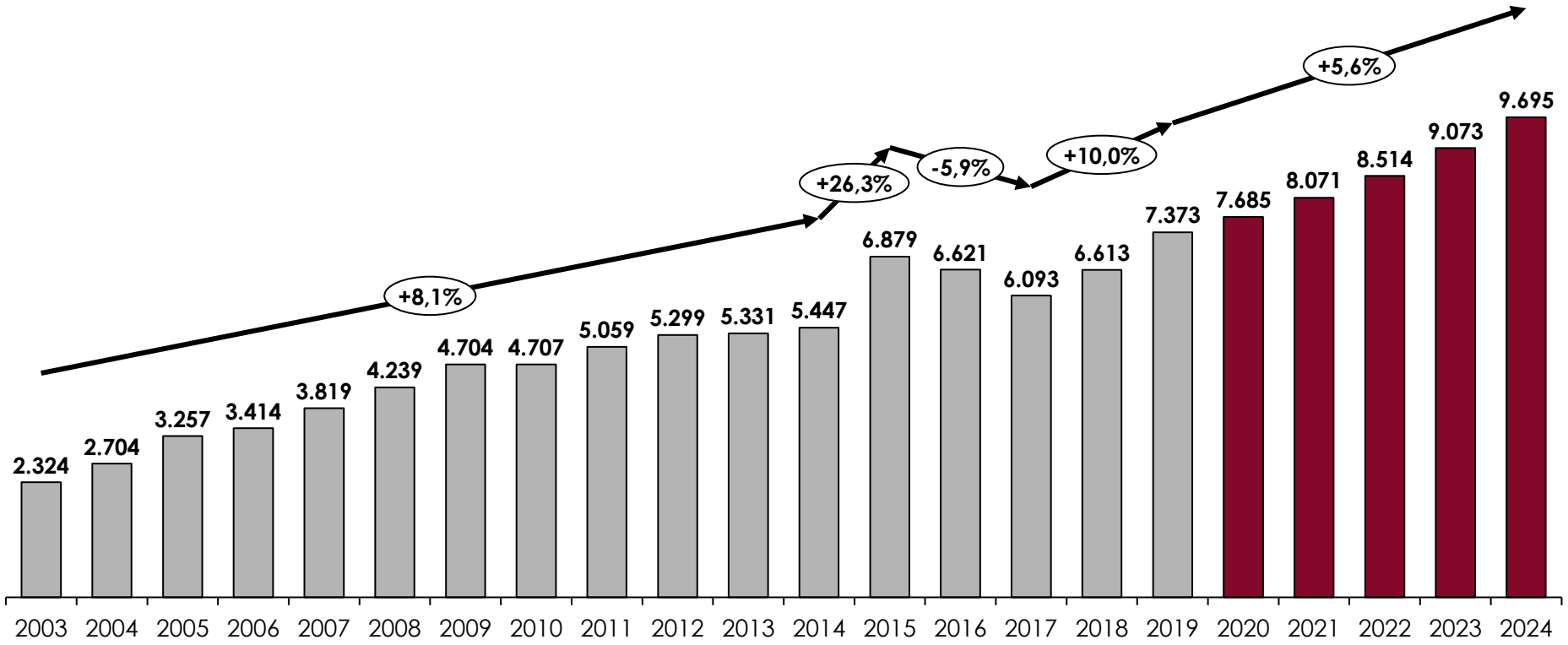
NHS expenditure on Hospital Pharmacy and Investment in High-Tech Equipment

Main proposals and strategic lines

October 2020

Hospital pharmaceutical spending has increased steadily over the period 2003-2019 and is expected to continue growing in the coming years (2020-2024)

Observed values (2003 – 2019) and forecasts (2020 – 2024) of hospital pharmaceutical expenditure of the NHS (€m)



Content

The study's approach is based on multiple sources of information, making it one of the most complete analyses due to the variety of sources used to verify the findings

1. **Databases**

2. **Questionnaires**

3. **Interviews**

4. **Review of the literature**

5. **Interviews with stakeholders**

6. **Work sessions with experts**

Both quantitative and qualitative methodologies have been used to process all the information

Quantitative analysis

- Information processing and database building
- Descriptive and statistical analysis
- Econometric analysis
- Technical efficiency analysis

Qualitative analysis

- Review of documentation
- Review of legislation
- Identification of good practices
- Interviews in hospitals
- Analysis of the questionnaires
- Interviews with experts

The questionnaires sent to hospitals and health services have a high level of response

Questionnaires for health services

	Responses received
Questionnaire on High-Tech Equipment	16
Pharmacy Questionnaire	11

Questionnaires for hospitals

	Valid Responses	% of hospitals represented	Equipment represented	% computers represented
Questionnaire on High-Tech Equipment	220	**62.7%**	1,570	**70.7%**

	Valid Responses	% of hospitals represented	Pharmaceutical expenditure represented	% pharmaceutical expense represented
Pharmacy Questionnaire for the Hospital Pharmacy Service	171	**48.2%**	€4,400m	**70.8%**
Pharmacy Questionnaire for the Centre's Management	122	**35%**	€3,040m	**50%**

Interviews were conducted with the management and management teams in 41 NHS hospitals

Galicia
1. Complejo Hospitalario Universitario de Vigo
2. Hospital de Montecelo (Área Sanitaria de Pontevedra)

Asturias
3. Hospital Universitario Central de Asturias

Cantabria
4. Hospital Universitario Marqués de Valdecilla

Extremadura
29. Complejo Hospitalario Universitario de Badajoz

Castile-La Mancha
30. Hospital General de Ciudad Real (P)
31. Complejo Hospitalario de Toledo (P)

Madrid
32. Complejo Hospitalario Gregorio Marañón
33. Hospital Universitario Puerta de Hierro Majadahonda
34. Hospital Rey Juan Carlos
35. Fundación Jiménez Díaz
36. Hospital Universitario 12 de octubre

Castile and León
37. Complejo Asistencial Universitario de Salamanca
38. Hospital Clínico Universitario de Valladolid
39. Complejo Asistencial Universitario de Burgos

Canary Islands
40. Complejo Hospitalario Universitario de Gran Canaria Dr. Negrín
41. Complejo Hospitalario Universitario Ntra. Sra. de Candelaria

Basque Country
5. Hospital Universitario de Cruces
6. Organización Sanitaria Integrada Alto Deba

Navarre
7. Complejo Hospitalario de Navarra

Rioja
8. Hospital San Pedro

Aragon
9. Hospital Universitario Miguel Servet (P)
10. Hospital Clínico Universitario Lozano Blesa (P)

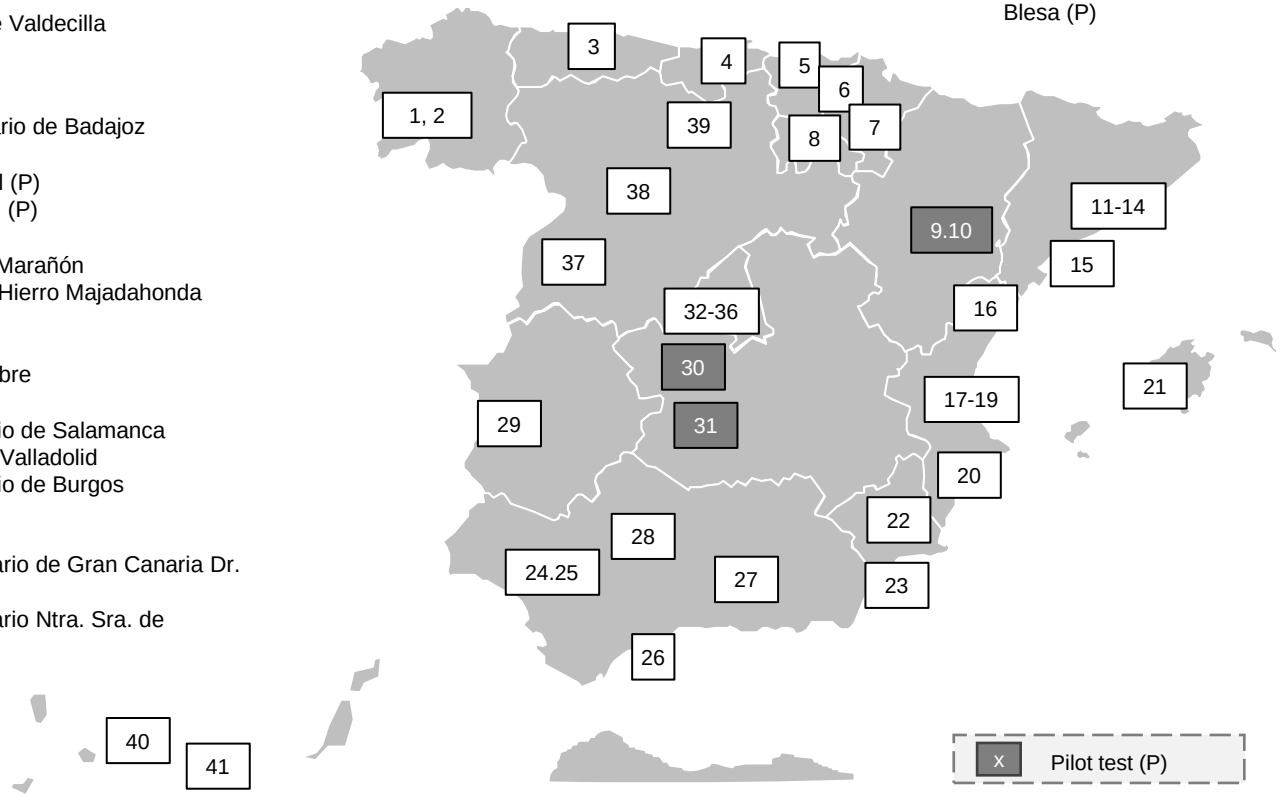
Catalonia
11. Hospital Universitari Vall d'Hebron
12. Hospital Universitari de Bellvitge
13. Hospital Clínic de Barcelona
14. Hospital de Mataró
15. Hospital de Sant Pau i Santa Tecla

Valencia
16. Hospital General Universitario de Castellón
17. Hospital Universitario y Politécnico La Fe
18. Fundación Instituto Valenciano de Oncología
19. Hospital de Manises
20. Hospital General Universitario de Alicante

Balearic Islands
21. Hospital Universitario Son Espases

Murcia
22. Hospital Clínico Universitario Virgen de la Arrixaca
23. Complejo Hospitalario Universitario de Cartagena

Andalusia
24. Hospital Universitario Virgen el Rocío
25. Hospital Universitario Virgen De Valme
26. Hospital Costa Del Sol
27. Hospital Universitario San Cecilio
28. Hospital Universitario Reina Sofía



The study is divided into three major thematic blocks.

01

Pharmacy:

- Evaluation for access and financing
- Rational use of medicines
- Procurement and purchasing
- Logistics and dispensing

- Analytics of pharmaceutical expenditure data

02

High technology:

- Level of obsolescence and existing equipment
- Decision-making: renewal, expansion and innovation
- Rational use of equipment and maintenance
- Procurement of new equipment

03

Cross-cutting aspects:

- Management tools
- Training and research

- Integration of information systems

Content

Proposals in the field of hospital pharmacy

Evaluation, access and review

Financing and pricing decisions

1. Review of the structure of the CIPM (Interministerial Medicinal Products Pricing Committee)
2. Intensification of systematic review of prices and financing conditions
3. Adaptation of the current Reference Price System
4. Incorporation of cost-effectiveness criteria in pricing

Medicines pipeline

5. Development of a plan for the entry of new medicines

Pharmacy Commissions and PTG Decision

6. Creation of a P&TC Collaboration Network
7. Selection of PTG using a mixed decision-making model
8. Homogenisation of the criteria for inclusion of off-label medicinal products

Rational use of medicines

Use of biosimilars

9. Promotion of the use of biosimilars, both at the start of treatment and in the switch.

   Main measures:

   - Legal framework
   - Incentives model
   - Training for practitioners
   - Information for patients

Pharmaceutical care in the services

10. Promotion of the integration of pharmacists in multidisciplinary care services and teams

Optimisation of medicines

11. Progress in medicine redosing in pharmacy services

Procurement and purchasing

Public procurement

12. Use of formulas and procedures to speed up the processing of procedures in order to promote procurement under the Public Sector Procurement Act
13. Consolidation of electronic procurement platforms and promotion of the use of dynamic purchasing systems
14. Involvement of all hospital professionals to increase procurement under the Public Sector Procurement Act

Purchase of medicines and price negotiation

15. Obligation of the regions to share the financed price with the Procurement Bodies
16. Prohibition of discounts that are not transparent, assignable to the medicine or transferable to the price

Logistics and dispensing

Automation

17. Automation of the storage and dispensing of medicines for in-patients
18. Automation of medication storage and dispensing for out-patients

Out-patients

19. Establishing a procedural and operational regulatory framework for providing a pharmaceutical service to out-patients
20. Improving the humanisation of out-patient care and medicine dispensing

Supply problems

21. Implementation of mechanisms for formal and more efficient management of medicine supply problems

Analytics of pharmaceutical expenditure data

Comparative national analysis of medicine expenditure

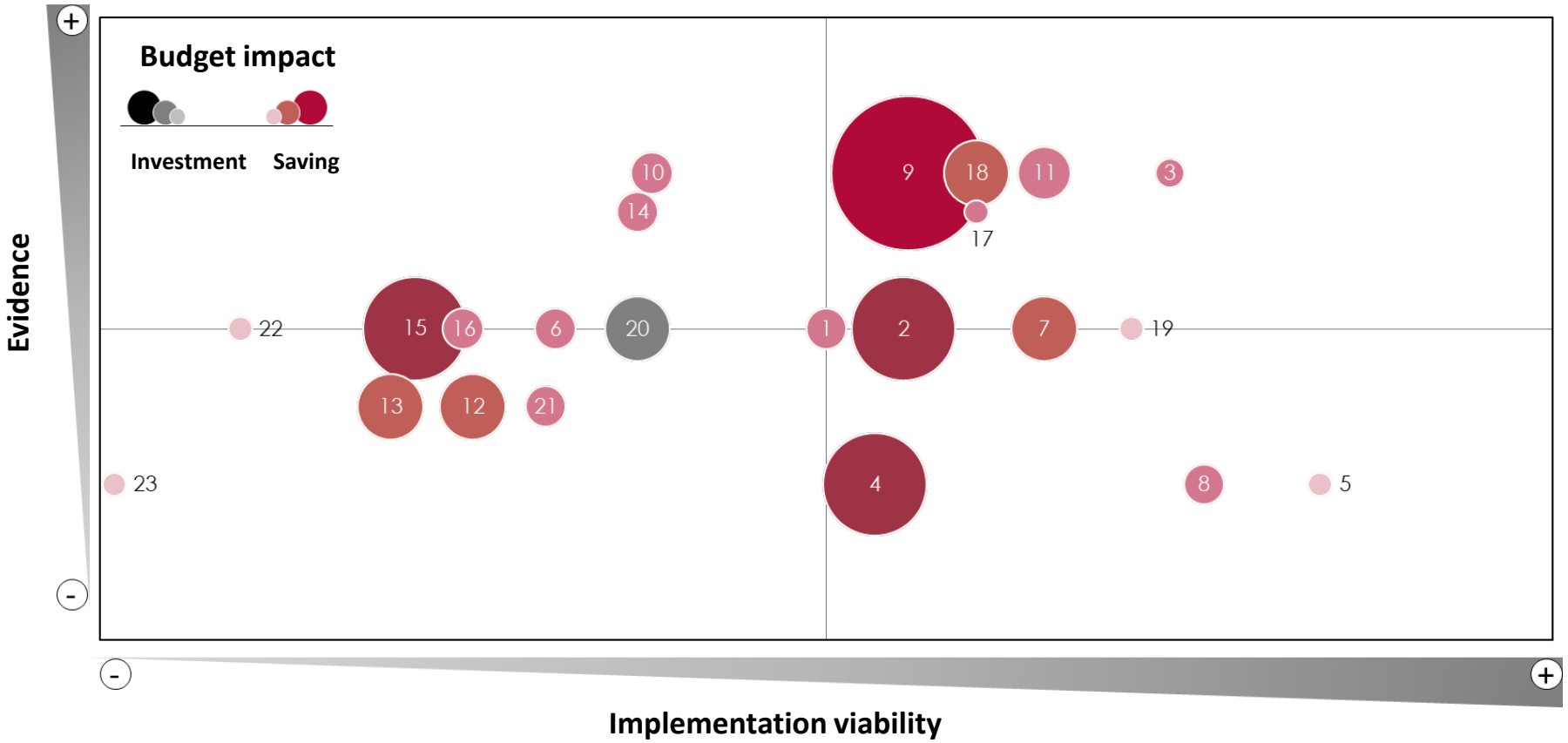
22. Improvement in the way information is collected in order to achieve greater quality and consistency in data

International comparative analysis of medicine expenditure

23. Promoting the collection of standardised data allowing international comparisons

Hospital pharmacy: expected impact of the proposed measures according to their feasibility and evidence

Measures in the hospital pharmacy field



Source: compiled by the author on the basis of a comprehensive analysis.

Proposals in the field of high-tech capital goods

Decision-making: renewal, expansion and innovation

Existing equipment

1. Development of a plan for investment in high-tech equipment that will allow Spain to converge towards the European average in terms of levels of equipment and obsolescence

Planning for the decision-making process

2. Strategic planning at a national and regional level on the incorporation and financing of the equipment
3. Implementation of models to systematise, objectify and prioritise decision-making for the acquisition and renewal of equipment

Procurement

4. Setting up specialist procurement teams and encouraging networking among them

Rational use of equipment and maintenance

Equipment inventory and records

5. Establishment of integrated systems that allow joint management of equipment inventory, maintenance, agendas and use

Rational use of high-tech equipment

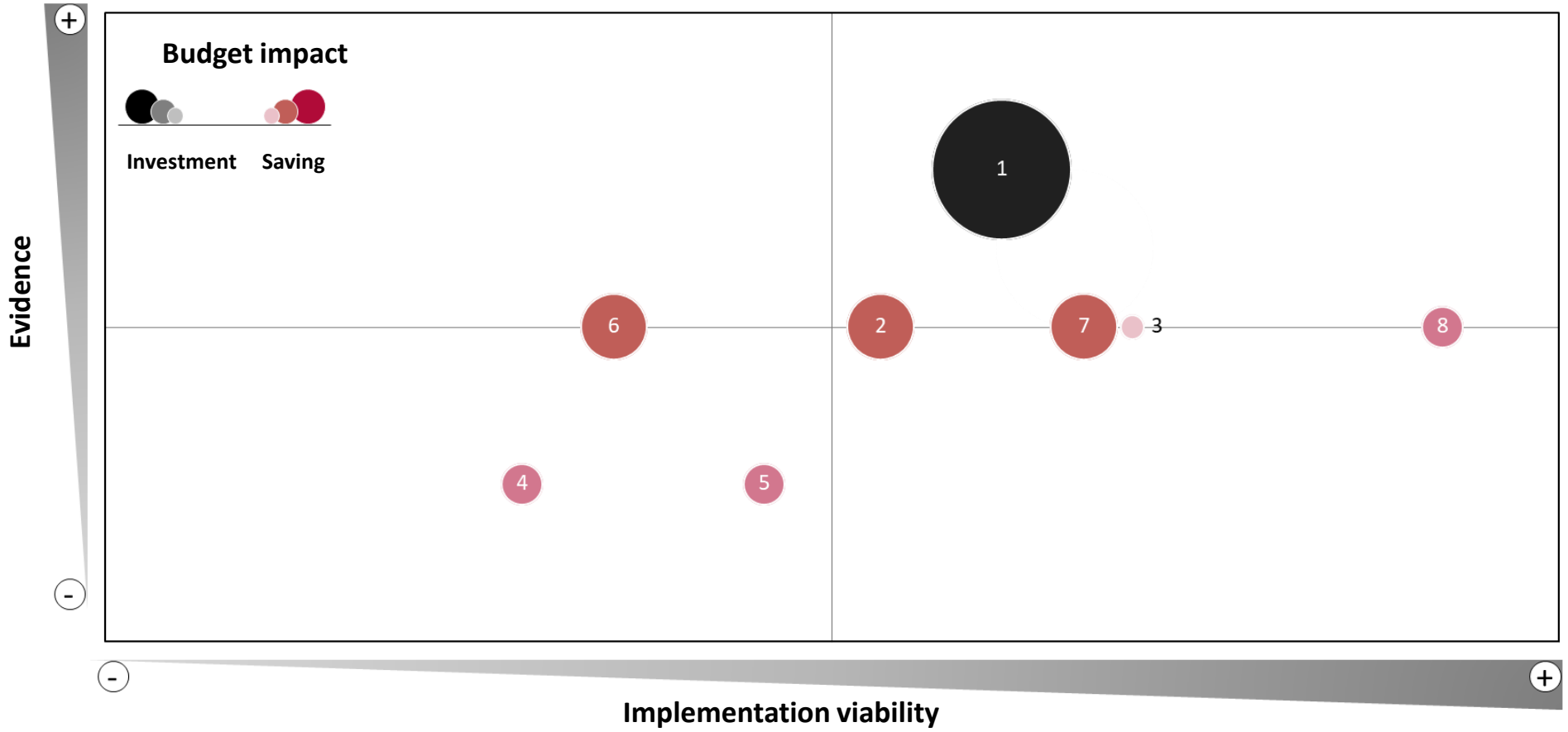
6. Review, control and validation of the suitability of diagnostic tests and the activity performed with the equipment
7. Implementation of attendance reminder and confirmation systems to manage absences

Maintenance of high-tech equipment

8. Proposal for preventive and corrective maintenance of equipment, preferably with the manufacturer and a clinical engineering team.

High-tech capital goods: expected impact of the proposed measures according to their feasibility and evidence

Measures in the field of high-tech equipment



Source: compiled by the author on the basis of a comprehensive analysis.

Proposals in cross-cutting areas

Management tools

Setting the target and incentive model

1. Review of the target and incentive model for professionals

Health outcomes

2. Establishment of medicine and high-tech equipment management systems based on health outcomes

Analytical accounting

3. Implementation and/or readjustment of analytical accounting systems to enable them to be used for management

Training and research

Training

4. Creation of an independent training plan, managed and supervised by the NHS offering the possibility of indirect collaboration with the industry

Clinical trials

5. Definition of a protocol for recording clinical trial activity and financial implications for the centre

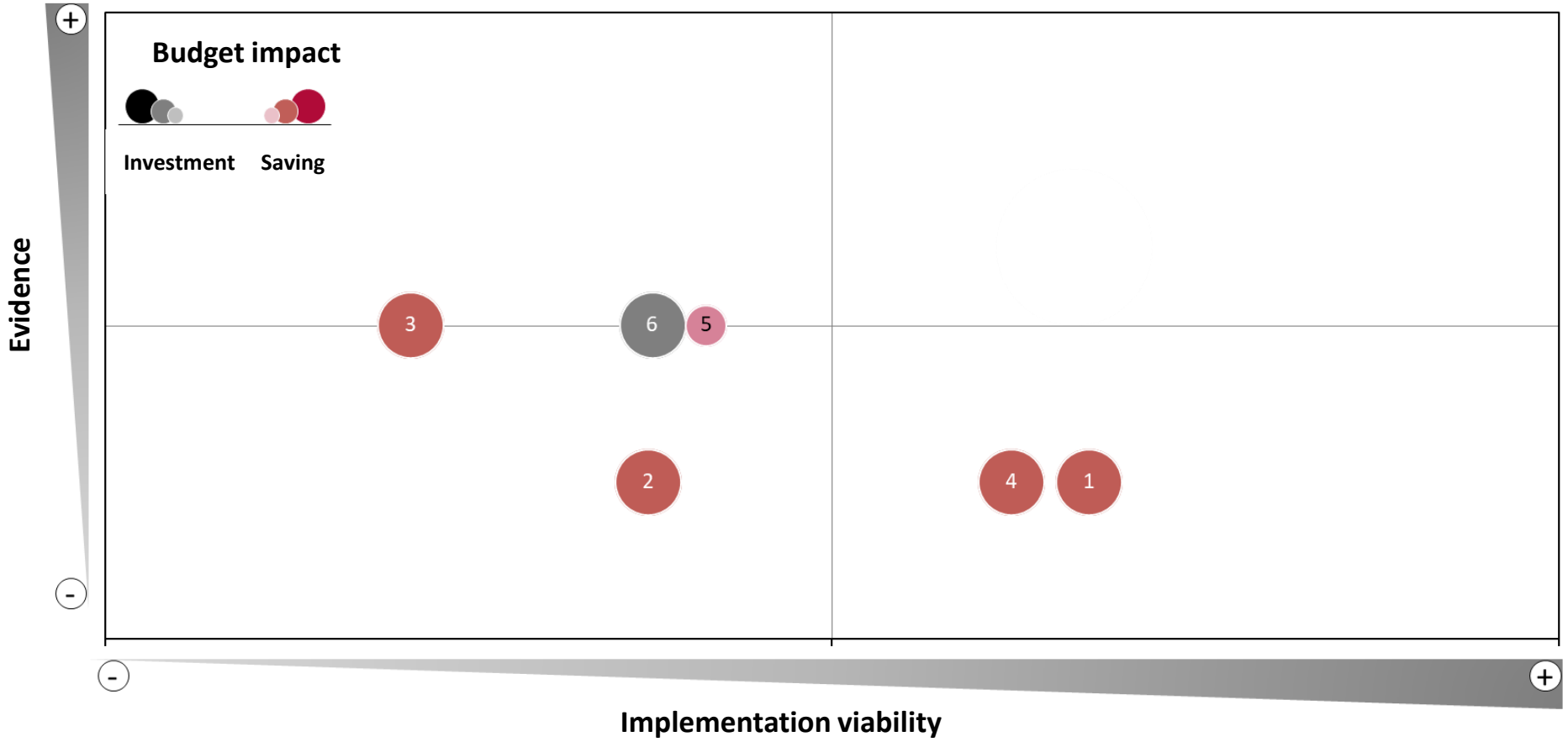
Integration of information systems

ICTs and information systems

6. Development of integrated and interoperable information systems that will facilitate networking and information sharing

Cross-cutting areas: expected impact of the proposed measures according to their feasibility and evidence

Cross-cutting measures



Source: compiled by the author on the basis of a comprehensive analysis.

Content

Main strategic lines and proposals

Strategic lines of the study	
01	**Efficiency and sustainability** Plan to Promote the Use of Biosimilars: incentives, legal security, training for professionals, communication with patients.
02	**Coordination and networking** Networking of the Pharmacy Commissions.
03	**Humanisation** Out-patient pharmaceutical care strategy.
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05	**Digital Transformation and Information Systems** Information exchange platforms and interoperable systems

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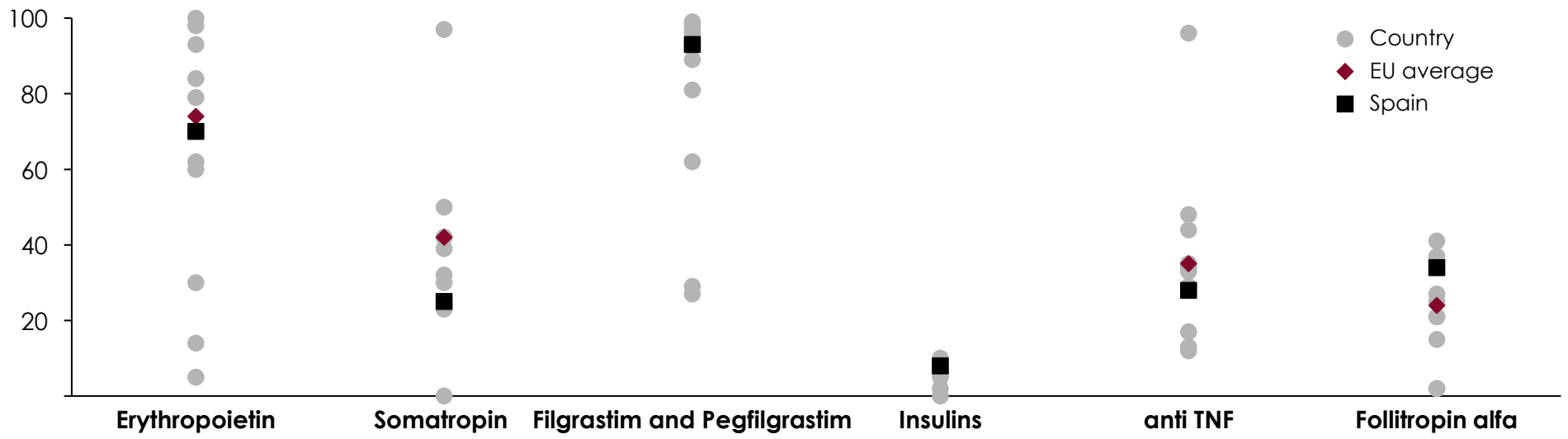
Findings

In comparative terms, the penetration of biosimilars in Spain is below the European average in three of the six active ingredients for which data are available

Percentage of daily treatments (in DDDs) with biosimilars over the total number of daily treatments. 2018



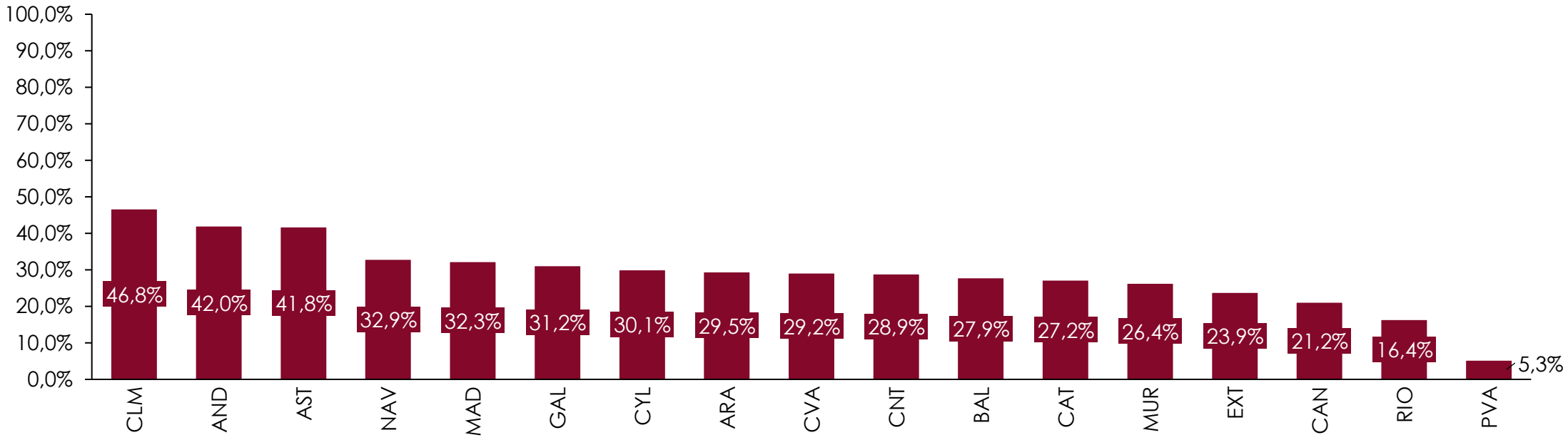
NB: The countries included in the analysis are Portugal, Germany, the Netherlands, Finland, France, Ireland, Spain, Italy, the United Kingdom, Denmark and Belgium.

Source: compiled by the author on the basis of IQVIA (2019). The Impact of Biosimilar Competition in Europe.

Findings

The level of penetration of biosimilars varies widely between regions, hospitals and clinical services and there is significant room for improvement for increasing the use of these medicines

Percentage of biosimilar DDDs consumed in hospital over the total consumption of the active substance per region 2018 (%)



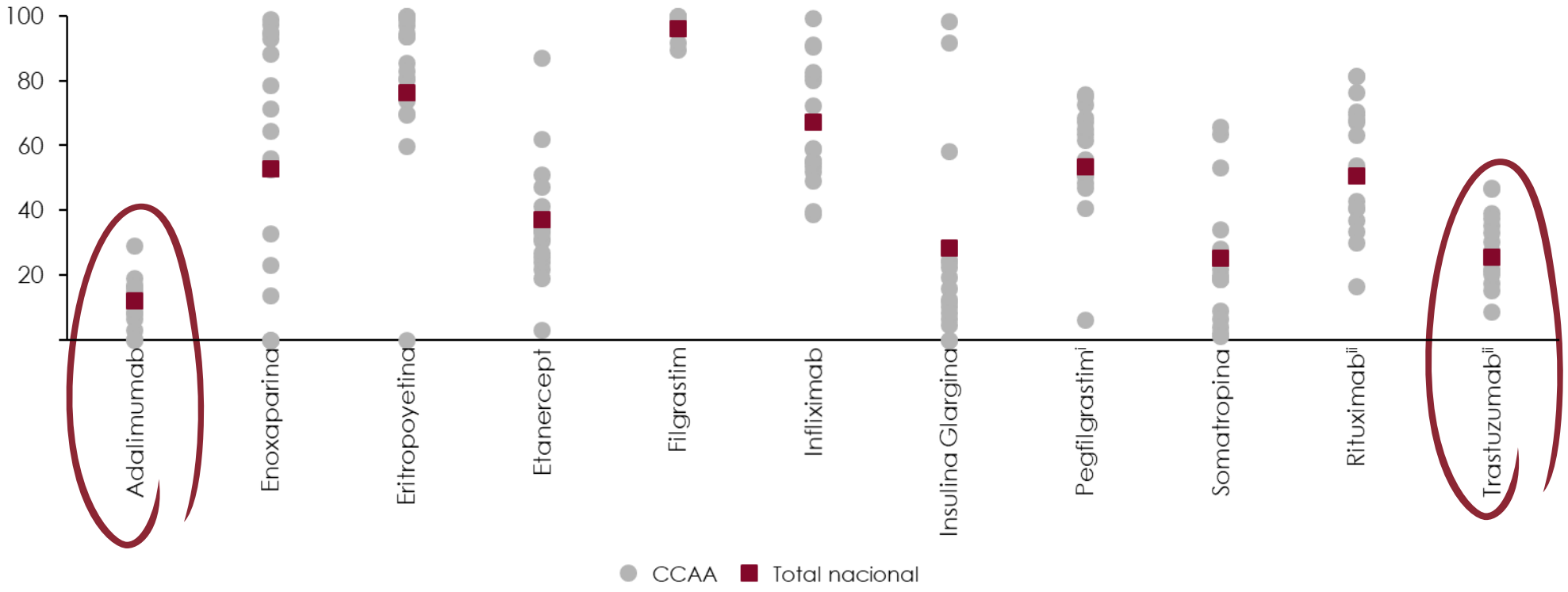
NB: Includes all active substances except Trastuzumab and Rituximab, which do not have a defined DDD.

Source: compiled by the author on the basis of data from the Hospital Consumption Information System.

Findings

The level of penetration of biosimilars varies widely between regions, hospitals and clinical services and there is significant room for improvement for increasing the use of these medicines

Level of penetration in DDDs of biosimilar medicines by region January 2019-August 2019 (%)

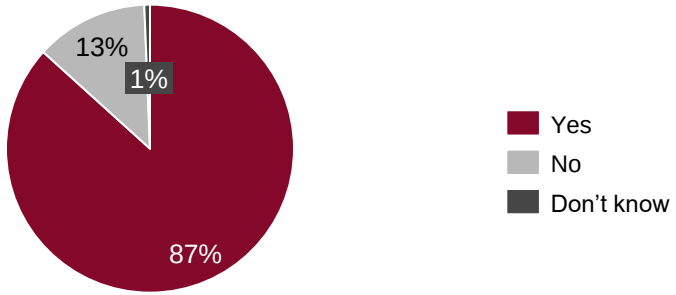


Source: Source: compiled by the author on the basis of data from the Hospital Consumption Information System.

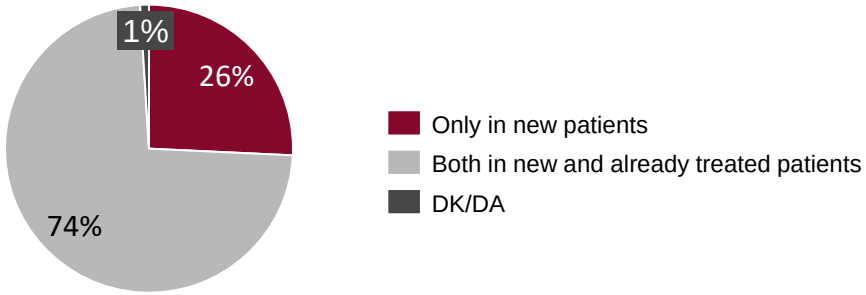
Findings

There are also differences in the strategy used to promote the use of biosimilars

Percentage of hospitals with protocols or guidelines to encourage the use of biosimilars promoted by the hospital



Percentage of hospitals according to scope of guidelines for the promotion of biosimilars



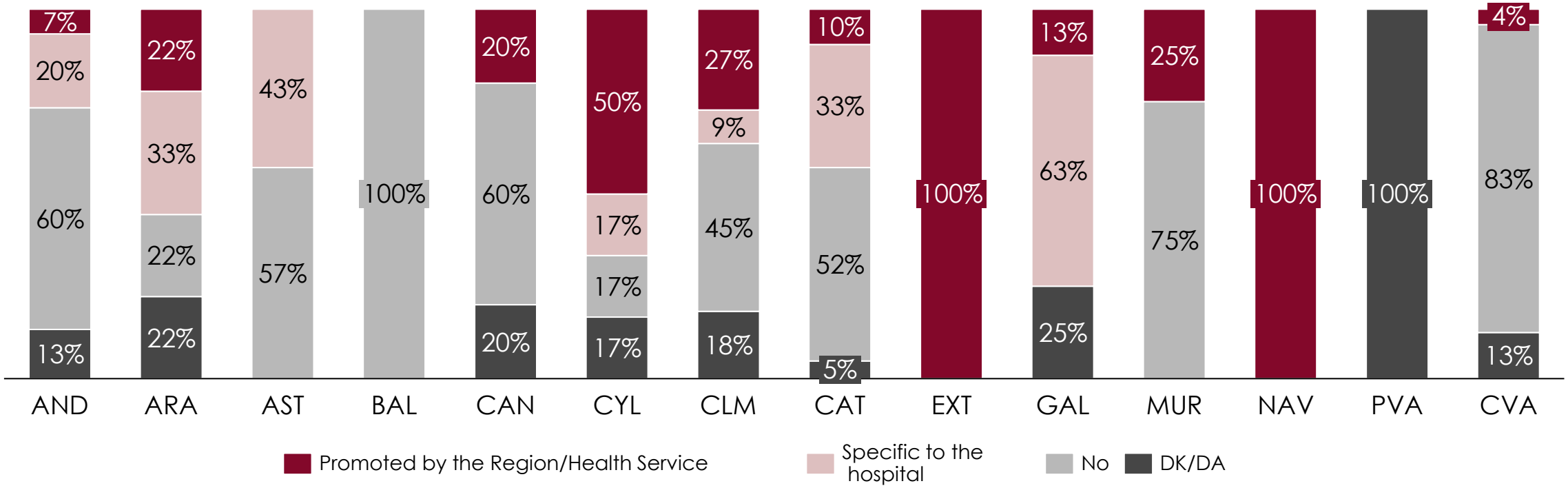
- **Not all regions and hospitals have protocols** or guidelines **that promote the use of biosimilars** both for treatment-naïve patients and in the switch.
- **Almost all the regions** for which information has been available **include specific indicators relating to the use of biosimilars** in **the Programme Contracts or Management Agreements**, although with differences between regions in the number and weight of the indicators used.
- In general, both the number of indicators used and the **weight they receive over the set of ACGs is low**.

Source: Source: compiled by the author on the basis of the data of the Pharmacy Questionnaire for the Hospital Pharmacy Service.

Findings

Significant differences have also been identified in the strategies for training in biosimilars deployed by regional health services and hospitals

Specific training programmes on the use of generics and biosimilars for practitioners



Source: Source: compiled by the author on the basis of the data of the Pharmacy Questionnaire for the Hospital Pharmacy Service.

Proposal

Promotion of the use of biosimilars, both for treatment-naïve patients and for patients currently undergoing treatment (switch)

Main aspects of the Biosimilars Plan

1. Incentive Model

2. Legal Support

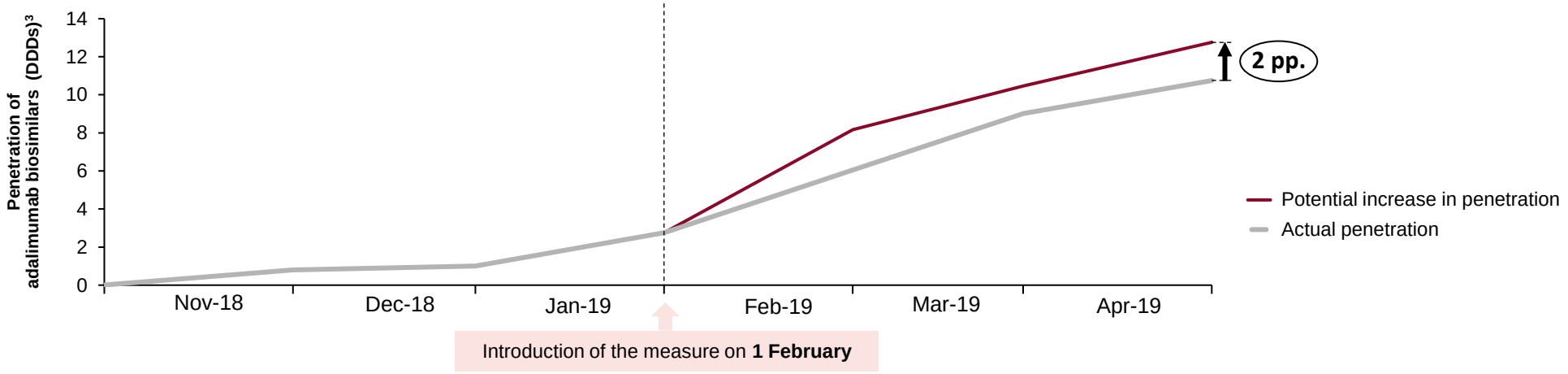
3. Communication with Patients

4. Training for Clinical Leaders

Proposal

Incentive model: implementation of the French profit-sharing model

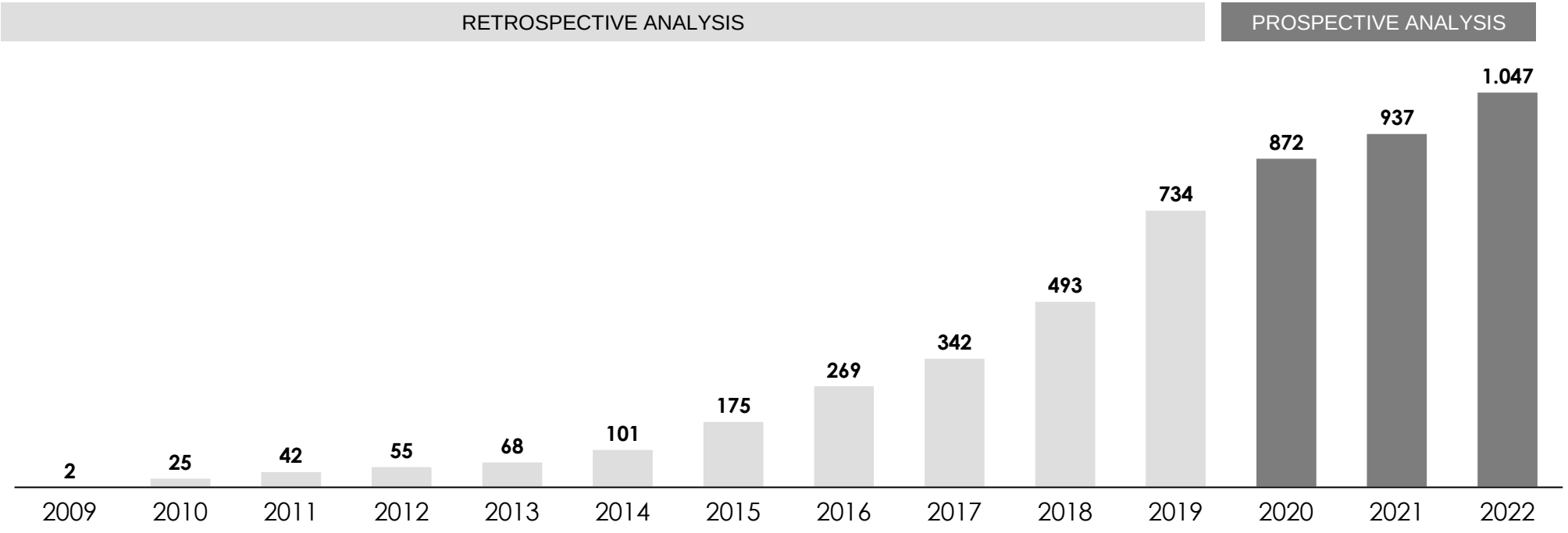
Simulation of the penetration of adalimumab biosimilars in Spain (DDDs) (Oct-18 - April-19)



Likely impact

In annual terms, the entry of new biosimilars and their use are expected to generate average gross savings of around €950m per year between 2020 and 2022

Retrospective and prospective annual budgetary impact of biosimilars on the NHS. 2009-2022



Source: BioSim (2020). Budgetary impact analysis of biosimilar medication in the Spanish NHS 2009-2020.

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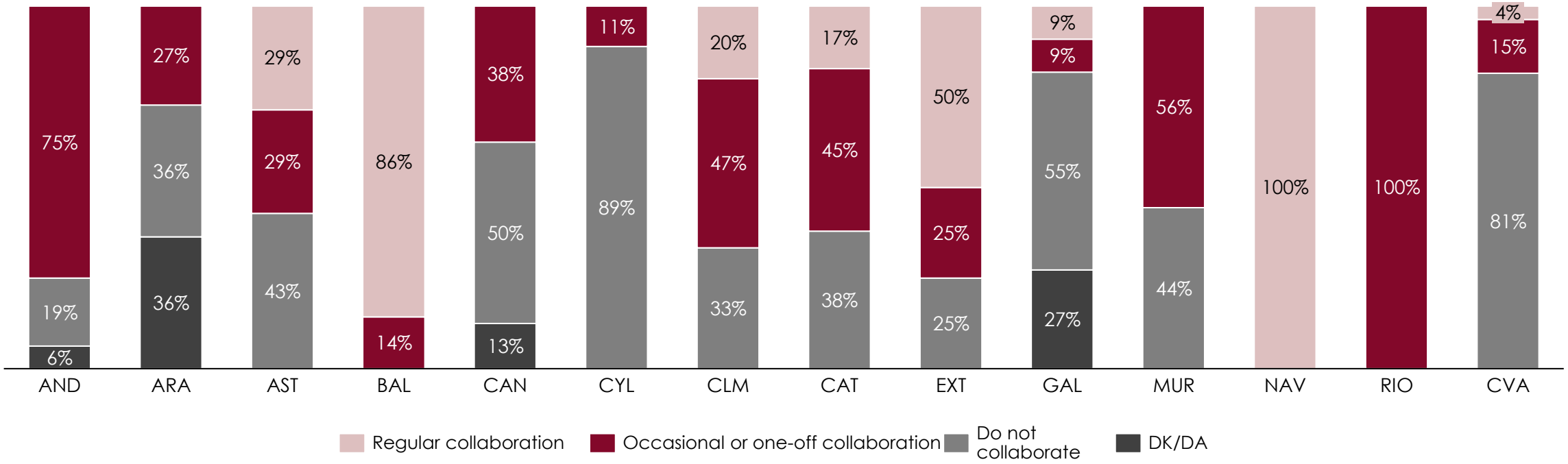
Findings

Multiple evaluations of medicinal products are conducted with room for improvement in coordination, which leads to duplication and a lack of standardisation in the recommendations issued

Percentage of Hospital Pharmacy and Therapeutics Commissions networking with other Hospital Commissions in the same region.

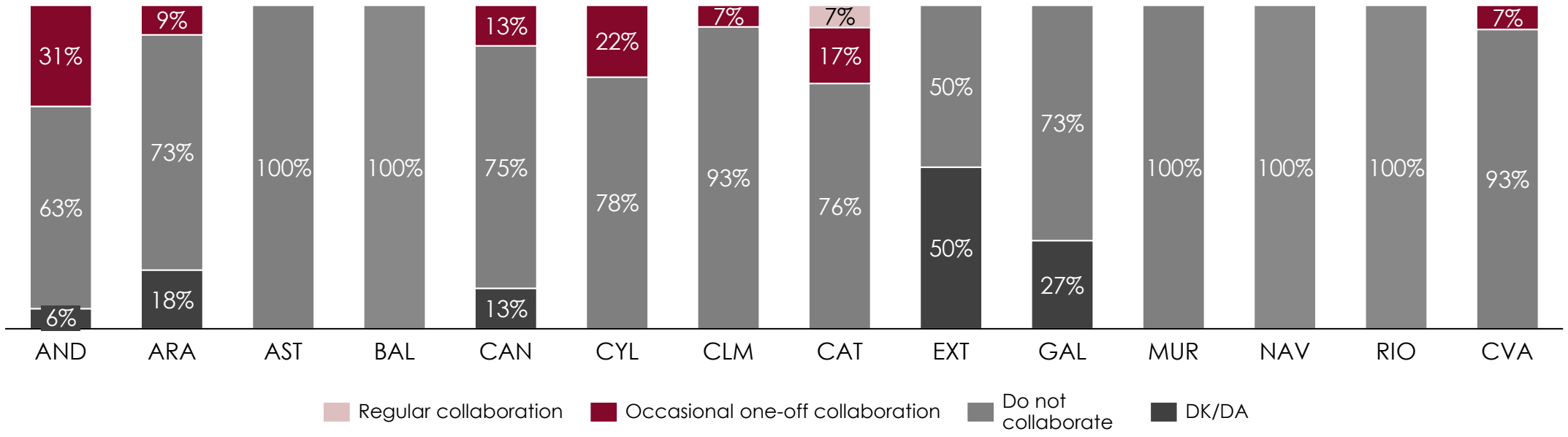


Source: compiled by the author on the basis of the Hospital Pharmacy Questionnaire for Hospital Pharmacy Services.

Findings

Multiple evaluations of medicinal products are conducted with room for improvement in coordination, which leads to duplication and a lack of standardisation in the recommendations issued

Percentage of Hospital Pharmacy and Therapeutics Commissions networking with other Hospital Commissions in other regions



Source: compiled by the author of the basis of the Hospital Pharmacy Questionnaire for Hospital Pharmacy Services.

Proposal

Creation of a collaboration network between the different Pharmacy and Therapeutics Commissions (P&TCs)

- Creation of **a Network for cooperation between the different P&TCs** for **networking** at a national level, **coordinated by the Ministry of Health** (similar to the RedETS - Spanish Network for Health Technology Assessment).
- This Network will make **binding recommendations** for certain medicines (e.g. those with a high economic and/or health impact).
- It will need to be given its own independence and **budget.**
- **This Network would enhance the flow of information**, strengthen the **joint evaluation of medicines**, the preparation of **clinical guides** and the sharing of high-value information on therapeutic uses.

Likely impact

1. **Greater efficiency in the procedure** by reducing the number of evaluations performed on the same drug, which would result in **lower consumption of resources** and shorter **access times**.
2. **Equity in access** between autonomous regions by standardising the criteria and decisions of the different commissions.

Findings

Heterogeneity in the governance and determination of pharmatherapeutic guides (PTGs) is significant across regions and these differences in turn translate into variability in medication inclusion rates

Classification of the autonomous regions according to the level of centralisation of the P&TCs and decision-making

Kind of decision / P&TCs centralized	Centralized decision-making	Mix decision-making model	Decentralized decision-making
P&TCs centralized does exist	• Baleares • País Vasco	• Asturias • Aragón • Cantabria • Extremadura • Galicia • La Rioja • Murcia • Navarra	• Castilla y León
P&TCs centralized does not exist	-	• Cataluña (*) • Comunidad Valenciana • Andalucía • Castilla-La Mancha • Canarias	• Comunidad de Madrid

Source: compiled by the author on the basis of information obtained in the field work and the Pharmacy Questionnaire for the Hospital Pharmacy Service.

(*) : Some of these regions have a centralised pharmacy and therapeutic commission but their operation and deployment is different

Proposal

Selection of PTG using a mixed decision-making model

- On the one hand, there will be medicines whose decision is **centralised** (national/regional), and on the other hand, there will be medicines for which the decision is taken at **the hospital/Complex/Health District** level depending on the different organisational structures.

- This mixed model has the **advantage** that for medicines with a high budgetary and/or health impact, decisions can be taken centrally, thus guaranteeing **equity and access**, while for other types of medicines in which the decision is taken at a decentralised level, it has the advantage of **flexibility and speed**.

Likely impact

1. **Greater efficiency in the procedure,** as centralisation of high-impact decisions means that the number of evaluations to be carried out is lower.

2. In addition, this unique decision for high-impact drugs **will allow for more efficient aggregate purchasing strategies** by bringing together a greater volume.

3. **Improved equity of access** by standardising the criteria for inclusion of high-impact medicines in the Pharmatherapeutic Guides (PTGs).

Main strategic lines and proposals

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Findings

There is not yet a specific detailed and standardised regulatory framework governing out-patient pharmaceutical care and the conditions under which non-face-to-face dispensing can take place

1. COVID-19 outbreak

2. Royal Decree Law 21/2020

3. Absence of regulatory framework in the regions .

1. The **regions** have reacted quickly to provide a solution **to out-patient pharmaceutical care**, often implementing telepharmacy-based solutions.

2. Regulation during the pandemic: **Royal Decree Law 21/2020**, of 9 June, **which** allows **non-face-to-face dispensing** in certain situations once the health crisis situation has ended: when there is an exceptional health situation, in order to **protect public health**, or due to **the clinical situation**, **dependency**, **vulnerability**, risk or the **patient's physical distance from the centres**.

3. **The regions have not legislated to create a specific regulatory framework** for dispensing medication to out-patients **on a non-face-to-face basis**.

Proposal

Establishing a procedural and operational regulatory framework for providing a pharmaceutical service to out-patients

- Defining and implementing a specific **regulatory framework** that establishes and **delimits the procedure to be followed in providing pharmaceutical services to out-patients**, as well as a protocol for dispensing and the provision of the medication of these patients that includes:
  - *Systems*
  - *Criteria to be met by patients*
  - *Medications and presentations that may be included*
  - *Dispensing schedule*
  - *Visits to the centre*
- **A specific regulation on non-face-to-face dispensing** (telepharmacy) should also be developed.
- It must be **ensured that this medication is acquired and managed** by the hospital pharmacy services and **that the patient's confidentiality**, **consent** and **access** to the pharmaceutical provision is guaranteed.

Likely impact

1. Improving **equity**, **access** and pharmaceutical **care**

Findings

The very significant increase in the number of out-patients has made it difficult for centres to guarantee adequate care and has caused accessibility problems for some patients and/or in some regions.

~ 1 million

Over 960,000 out-patients treated in 2018

+100%

In recent years, the number of out-patients has increased by over 100%, at a rate of between 10% and 17% per year in some hospitals

<60%

The external pharmacy accounts for the largest budget item of the pharmaceutical services (around 60% of expenditure), followed by ambulatory patients (~25%) and in-patients (~15%)

+70%

Of all out-patients dealt with in hospitals in 2018, over 70% are chronic

Source: (i) compiled by the author on the basis of data from the Pharmacy Questionnaire for the Hospital Pharmacy Service, (ii) SEFH (2015). MAPEX project: Strategic Out-patient Pharmaceutical Care Map, (iii) AQUAS (2017). Quantification of the economic, organisational and safety impact of robotic drug dispensing in hospitals in Spain and (iv) information collected in interviews conducted in the field with 41 hospitals.

Proposal

Improving the humanisation of out-patient care and dispensing of medicines

- Having **adequate spaces for out-patient care** (comfortable spaces, ensuring confidentiality and quality of care).

- For **certain patients and/or pathologies**, improving accessibility **by bringing the medication closer to the patient**, using one of these three options:

  - **Home dispensing** systems
  - At **other public health facilities (Primary Care)**
  - **Retail pharmacies**

- Irrespective of which of the three proposed options is selected to bring the medicine closer to patients, **the medicines must be acquired and managed by the hospital pharmacy services**

Likely impact

1. **Improving** patient **equity and accessibility**

2. In budgetary terms, the introduction of this measure would entail the need for a **significant investment by the NHS**

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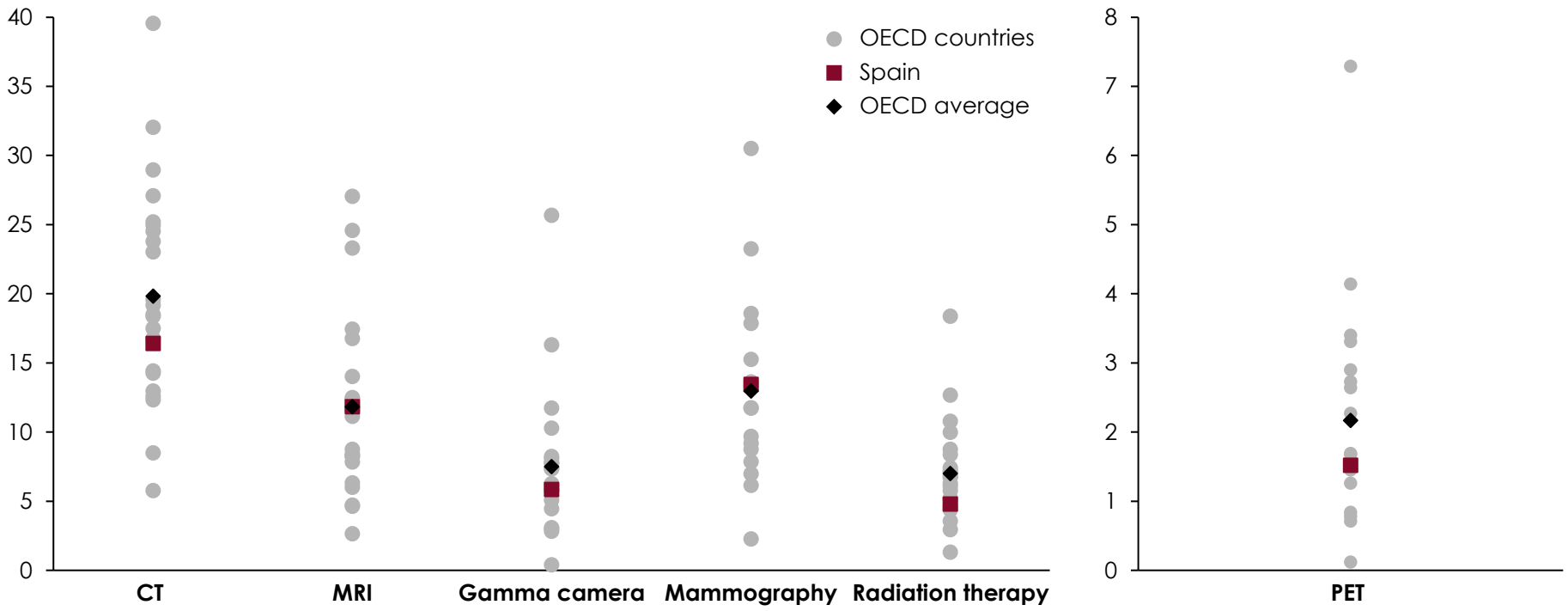
Findings

Spain's existing level of high-tech equipment is still below the OECD average.

Number of pieces of high-tech hospital equipment per million inhabitants in OECD countries. 2017

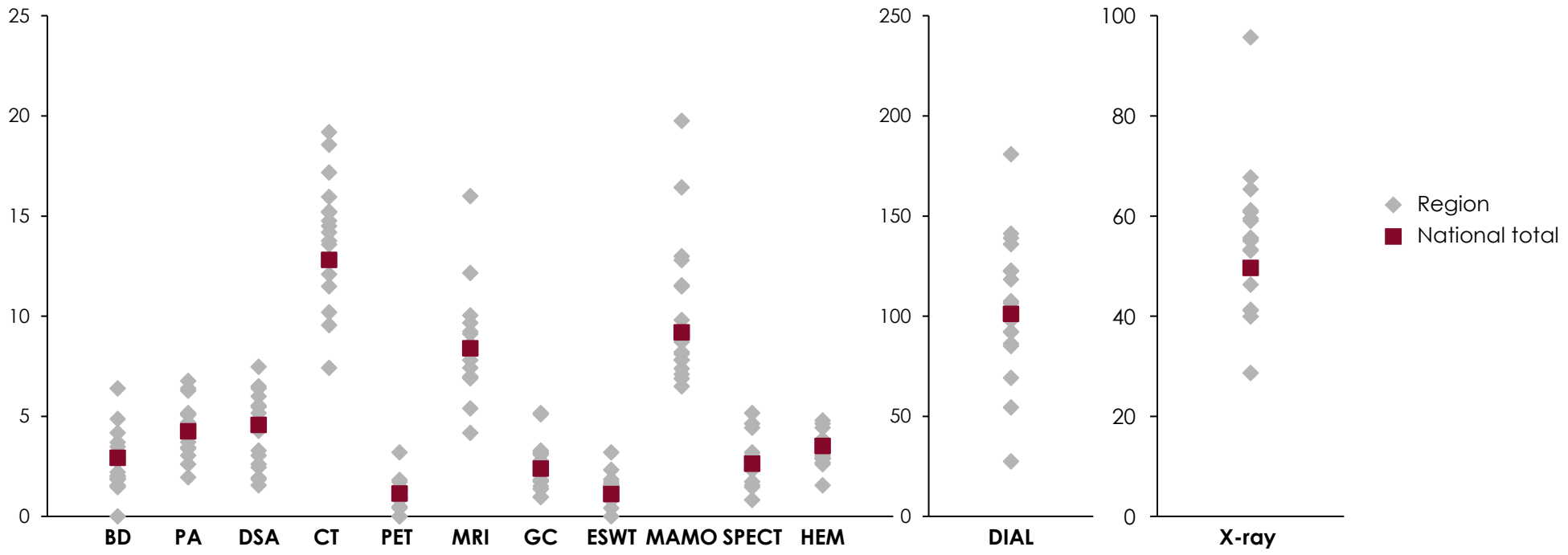


NB: Includes public and private hospitals.
Source: compiled by the author on the basis of OECD data.

Findings

The level of equipment at regional level is uneven and there are significant differences between them

High-tech equipment in public hospitals per million inhabitants. 2017

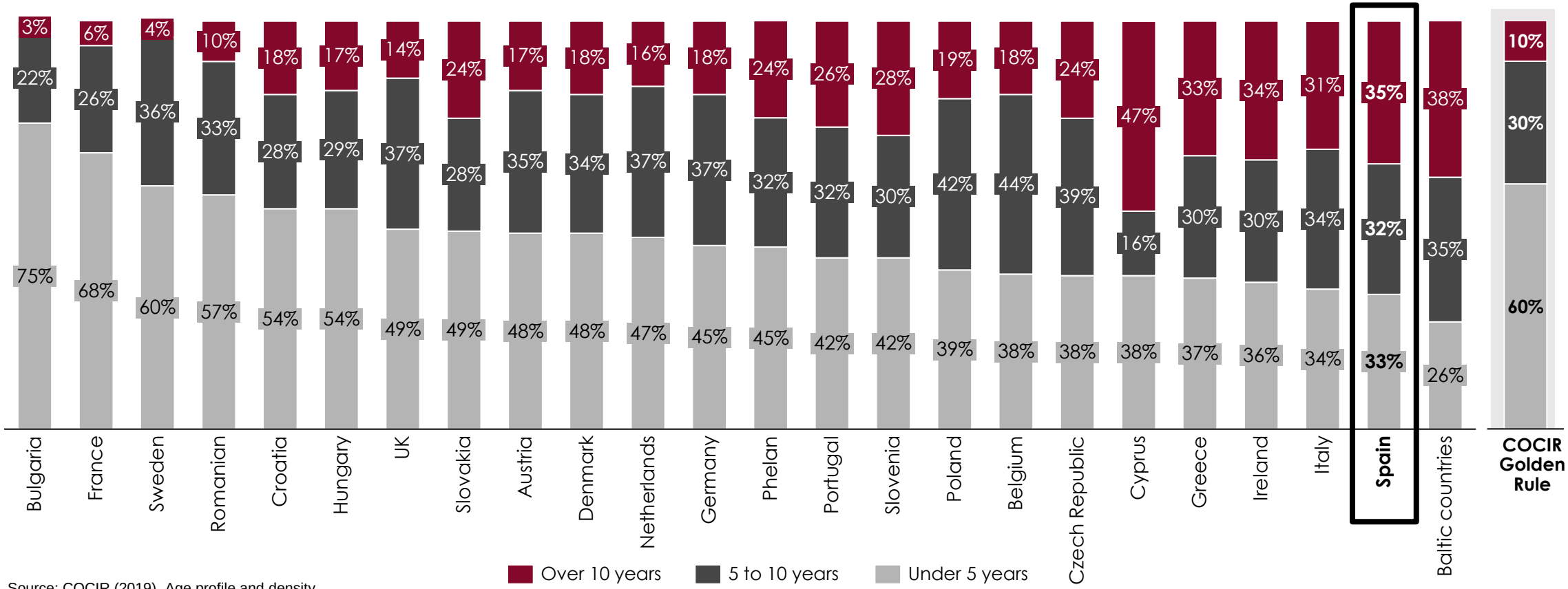


Source: compiled by the author on the basis of SIAE and INE data.

Findings

The CT equipment installed in Spain has a greater level of obsolescence than in most European countries

Age of CT equipment installed in European countries at year-end 2018

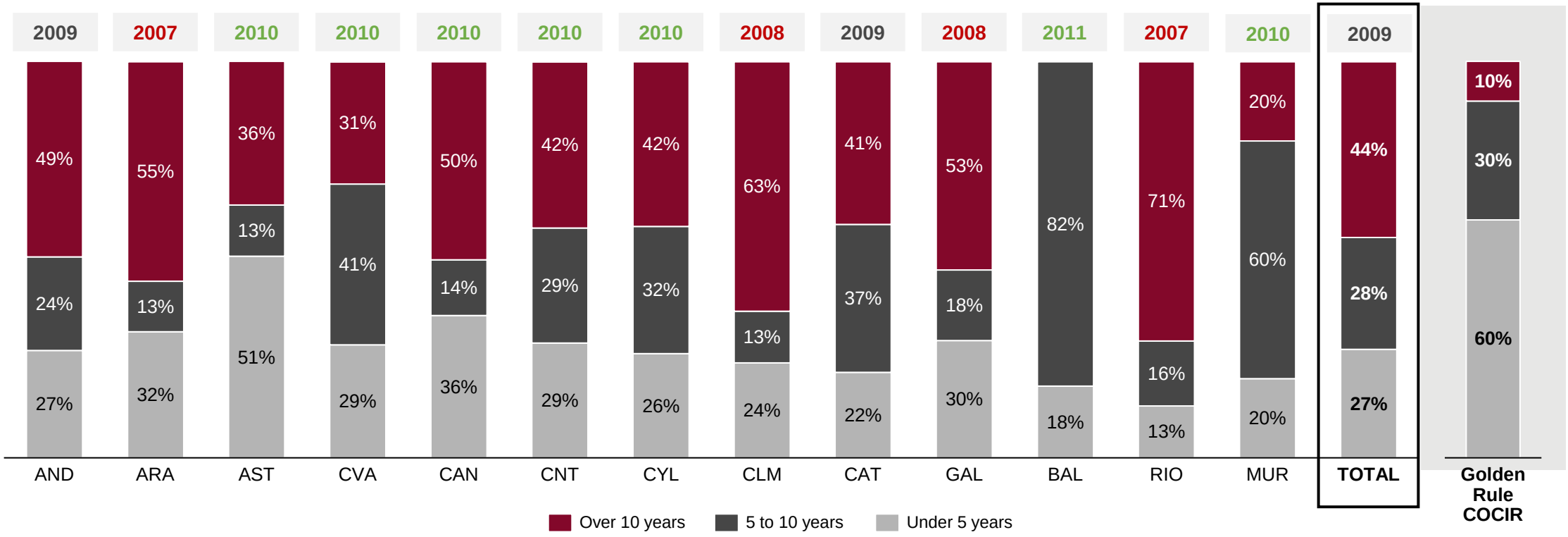


Source: COCIR (2019). Age profile and density.

Findings

With more than 40% of the equipment over 10 years old, the high-tech equipment installed in Spain also varies significantly between regions

Age of HT equipment installed in public hospitals in Spain at year-end 2018 (and average year they began operating)

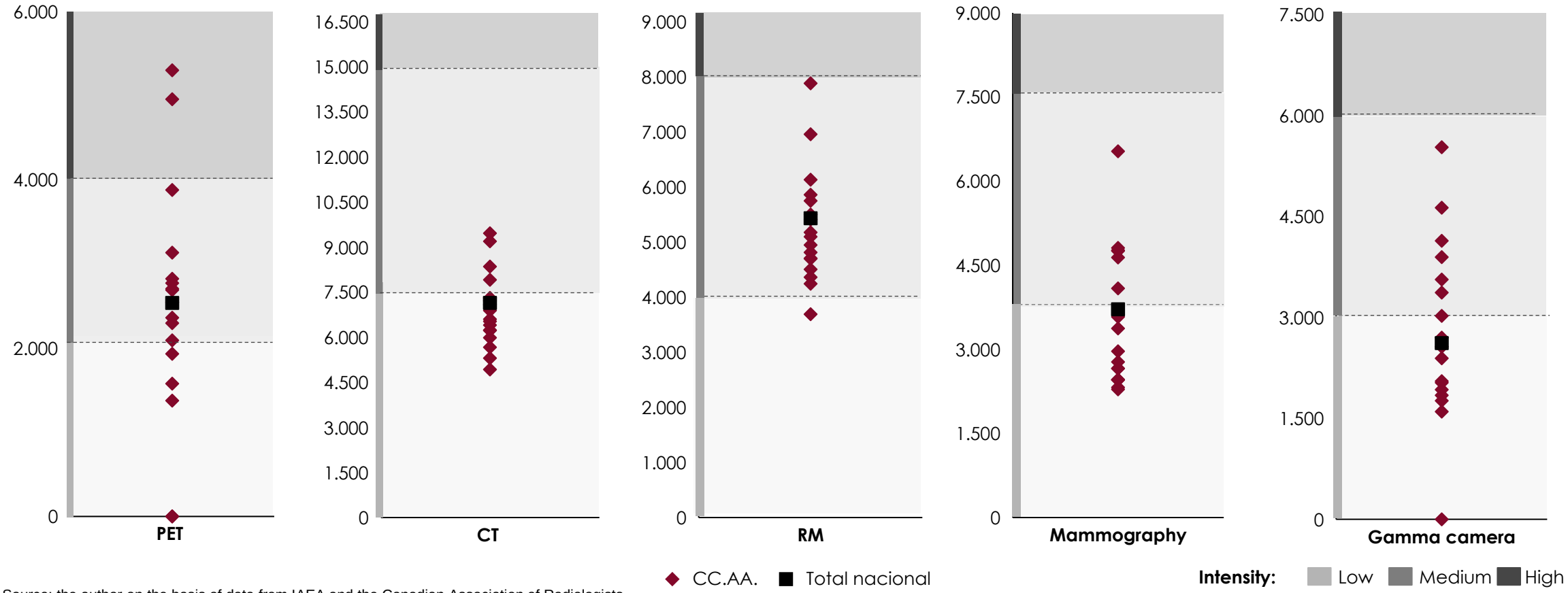


NB: In red the regions with an average age higher than the national average (2009) and in green the regions with an average age higher than the average for the nation as a whole.
Source: compiled by the author on the basis of the High-Technology Hospital Equipment Questionnaire.

Findings

A significant proportion of the high-tech equipment installed in Spanish hospitals has a low intensity or level of use, indicating that the technological equipment is underused

Intensity of use in 2016 (diagnoses per device) and range of use (low, medium, high)



Source: the author on the basis of data from IAEA and the Canadian Association of Radiologists.

Proposal

Development of a plan for investment in high-tech equipment that will allow Spain to converge towards the European average in terms of levels of equipment and obsolescence

- Implementation of **an investment strategy** that will **allow convergence towards the European average** in **terms of levels of equipment and obsolescence** taking into account the **intensity of use.**
- **Coordinated implementation at a national level.**
- **Prioritisation** of investments with **decision-making models** based on **objective criteria.**

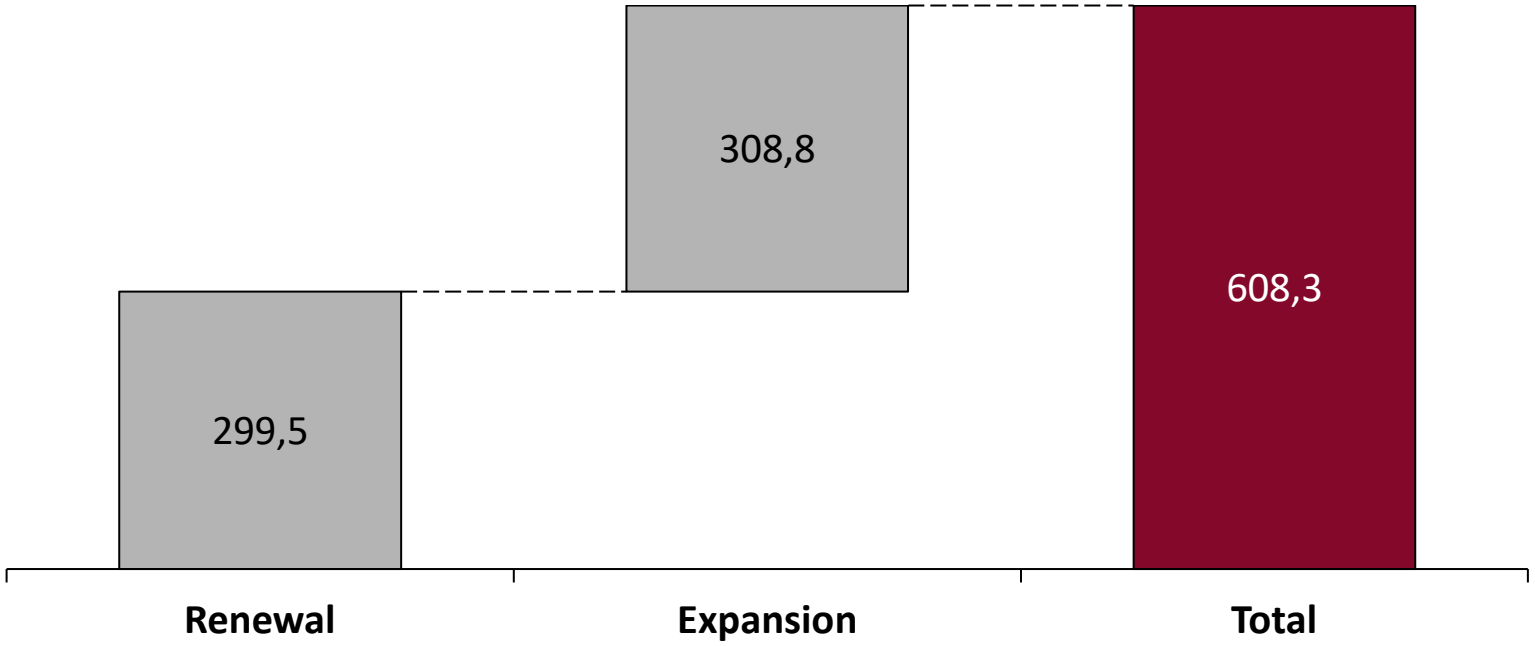
Likely impact

1. **Improvement in terms of equity and access.**
2. In budgetary terms, the introduction of this measure would imply the need for a **significant investment by the NHS.**

Likely impact

The needs for renewal and expansion of the existing equipment would have meant an investment of around €608m in 2018 on average

Investment required for the renewal and expansion of the high-tech equipment (€m)



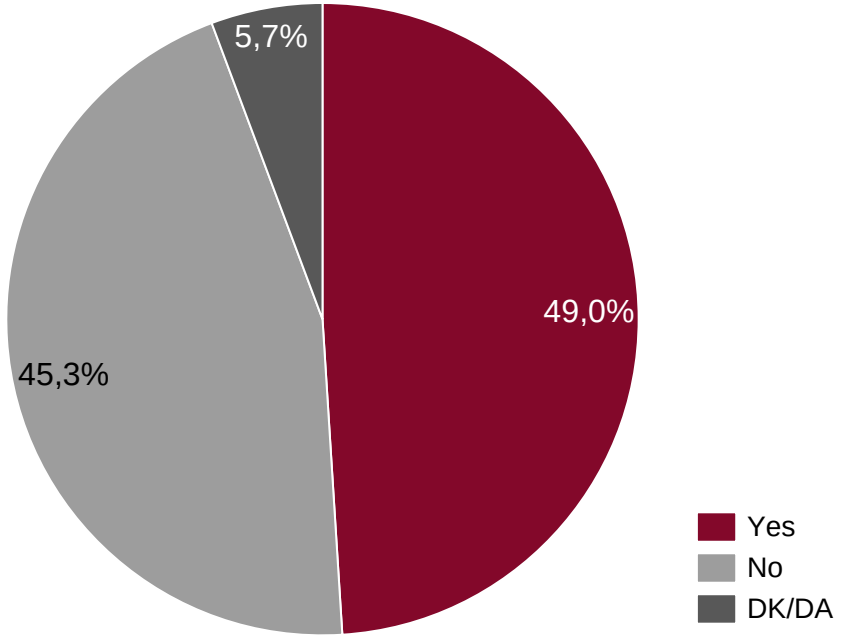
The investment will lead to an **improvement** for patients in terms of **equity** and **access** to healthcare technology.

Source: compiled by the author on the basis of the Questionnaire on High-Technology Equipment for Hospitals, SIAE (2016), SIAE (2017), OECD (2017) and FENIN (2019) "Hospital technology profile and proposals for the renewal of health technologies", sample of recent public tenders and Renewal Plans of Castile-La Mancha and Aragon.

Findings

Despite their importance and strategic nature, not every hospital and/or health service has technology acquisition and/or renewal plans and multi-year planning processes for acquisition management

Percentage of hospitals with Technology Acquisition and/or Renewal Plans. 2018



In addition, a model or algorithm **is not routinely and systematically used for the decision-making** of the renewal, expansion and incorporation of new technology.

Source: Questionnaire on High-Technology Equipment for Hospitals

Proposal

Strategic planning at a national and regional level on the incorporation and financing of the equipment

- **Strategic planning** in the renewal and expansion of existing equipment and in the incorporation of new technology.
- **Not to make this strategic planning subject** to **the availability of funds.**
- Promote **strategies for acquiring equipment and networking at regional and national levels**.

Likely impact

1. More **efficient decision-making process**, although it might also mean, in some regions, a lower accessibility of patients to health technology.
2. In budgetary terms, it would generate **savings** for the system resulting **from the need for less equipment in certain territories** by deploying a strategy at a national level**.**

Proposal

Implementation of models to systematise, objectify and prioritise decision-making for the acquisition and renewal of equipment

Development **of algorithms or models for systematic and rational decision-making:**

- **Specific criteria and weighting**
- Defined and **agreed** variables and criteria
- **Transparent and well-established model**
- **Dynamic** model, **with possibility of revision**

Priority Index for each type of request

Replacement Priority Index (RPI)	Current equipment installed
Extension Priority Index (EPI)	Additional Equipment
Innovation Priority Index (IPI)	Innovation

Likely impact

1. Increased **efficiency** and **transparency** in the procedure

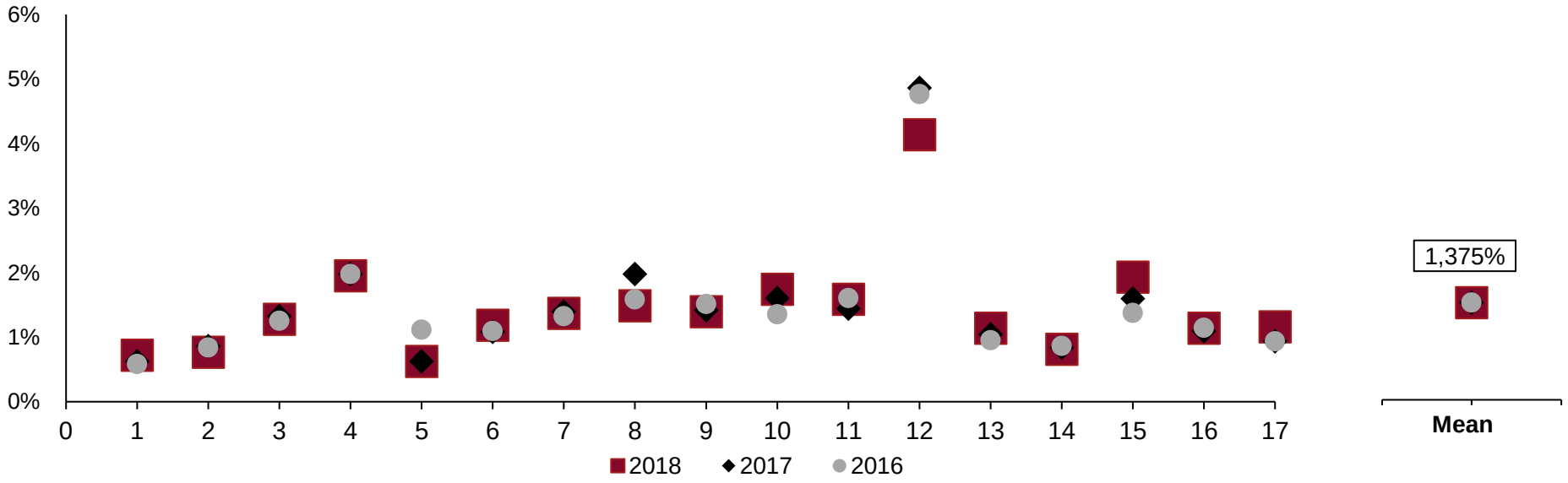
Main strategic lines and proposals

Strategic lines of the study	
01	**Efficiency and sustainability** Plan to Promote the Use of Biosimilars: incentives, legal certainty, training for professionals, communication with patients
02	**Coordination and networking** Networking of the Pharmacy Commissions.
03	**Humanisation** Out-patient pharmaceutical care strategy.
04	**Investment in High-Tech Equipment** High-tech Renewal Plan, Investment Prioritisation Models.
05	**Digital Transformation and Information Systems** Information exchange platforms and interoperable systems

Findings

Efforts in terms of investment in ICTs vary among regions and there has been no generalised increase in resources over recent years

Ratio of the overall ICT budget to the overall health budget per 100,000 people of covered population by region (1-17) and national total for 2016, 2017 and 2018. (%)

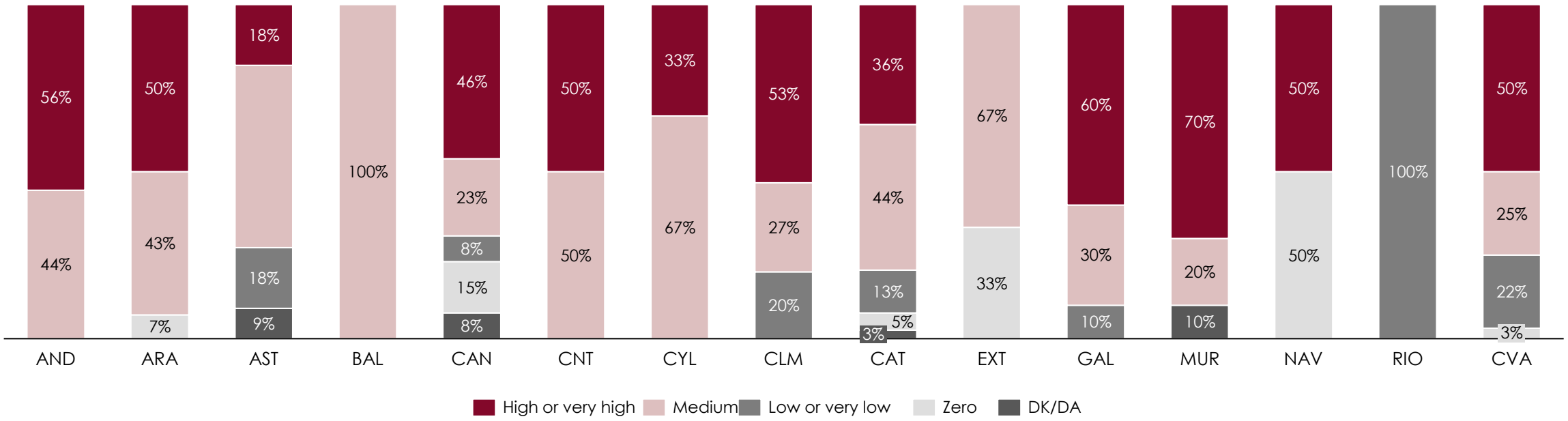


Source: Spanish Society of Health Informatics (SEIS) (2018). SEIS Index 2018.

Findings

A different level of development has also been noted among regions and hospitals in the use of software that centrally controls high technology

Level of implementation and use of ICT for the management of high-tech equipment in Spanish hospitals

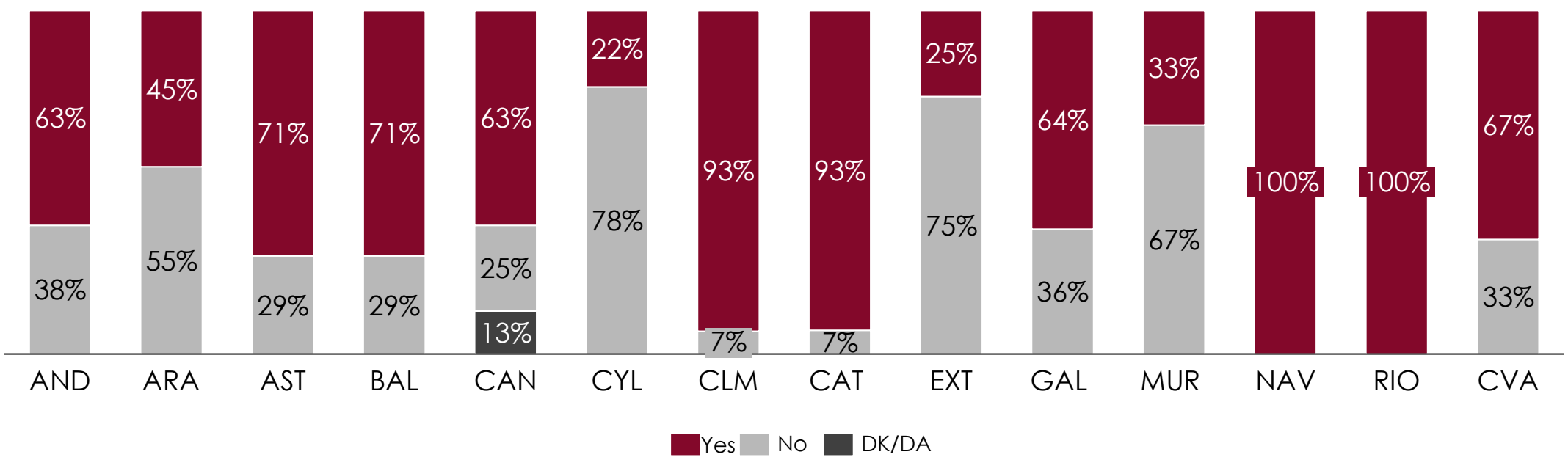


Source: Questionnaire on High-Technology Equipment for Hospitals

Findings

With regard to tools for managing pharmacy services, the level of automation is generally higher

Percentage of Spanish hospitals where Pharmacy Service management and information systems are integrated with other clinical patient information systems



Source: Hospital Pharmacy Questionnaire for Hospital Pharmacy Services

Proposal

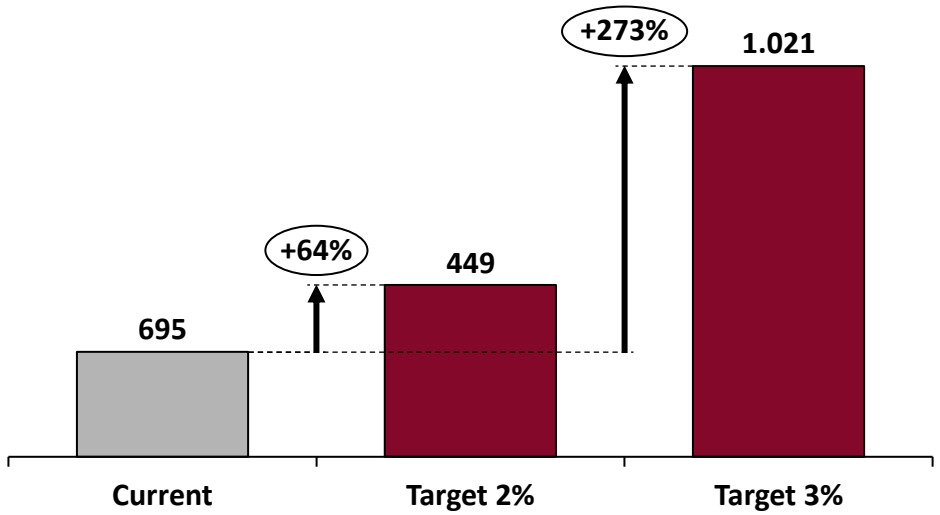
Development of integrated and interoperable information systems that facilitate networking and information sharing

These systems must allow **full traceability of processes**, facilitate **networking** and the **integration and sharing of information** between clinic services, hospitals and regional health services.

Likely impact

The average ICT expenditure of **European countries is between 2% and 3% of their total expenditure on health**.

Current situation and investment needed for convergence €m



Source: SEIS (2016). Towards the Digital Transformation of the Health Sector

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