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Study on the approach to HIV: health management and the healthcare process in Spain



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ABSTRACT

Introduction: HIV continues to represent a problem of great relevance for public health in Spain. This study aims to carry out an analysis that will provide in-depth knowledge of the resources, clinical care, and management during the diagnosis, follow-up, and treatment phases of HIV infection in Spain.

Methods: In the first phase, a multidisciplinary Scientific Committee designed an information collection tool in the form of a survey. In the second phase, carried out in the autonomous communities of Andalusia, Catalonia, and La Rioja, a multidisciplinary group of 42 experts, representatives of the public administration, clinical profiles, and representatives of NGOs in the field of HIV answered the survey.

Results: The assessment of HIV resources is generally positive. As regards diagnosis, the experts considered that there was good coordination between Primary and Hospital care. Regarding treatment, the evaluations reflected good opinions on therapeutic conciliation and adherence, with a negative opinion in the evaluation of drug interactions with antiretroviral treatment. Regarding follow-up, the perception expressed was disparate concerning the coordination between Hospital and Primary Care as well as the adaptation of care to chronicity, aging, fragility, mental health, and oncological processes.

Conclusion: There are certain processes that can be improved in the management of HIV infection in people with HIV in Spain, including protocols for follow-up and coordination between primary and hospital care in the treatment and follow-up of the disease

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Abbreviations: HC, hospital care; HIV, human immunodeficiency virus; ICT, information and communication technologies; NGO, non-governmental organisation; PC, primary care.

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Estudio sobre la aproximación al VIH: gestión sanitaria y el proceso asistencial en España

R E S U M E N

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Introducción: El VIH sigue representando un problema de gran relevancia para la salud pública en España. El objetivo de este estudio es realizar un análisis que permita conocer en profundidad los recursos, cuidados clínicos y la gestión durante las fases de diagnóstico, seguimiento y tratamiento de la infección por el VIH en España.

Métodos: En la primera fase, un Comité Científico multidisciplinar diseñó una herramienta de recogida de información, en forma de encuesta. En la segunda fase, realizada en las comunidades autónomas de Andalucía, Cataluña y La Rioja, un grupo multidisciplinar de 42 expertos, representantes de la Administración pública, perfiles clínicos y representantes de las ONG en el ámbito del VIH contestaron a la encuesta.

Resultados: La valoración de los recursos destinados al VIH es en general positiva. En el diagnóstico, los expertos consideraron que existía una buena coordinación entre Atención Primaria y Hospitalaria. Con respecto al tratamiento, las valoraciones han reflejado una buena opinión sobre la conciliación terapéutica y adherencia, y una valoración negativa sobre la evaluación de las interacciones entre medicamentos con el tratamiento antirretroviral. Sobre el seguimiento, la percepción expresada fue dispar con respecto a la coordinación entre Atención Hospitalaria y Primaria y sobre la adaptación de los cuidados a la cronicidad, envejecimiento, fragilidad, salud mental y los procesos oncológicos.

Conclusión: Existen determinados procesos que pueden ser mejorados en relación al manejo de la infección de las personas con VIH en España, incluyendo protocolos de seguimiento y coordinación entre Atención Primaria y Hospitalaria en el tratamiento y seguimiento de la enfermedad.

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Introduction

Human immunodeficiency virus (HIV) continues to be a major public health problem in Spain. This was confirmed by the most recent update published in 2019, which showed a total of 2,698 new diagnoses,¹ representing 11% of new cases in the European Economic Area.² New antiretroviral therapy has turned HIV into a chronic condition which, for the first time, many ageing patients are having to deal with.^{3,4} This generates new challenges, on top of the challenges these patients already have in relation to HIV, such as the care and prevention of comorbidities associated with old age.^{3,4}

The United Nations Programme on HIV/AIDS (UNAIDS) aimed to reach the 90-90-90 target in the year 2020, by which 90% of people with HIV would know their serological status, 90% of people diagnosed would be receiving ongoing antiretroviral therapy and 90% of people treated with antiretroviral therapy would have achieved viral suppression.⁵ Another of the UNAIDS aims was to achieve “zero discrimination”⁵; the importance of removing discrimination and, among other aspects, the care and prevention of multiple morbidity, led leading players in the response to HIV from the research field and the community to propose improvement in the health-related quality of life of people with HIV as a target,^{6–8} and this has been included in the recently approved 2021–2030 Plan for the prevention and control of HIV infection and STIs.⁹ In 2021, Spain was close to reaching the 90-90-90 target and some autonomous regions such as Catalonia (91-91-92) actually achieved it.¹⁰ In Spain as a whole, the target was achieved for treatment, but not for prevention and diagnosis.¹¹ Importantly, it is estimated that around 13% of people with HIV are not diagnosed,¹² with this signifying a risk for the spread of the infection. There is also no doubt that we still have a long way to go in terms of improving the quality of life of people with HIV.^{11,13} All these data, in conjunction with the 95-95-95 target by 2030 proposed by UNAIDS,^{14,15} indicate that there are opportunities for improvement in the management and care of people with HIV. These include reducing stigma, expanding access to care and improving prevention. From the experiences of innovative initiatives for the care of patients with chronic diseases, we know that the optimisation of health outcomes depends not

only on optimising diagnosis and treatment, but also on the way in which care is organised and managed.¹⁶ There needs to be special emphasis on the importance of integrating primary care into the care of people living with HIV and its interrelationship with hospital specialists.

This study is part of the VIHSUALIZA project, whose primary objective is to carry out an in-depth analysis of the resources, clinical care and management during the phases of diagnosis, monitoring and treatment of HIV infection in different Autonomous Regions in Spain. The secondary objectives are to compare the results from the different Autonomous Regions and determine the degree of coordination between primary and hospital care in the management of HIV infection.

Methods

An outline of the methods used, the date of completion and the details of the project participants are shown in Fig. 1. The study was divided into two phases. The first was national and the second regional; the Autonomous Regions of Andalusia, Catalonia and Rioja were selected as representative for their different locations, size and structure. During the first phase, a multidisciplinary scientific committee was set up, made up of members of scientific societies and other key agents belonging to the areas of health management and clinical management of HIV in Spain. Starting with an exhaustive literature review (with keywords: *HIV*; *resources*; *clinical care*; and *management*) and drawing from the experience of its members, the committee designed an information gathering tool in the form of a survey (Appendix B annex 1). In the second phase, a core team of four experts was appointed from the scientific committee and a coordinator was designated in each of the Autonomous Regions.

The field work was then developed and carried out in the above three Autonomous Regions. In each Autonomous Region, the regional coordinator and the core team named an autonomous team of health managers, clinical staff and representatives of non-governmental organisations (NGO) selected for their experience in the field of HIV in their region, and held an initial meeting with them to explain the methodology to be followed. The full list of participants, including a total of 42 experts, can be consulted in Tables 1–3

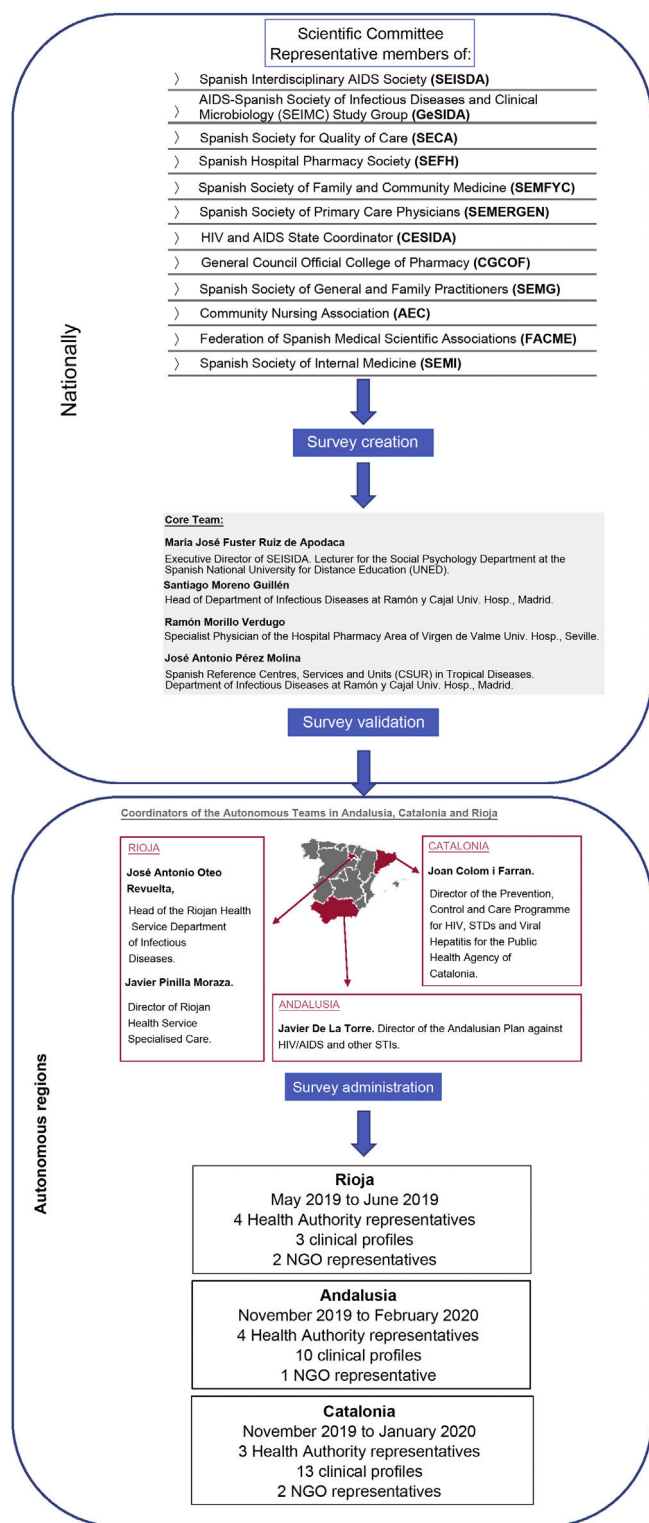


Figure 1. Outline of the study methodology.

in the supplementary material. The different points of view of the members of the regional team, plus other objective information, were collected using the survey. The survey was completed online and a support service was made available to users to resolve any technical or scientific questions.

The survey was carried out first in Rioja. From that pilot experience, other subjects of interest were detected, which were then included in the surveys for Andalusia and Catalonia.

Once all the information had been collected, the databases of the three Autonomous Regions were unified for statistical analysis.

All participants were informed about the project and gave their consent to take part in this study. Data collection was completely anonymous.

Ethical considerations

This study was carried out in line with the Declaration of Helsinki. All participants were informed about the project and gave their consent to take part in this study. The data collection was completely anonymous, in compliance with Spanish Law for the Protection of Personal Data (LOPD 15/1999).

Statistical analysis

Qualitative variables are expressed by their absolute value, including the data from the *Likert* scales. Differences between groups were analysed using Fisher's exact test. The Chi-square goodness-of-fit test was used to assess the total data, comparing them with the results expected if the distribution of responses were random or uniform (null hypothesis), in order to determine whether or not there was a pattern to the responses. GraphPad Prism 9.0 software (GraphPad Software, Inc., San Diego, CA, USA) was used for the statistical analysis. Test results were considered statistically significant for p -values <0.05 .

Results

Resources dedicated to human immunodeficiency virus care

Table 1 shows the experts' opinions about the resources allocated to HIV care in the different component parts of the healthcare system involved in such care. In both Autonomous Regions and overall, we found a very positive opinion of the resources dedicated to HIV management, except when rating the role of information and communication technologies (ICT) over the course of the care process for patients with HIV. The responses in Andalusia and Catalonia were statistically comparable in all the questions in that section. Comparing the different questions, the experts perceived a different provision of resources depending on where they came from; from highest to lowest: hospital care (HC), NGO and finally Primary Care (PC).

Assessment of referral for human immunodeficiency virus diagnosis

As shown in Table 2, a very high percentage of the experts positively rated the existence of coordination between PC and HC in the referral of people with HIV, with no significant differences found between Autonomous Regions. A more detailed analysis of the perception of the quality of coordination revealed similar opinions in the three Autonomous Regions. Overall, the participants stated that there were high levels of coordination in the management of HIV diagnosis between PC and HC.

Assessment of the treatment of human immunodeficiency virus

The questionnaire responses in relation to the management of HIV treatment are shown in Table 3. In this section, the experts were asked how they rated medication and therapy reconciliation, defined as the review of the complete and accurate list of the patient's previous medication, together with the medications and therapy to be prescribed after the care transition. No significant differences were found in the responses between the different Autonomous Regions on medication reconciliation, with this being

Table 1
Experts' opinions on the resources dedicated to the management of HIV.

		Andalusia n (%)	Catalonia n (%)	p-value*	Total n (%)	p-value**
Current involvement of PC in the care of patients with HIV	(None) 1	0 (0.0)	0 (0.0)	0.2478	0 (0.0)	0.0008
	2	1 (9.1)	5 (41.7)		6 (26.1)	
	3	7 (63.6)	4 (33.3)		11 (47.8)	
	4	3 (27.3)	3 (25.0)		6 (26.1)	
	(Maximum) 5	0 (0.0)	0 (0.0)		0 (0.0)	
	Total	11 (47.8)	12 (52.2)		23 (100)	
	Median	3	3		3	
Current involvement of HC in the care of patients with HIV	(None) 1	1 (9.1)	0 (0.0)	0.5548	1 (4.3)	0.0001
	2	0 (0.0)	0 (0.0)		0 (0.0)	
	3	2 (18.2)	0 (0.0)		2 (8.3)	
	4	1 (9.1)	7 (58.3)		8 (34.8)	
	(Maximum) 5	7 (63.6)	5 (41.7)		12 (52.2)	
	Total	11 (47.8)	12 (52.2)		23 (100)	
	Median	5	4		5	
Assessment of the role of NGOs in care, referral and support for people with HIV	(None) 1	1 (8.3)	0 (0.0)	0.1120	1 (4.2)	0.0025
	2	1 (8.3)	1 (8.3)		2 (8.3)	
	3	3 (25.0)	0 (0.0)		3 (12.5)	
	4	5 (41.7)	7 (58.3)		12 (50.0)	
	(Maximum) 5	2 (16.6)	4 (33.3)		6 (25.0)	
	Total	12 (50.0)	12 (50.0)		24 (100)	
	Median	4	4		4	
Assessment of the role of ICT throughout the care process of patients with HIV	(None) 1	2 (16.6)	1 (7.7)	0.8676	3 (12.0)	0.3546
	2	3 (25.0)	4 (30.8)		7 (28.0)	
	3	1 (8.3)	3 (23.1)		4 (16.0)	
	4	4 (33.3)	4 (30.8)		8 (32.0)	
	(Maximum) 5	2 (16.6)	1 (7.7)		3 (12.0)	
	Total	12 (48.0)	13 (52.0)		25 (100)	
	Median	2	3		3	

HC, hospital care; HIV, human immunodeficiency virus; ICT, information and communication technologies; NGO, non-governmental organisation; PC, primary care.

* Fisher's exact test p-value.

** Chi-square goodness-of-fit test p-value.

Table 2
Experts' opinions on HIV diagnosis.

		Andalusia n (%)	Catalonia n (%)	Rioja n (%)	p-value*	Total n (%)	p-value**
Do you think there is coordination between PC and HC in the referral of people with HIV?	Yes	11 (100)	8 (88.9)	7 (87.5)	0.4951	26 (92.9)	<0.0001
	No	0 (0.0)	1 (11.1)	1 (12.5)		2 (7.1)	
	Total	11 (39.3)	9 (32.1)	8 (28.6)		28 (100)	
Rating of coordination between PC and HC	(None) 1	0 (0.0)	0 (0.0)	0 (0.0)	0.7562	0 (0.0)	<0.0001
	2	1 (9.1)	1 (11.1)	1 (14.3)		3 (11.1)	
	3	3 (27.3)	2 (22.2)	0 (0.0)		5 (18.5)	
	4	6 (54.5)	6 (66.6)	4 (57.1)		16 (59.2)	
	(Maximum) 5	1 (9.1)	0 (0.0)	2 (28.6)		3 (11.1)	
	Total	11 (39.3)	9 (32.1)	8 (28.6)		28 (100)	
	Median	4	4	4		4	

HC, hospital care; HIV, human immunodeficiency virus; PC, primary care.

* Fisher's exact test p-value.

** Chi-square goodness-of-fit test p-value.

valued very positively by the respondents. For the coordination between PC and HC in evaluating possible drug-drug interactions and, specifically, in relation to antiretroviral therapy, no differences of opinion were found between the Autonomous Regions of Andalusia, Catalonia and Rioja. In this case, the overall opinion of all the experts was that this process was deficient. On whether or not there were mechanisms for monitoring and improving adherence, the majority of specialists responded affirmatively, with no statistical differences in the opinions expressed between the different Autonomous Regions.

Evaluation of the follow-up of human immunodeficiency virus

The results for the experts' opinions about the follow-up of HIV are shown in Table 4. When asked if they believed there was coordination between PC and HC in the follow-up of patients with HIV, there were no significant differences between the responses from the different Autonomous Regions. The overall evaluation showed that there was a disparity of opinion in this aspect, with

no statistically significant difference in the experts' opinion on the null hypothesis. There was also a difference of opinion regarding whether or not they believed that care for patients with HIV was adapted to the needs deriving from the chronic nature of the disease and the ageing of these patients. No differences were found in the response to this question, whether the experts were from Andalusia, Catalonia or Rioja. Regarding whether there were specific programmes for addressing chronicity, ageing and frailty, the experts did not reach a consensus; there were no differences between the responses from each Autonomous Region or in the total summation. On whether or not there were specific mental health care programmes, the differences in the responses between Autonomous Regions were statistically significant. In Catalonia and Rioja there was disparity of opinion, while in Andalusia all the responses were negative. Overall, the majority were negative and this result was statistically significant. Lastly, regarding whether there were specific programmes aimed at healthcare for oncological disease, the experts responded negatively, both overall and in each of the three Autonomous Regions individually.

Table 3
Experts' opinions on HIV treatment.

		Andalusia n (%)	Catalonia n (%)	Rioja n (%)	p-value*	Total n (%)	p-value**
Assessment of medication and therapy reconciliation by the healthcare professionals	(None) 1	0 (0.0)	0 (0.0)	0 (0.0)	0.5953	0 (0.0)	0.0036
	2	1 (10.0)	0 (0.0)	2 (33.3)		3 (12.0)	
	3	3 (30.0)	4 (44.4)	1 (16.7)		8 (32.0)	
	4	4 (40.0)	5 (55.5)	2 (33.3)		11 (44.0)	
	(Maximum) 5	2 (20.0)	0 (0.0)	1 (16.7)		3 (12.0)	
	Total	10 (40.0)	9 (36.0)	6 (24.0)		25 (100)	
Rating of the coordination between PC and HC with regard to evaluation of possible drug-drug interactions, mainly in relation to ART	Median	4	4	4	0.4969	4	0.0087
	(None) 1	3 (27.3)	2 (20.0)	1 (12.5)		6 (20.7)	
	2	5 (45.4)	3 (30.0)	3 (37.5)		11 (37.9)	
	3	2 (18.2)	5 (50.0)	2 (25.0)		9 (31.0)	
	4	1 (9.1)	0 (0.0)	2 (25.0)		3 (10.3)	
	(Maximum) 5	0 (0.0)	0 (0.0)	0 (0.0)		0 (0.0)	
Are there mechanisms to monitor and improve adherence to ART?	Total	11 (37.9)	10 (34.5)	8 (27.6)	0.7333	29 (100)	0.0016
	Median	2	2	2		2	
	Yes	8 (61.5)	8 (66.7)	7 (87.5)		23 (79.3)	
	No	2 (15.4)	3 (25)	1 (12.5)		6 (20.7)	
	Total	10 (34.5)	11 (37.9)	8 (27.6)		29 (100)	

ART, antiretroviral therapy; HC, hospital care; HIV, human immunodeficiency virus; PC, primary care.

* Fisher's exact test p-value.

** Chi-square goodness-of-fit test p-value.

Table 4
Experts' opinions on HIV follow-up.

		Andalusia n (%)	Catalonia n (%)	Rioja n (%)	p-value*	Total n (%)	p-value**
Do you think there is coordination between PC and HC in the follow-up of patients with HIV?	Yes	3 (25.0)	5 (45.5)	5 (62.5)	0.3054	13 (43.3)	0.4652
	No	8 (66.7)	6 (55.5)	3 (37.5)		17 (56.7)	
	Total	11 (36.6)	11 (36.6)	8 (26.6)		30 (100)	
Assessment of the coordination by healthcare professionals	(None) 1	0 (0.0)	0 (0.0)	0 (0.0)	0.5914	0 (0.0)	0.0333
	2	0 (0.0)	0 (0.0)	0 (0.0)		0 (0.0)	
	3	0 (0.0)	3 (60.0)	1 (20.0)		4 (30.8)	
	4	3 (100)	1 (20.0)	2 (40.0)		6 (46.1)	
	(Maximum) 5	0 (0.0)	1 (20.0)	2 (40.0)		3 (23.1)	
	Total	3 (23.1)	5 (38.5)	5 (38.5)		13 (100)	
Do you think that care for patients with HIV is adapted to the needs deriving from the chronic nature of the disease and the ageing of these patients?	Median	4	4	4	0.3040	4	0.3531
	Yes	4 (33.3)	3 (23.1)	5 (62.5)		12 (41.4)	
	No	6 (50.0)	8 (61.5)	3 (37.5)		17 (58.6)	
Are there specific programmes aimed at addressing chronic disease, ageing and frailty?	Total	10 (34.5)	11 (37.9)	8 (27.6)	0.4285	29 (100)	0.3531
	Yes	3 (25.0)	5 (41.7)	4 (57.1)		12 (41.4)	
	No	8 (66.7)	6 (50.0)	3 (42.9)		17 (58.6)	
Are there specific mental health care programmes?	Total	11 (37.9)	11 (37.9)	7 (24.1)	0.0319	29 (100)	0.0278
	Yes	0 (0.0)	5 (41.7)	2 (28.6)		7 (28.0)	
	No	9 (81.8)	4 (33.3)	5 (71.4)		18 (72.0)	
Are there specific programmes aimed at healthcare for oncological disease?	Total	9 (36.0)	9 (36.0)	7 (28.0)	0.3359	25 (100)	0.0833
	Yes	3 (25.0)	5 (41.7)	1 (14.3)		9 (33.3)	
	No	8 (66.7)	5 (41.7)	5 (87.1)		18 (66)	
	Total	11 (40.7)	10 (37.0)	6 (22.2)		27 (100)	

ART, antiretroviral therapy; HC, hospital care; HIV, human immunodeficiency virus; PC, primary care.

* Fisher's exact test p-value.

** Chi-square goodness-of-fit test p-value.

Discussion

This article reports the opinions of a multidisciplinary group of experts in the clinical field of HIV on resources, clinical care

and management during the diagnosis, monitoring and treatment phases of HIV infection in different Autonomous Regions in Spain. As secondary objectives, we compared the data from the different Autonomous Regions in order to identify any differences between

regions, and we also analysed the degree of coordination between PC and HC.

The data from this study give us an indication of how a large number of multidisciplinary experts perceive the state of clinical management and healthcare management for people with HIV in Spain. First of all, the allocation of resources is generally rated positively, with HC obtaining the highest rating (followed by PC and NGO), with the disparity of opinion regarding the incorporation of ICT. With regard to diagnosis, the experts believed that there was good coordination between PC and HC. In terms of the results obtained with regard to treatment, the responses reflected positive opinions of medication and therapy reconciliation and adherence, while the opposite was true for the evaluation of possible drug-drug interactions in relation to antiretroviral therapy. Last of all, the experts had different perceptions of the coordination between HC and PC for all the processes under the umbrella of patient follow-up, as well as for other factors, such as adaptation to the chronic nature of the disease and ageing of the patients, and on specific programmes to address chronicity, ageing and frailty, mental health and oncological disease.

The Spanish healthcare system has the distinctive feature of being devolved and so largely managed by the Autonomous Regions.¹⁷ Therefore, comparing the data between the different regions could reveal any inequality in the management of patients with HIV that might be associated with that factor.^{17,18} However, the statistical analysis shows that, for the most part, there were no significant differences between the opinions provided by the experts, regardless of their particular Autonomous Region. It would seem from these data that the current state of management of patients with HIV is similar in Andalusia, Catalonia and Rioja, suggesting equality in this area in parts of Spain that are very different in terms of their size and population. On this aspect, various key actors can be cited as favouring equity in the management of patients with HIV in Spain. Societies such as SEISIDA (Sociedad Española Interdisciplinaria del SIDA [Spanish Interdisciplinary AIDS Society]) and GeSIDA (Grupo de Estudio de SIDA [AIDS Study Group]) are very involved in the continuous improvement of care for patients with HIV. Additionally, the national guidelines have played an important role in the cohesion and quality of the management of all aspects related to HIV in Spain.

Another important area we asked the experts about in the management of HIV was the degree of coordination between HC and PC, which was only rated positively in diagnosis, and not for treatment or follow-up. PC is a fast and convenient route to access healthcare for people with HIV so, as stated by various national^{19,20} and international^{21,22} publications, coordination with HC is strongly recommended. The results could be due to the fact that currently, PC is generally much less involved in the care of patients with HIV than HC, and its role is mainly in the diagnostic phase, where the referral and communication circuits appear to be well established. This may be due to the chronicity and complexity of the patients, as well as the current Spanish healthcare model.

ICT can be a helpful tool for the management of HIV, especially for prevention and early diagnosis.^{9,23–26} However, the experts had different experiences in terms of the resources available in this area, which could suggest there is room for improvement. Prevention is one of the sections of the 90-90-90 target for the year 2020 that has not been met in Spain,²⁷ so improvement in the resources used in ICT could help to achieve it. It is likely that the situation caused by the COVID-19 pandemic has led to a change on this issue, as ICT received a great boost in this period.^{28,29} Perhaps the survey results for this section would be different now.

Another of the opportunities for improvement in the management of HIV in Spain that we were able to identify is the adaptation to chronic disease and patient ageing. Despite there being a consensus document on ageing in people with HIV³⁰ included in the

National AIDS Plan, the opinion of the experts shows that there is room for improvement in the activities in this section. The same was found with regard to mental health programmes. There is also a consensus document on mental health in HIV,³¹ but it is not part of the National AIDS Plan. Bringing it into the framework of the plan might be a first step towards implementation. The Autonomous Regions are making progress in implementing programmes to help improve the quality of life of people with HIV and, as a consequence, to achieve improvement in these aspects.

This study has several limitations. One limitation is the size of the sample, which consisted of a total of 42 experts. However, in order for the sample used in this study to be highly regionally representative, key agents in the management of the disease were included. We should mention another limiting aspect, regarding the selection of participants, as the vast majority work in centres located in provincial capitals, so non-urban centres are less represented. Another limitation is the use of an online survey for data collection, which could have been affected by various types of bias, such as the absence of visual signals and the loss and distortion of data.³² However, this mode is widely used as a way of obtaining data in clinical practice, public health research and epidemiology,³² as it enables a large amount of information to be collected with relatively little effort, and also makes it possible to ask questions about sensitive subjects.³² Another limitation of the study is the use of a questionnaire not already validated, as there have been no previous similar studies. This limits the comparison of the results and the full interpretation of the data in a broader context.

The approach and methodology used in this project include key, differential aspects that add value to our results. The regional approach, with the added participation of the public authorities through the regional team set up in each one, provided us with a detailed picture of the HIV response in each of the Autonomous Regions analysed. There is a continuous need to evaluate the state of clinical management and healthcare management in HIV infection, and this study may help us identify practices that could be extrapolated to other Autonomous Regions, as well as opportunities for improvement, including the identification of indicators, which could be used to help achieve the 95-95-95 target by 2030.¹⁵

The management of HIV infection is complex and achieving the 95-95-95 target set by UNAIDS for 2030 requires the efforts of a large number of healthcare professionals, as well as the continuous evaluation of all clinical and healthcare management processes.^{6,15} Only through a commitment to continuous improvement will we be able to achieve the proposed goals.

By seeking the opinion of a multidisciplinary group of experts, our study shows that there are certain processes involved in the management of the infection in people with HIV in Spain which can be improved, including the resources allocated to ICT, the follow-up protocols and, in particular, the coordination between HC and PC in the treatment and follow-up of the disease. Greater coordination, coming from the development of coordination and consensus protocols, could achieve an improvement in the clinical and health outcomes of patients with HIV infection.

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Conflicts of interest

Javier de la Torre has consulted for Gilead Sciences and ViiV Healthcare and has received speaking fees from Gilead Sciences, Janssen Cilag, Merck Sharp & Dohme and ViiV Healthcare.

José Antonio Oteo has received fees for giving talks/seminars or acting as a consultant from Gilead, MSD and ViiV.

Victoria Ayala Vargas is exclusively responsible for GA Gilead HIV.

Ramón Morillo Verdugo has received payments for presentations on courses and training sessions from Gilead, ViiV, MSD and Janssen, funding for the organisation of Gilead training courses, funding for innovation projects from Janssen and payments for consulting from ViiV and MSD.

Santiago Moreno has received support for research and has participated as a speaker in activities organised by Gilead, Janssen Cilag, Merck Sharp&Dohme and ViiV Healthcare.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.eimce.2022.12.008>.

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