

Survey of the Pharmaceutical Care Situation of the HIV Patient in Spain

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Abstract

Objective: To understand the Pharmaceutical Care (PC) given to HIV+ patients in Spain.

Method: In the year 2004, a survey on PC provided to HIV+ patients was conducted among pharmacists. The survey, with 33 questions, aimed to determine the material and human resources used in this area, as well as specific aspects of PC, and finally the pharmacist's opinion. The survey was distributed through the SEFH (Spanish Society of Hospital Pharmacists) webpage and at HIV conferences.

Results: Data was collected from 68 hospitals, most of them public. The most important strengths included the availability of material resources, extensive consulting hours, and the intervention of the pharmacist at key moments (treatment initiation, changes in treatment, and changes at the request of the patient). Verbal information was provided in most hospitals, accompanied by written information in 68% of cases. Although 81% of hospitals monitored compliance, less than half did it in a systematic manner, with the most widely used method being the dispensing records. Dispensing data was recorded, and to a lesser extent, the patients' drug treatment histories were available. Differences were seen among the hospitals depending on their size. The pharmacist considered that the PC was acceptable, but that there was room for improvement, and considered the measures available insufficient, highlighting the need for specific personnel and training.

Conclusions: The PC situation of HIV patients is of a good standard, but there is still a lot to be done to achieve acceptable, quality PC.

Key words: Antiretroviral therapy highly active. Adherence patient compliance. HIV. Pharmaceutical care services.

Encuesta de la situación de la atención farmacéutica en el paciente con VIH en España

Objetivo: Conocer la situación de la atención farmacéutica (AF) al paciente con VIH en España.

Método: En el año 2004 se realizó una encuesta sobre AF al paciente con VIH dirigida a farmacéuticos. La encuesta, de 33 preguntas, intentaba conocer los recursos materiales y humanos destinados a esta área, así como aspectos concretos de la AF y, finalmente, la opinión del farmacéutico. La encuesta se distribuyó a través de la página web de la SEFH y las jornadas de VIH.

Resultados: Se recogieron datos de 68 hospitales, mayoritariamente públicos. Como puntos fuertes destacan la disponibilidad de recursos materiales, un horario de atención amplio y la intervención del farmacéutico en los momentos clave (inicios, cambios de tratamiento y a petición del paciente). En la mayoría de los hospitales se facilitaba información oral, acompañada de información escrita en el 68% de los casos. Aunque el 81% de los hospitales controlaban la adhesión, menos de la mitad lo hacían de forma sistemática; el método más empleado era el registro de dispensación. Se registraban datos de dispensación y, en menor medida, se disponía de una historia farmacoterapéutica del paciente. Se observaron diferencias entre los hospitales según su tamaño. El farmacéutico opinaba que la AF era aceptable pero mejorable y consideraba insuficientes los medios disponibles, destacando la necesidad de personal y formación específica.

Conclusiones: La situación de la AF en el paciente con VIH tiene un buen nivel, pero queda mucho por hacer para alcanzar una AF aceptable y de calidad.

Palabras clave: Terapia antirretroviral de gran actividad. Adhesión. VIH. Atención farmacéutica.

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INTRODUCTION

Poor compliance with antiretroviral treatments (ARVT) is the primary cause of treatment failure, related not only to poor viral response, but also to diminished immune reconstitution and an increased risk of mortality.¹ This is why the current guidelines recommend that before starting ARVT, the patient is prepared and the causes capable of limiting treatment compliance are identified and corrected. Once the treatment has started it should be monitored and supported. Adherence must be controlled by a multidisciplinary team, which must include not only doctors but also nurses, psychological support staff, and hospital pharmacists.^{2,3}

Pharmaceutical care (PC) in the HIV patient setting has experienced significant evolution during recent years, developing from merely dispensing the ARVT after the so-called Prosereme V⁴ notification, to the development of more clinical activities and a greater participation in decision making today. Although compliance is one of the key aspects of pharmaceutical care in this area, it is not the only consideration and advice regarding interactions, administration, education on hygiene measures, diet, and prevention, among other factors, forms an essential part of the service we provide.⁵ Having good conditions for providing PC is a determining factor to ensure quality in the services we provide.

In 1999 the "HIV Group" emerged from the SEFH to share experiences, acquire new knowledge and collaborate on training and research into HIV⁶; including a multi-centre project directed at improving compliance with antiretroviral treatment.⁷ In 2004, the HIV Group carried out a survey with the aim to understand the real situation of PC given to HIV+ patients in Spanish hospitals.

METHOD

A group of experts designed a 33-question survey to be completed by hospital pharmacists following SEFH recommendations to HIV+ patients⁸ groups in 8 dimensions: *a)* the characteristics of the hospital and of the person answering the questionnaire; *b)* the physical setting where the patients receive care, the human, and material resources available; *c)* activity or burden on the service; *d)* pharmaceutical interventions; *e)* monitoring compliance; *f)* communication with the healthcare team; *g)* activity register and quality of pharmaceutical care; and *h)* opinion of the pharmacist of this activity.

The survey was distributed via the SEFH Web page, the SEFH mailing list and 3 HIV+ patient pharmaceutical care seminars which took place in 2004. The survey could be submitted anonymously. The percentage of positive answers for each item was calculated with a 95% of confidence interval (CI).

A sub-analysis was carried out in which the size of the hospital was considered: large hospitals have over 500 beds and medium/small hospitals have 500 beds or less. The results were

divided into 2 different categories ("favourable" or "unfavourable"), so that they were easier to interpret. The proportions of said hospitals were also compared via the χ^2 test.

RESULTS

During 2004 data was collected from 68 hospitals, mostly public (95%) and both large hospitals (57.3%) and those with less than 500 beds (42.7%). The majority of surveys were completed by assistants (74%) as can be seen in Table 1. The questions on the survey, as well as the answers obtained, are presented in Table 2. According to this, the majority of hospitals had a consulting room, although a third received people at a counter or window. The hours during which services were provided to outpatients were extensive and there was a telephone, computer, and specific programmes provided for these purposes. With regard to human resources, most of the pharmacists were supported by auxiliary staff. Of the hospitals surveyed, 43.9% had more than 500 patients with HIV and 22.7% had 300-500. Dispensing most frequently took place once or twice a month.

In the majority of the hospitals PC was offered at the most important moments, although only 31% of hospitals offers continuous pharmaceutical care. They mostly participated in dispensation, prescription validation and answering patients' queries. Of the hospitals surveyed, 55 (81%) monitored compliance but only half in a systematic manner. The most frequent, and usually the only method used was the dispensation register method, but 29% used a combination of different methods. The majority only registered the dispensation data, although 42% had pharmacologic history of the patient, manually or by computer. The majority of the hospitals worked with standard working procedures, although only 9% were certified with quality certificates.

Communication with the doctor was mainly verbal, communicating the pharmaceutical interventions only in the event of a problem or on request.

Table 1. Type of Hospital and Person Filling in the Survey^a

	No. of Responses	Percentage	95% CI
0.1 The hospital to which the patient belongs is:	n=68		
Public >500 beds	37	54.4	41.8-67.0
Public <500 beds	28	41.2	28.7-53.6
Private/appointed >500 beds	2	2.9	2.4-10.2
Private/appointed <500 beds	1	1.5	0.0-7.9
0.2 The person filling in the survey is:	n=68		
Head of Department	4	5.9	1.6-14.4
Assistant	50	73.5	63.3-84.8
Resident	8	11.8	3.4-20.2
Answered by the group	6	8.8	1.3-16.3

^aCI indicates confidence interval.

Table 2. Survey Results. Grouped and Stratified by Hospital Size^a

Structure and Resources	Survey Results			Stratified According to Size		
	No.	Percentage		No. of Beds		P; OR (95% CI)
				<500	>500	
1.1 Dispensation to HIV patients is available from (n=68)				n=31	n=37	
a) Counter/window	13	19.1	9.0-29.2	35.5%	24.3%	NS
b) Waiting room + counter	7	10.3	2.5-18.3			
c) Consulting room + waiting room + counter	24	35.3	23.2-47.4			
d) Consulting room + waiting room + counter + separate access	21	30.9	19.2-42.6	64.5% ^b	75.7% ^b	
e) Consulting room only	3	4.4	0.9-12.4			
1.2 Enter the No. of people and the % of your day devoted to outpatients (not just HIV); n=68 (non-exclusive answers)						
a) Pharmacist	68	100				
b) Nurse	10	14.7				
c) Auxiliary/pharmacy technician	38	55.9				
d) Clerk	16	23.5				
1.3 The dispensing hours (per week) are (n=68)						
a) >35 h	17	25.0	14.0-36.0			
b) 20-34 h	41	60.3	42.9-72.7	74.2% ^c	94.6% ^c	.03/0.16 (0.02-0.95)
c) 0-19 h	8	11.8	3.4-20.2			
d) <10	2	2.9	0.4-10.2	25.8% ^c	5.4% ^c	
1.4 This area has been provided with its own (n=68)						
a) Computer	2	2.9	0.4-10.2			
b) Computer and specific programmes	17	25.0	14.0-36.0	90.3% ^d	100.0% ^d	
c) Telephone, computer, and programmes	46	67.6	56.8-79.5			NS
d) None of the above	3	4.4	0.9-12.4	9.7% ^d	0.0% ^d	
Care Activity						
2.1 The number of different HIV+ patients attended is (if known, specify) (n=66)						
a) >500	29	43.9	31.2-56.7			
b) Between 300 and 500	15	22.7	11.9-33.6			
c) Between 100 and 300	14	21.2	10.2-31.8			
d) <100	8	12.1	3.5-20.8			
Total No. of patients counted >30 198						
2.2 The dispensation is generally carried out with a regularity of (n=68)						
a) Monthly	45	66.2	54.2-78.2	67.7% ^e	64.9% ^e	
b) Every 2 months	16	23.5	12.7-34.3			
c) Every 3 months	3	4.4	0.9-12.4			
d) >3 months	2	2.9	0.4-10.2	32.3% ^e	35.1% ^e	NS
e) Every month or 2 months	2	2.9	0.4-10.2			
2.3 The total number of visits/consultations per month is (if known, specify) (n=64)						
a) >500	25	39.1	26.3-51.8			
b) 300-500	9	14.1	4.8-23.4			
c) 100-300	22	34.4	22.0-46.8			
d) <100	8	12.5	3.6-21.4			

(Continued)

Table 2. Survey Results. Grouped and Stratified by Hospital Size (*Continuation*)

Structure and Resources	Survey Results			Stratified According to Size		
	No.	Percentage		No. of Beds		P, OR (95% CI)
				<500	>500	
Interventions						
3.1 The pharmacists intervenes in (n=68)						
a) Everyone	21	30.9	19.2-42.6	41.9% ^f	21.6% ^f	
b) New patients	2	2.9	0.4-10.2			
c) Treatment changes, new patients, and as required	34	50.0	37.4-62.6	58.1% ^f	78.4% ^f	NS
d) Only at patient request	11	16.2	6.7-25.7			
3.2 Mark the processes in which the pharmacist intervenes (n=67) (non-exclusive answers)						
a) Dispensing	51	76.1				
b) Validating the prescription	50	74.6				
c) Interview	44	65.7				
d) Answering questions	58	86.5				
e) Healthcare education on inappropriate behaviours	38	56.7				
3.3 Providing information about the treatments (n=68)						
a) In oral form	15	22.1	11.5-32.6			
b) In oral and written form	46	67.6	55.8-79.5			
c) In written form	0	0.0		90.3% ^g	89.2% ^g	NS
d) None is provided	7	10.3	2.3-18.3	9.7% ^g	10.8% ^g	
3.4 An occasional prospection of PRM is made						
a) For all interventions	26	38.8	26.4-51.2			
b) Sporadically	8	11.9	3.4-20.5			
c) When the patient has a question	15	22.4	11.7-33.1	83.3% ^h	64.9% ^h	NS
d) None is collected	18	26.9	15.5-38.2	16.7% ^h	35.1% ^h	
3.5 The written information available is (n=68)						
a) Prepared in-house	34	50	34.4-62.6			
b) From specific programmes	11	16.2	6.7-25.7			
c) Supplied by the industry	9	13.2	4.4-22.0	87.1% ⁱ	81.1% ⁱ	NS
d) None is available	14	20.6	10.2-30.9	16.1% ⁱ	24.3% ⁱ	
Compliance						
4.1 Treatment compliance is monitored (n=68)						
a) Regularly	28	41.2	28.2-53.6			
b) When poor compliance is suspected	18	26.5	15.2-37.7	83.9% ^j	73.0% ^j	NS
c) At the doctor's request	7	10.3	2.3-18.3			
d) Not done (skip to section 5)	13	19.1	9.0-29.2	16.1% ^j	27.0% ^j	
e) Yes: a+b+c	2	2.9	0.4-10.2			
4.2 The method used for estimating this is (n=55)						
a) Dispensing registers	39	70.9	58.0-84.8	54.0% ^k	86.0% ^k	
b) Questionnaires	0	0.0				
c) Combinations of methods or others (specify)	16	23.5	16.2-42.0	46.0% ^k	14.0% ^k	.02/0.19 (0.04-0.79)
d) Subjective evaluation	0	0.0				
4.3 The dispensation is generally carried out with a regularity of (n=54)						
a) Monthly	16	29.6	16.5-42.7			
b) Three-monthly	11	20.4	10.5-35.8			
c) Occasionally	22	40.7	26.7-54.8	46.2% ^l	53.6% ^l	NS
d) Annually	5	9.3	3.1-15.4	53.8% ^l	46.4% ^l	

(Continued)

Table 2. Survey Results. Grouped and Stratified by Hospital Size (*Continuation*)

Structure and Resources	Survey Results			Stratified According to Size		
	No.	Percentage		No. of Beds		P; OR (95% CI)
				<500	>500	
4.4 Factors related to compliance are investigated, in the event of sub-optimum (n=55)						
a) Yes, if an attempt is made to identify causes	13	23.6	11.5-35.8			
b) Yes, causes are identified and action is taken	24	43.6	29.6-57.7	80.8% ^m	69.0% ^m	NS
c) Yes, even if compliance is optimum	4	7.3	2.0-17.6			
d) No, only the results are recorded	14	25.5	13.0-37.9	19.2% ^m	31.0% ^m	
Communication With the Team						
5.1 There is clinical data available about the patients (n=67)						
a) Yes, there is access to the clinical history	10	14.9	5.6-24.2			
b) Yes, if expressly requested	21	31.3	19.5-43.2	83.3% ⁿ	86.5% ⁿ	NS
c) Yes, viral loads and CD4 are systematically available	26	38.8	26.4-51.2			
d) No	10	14.9	5.6-24.2	16.7% ⁿ	13.5% ⁿ	
5.2 Is notification given of the results of the pharmaceutical intervention? (n=67)						
a) Yes, they are automatically sent to the doctor	8	11.9	3.4-20.5			
b) Yes, if requested by the team	10	19	5.6-24.2	90.3% ^o	80.6% ^o	NS
c) Yes, only if problems are detected	39	52	45.7-70.8			
d) No	10	14.9	5.6-24.2	9.7% ^o	19.4% ^o	
5.3 Is there participation in therapeutic decisions? (n=67)						
a) Yes, the individual reports are highly valued	15	22.4	11.7-33.1			
b) Yes, only generally, through the Pharmacy Committee	23	34.3	22.4-46.4	61.3% ^p	69.4% ^p	NS
c) Yes, there is active participation in clinical sessions	6	9.0	1.4-16.5			
d) No	23	34.3	22.4-46.4	38.7% ^p	30.6% ^p	
5.4 Communication takes place (n=68)						
a) Orally, on request	49	72.1	60.7-83.5	74.2% ^q	70.3% ^q	
b) In writing, on request	8	11.8	3.4-20.2			
c) In writing, systematically	10	14.7	5.6-23.9	25.8% ^q	29.7% ^q	NS
d) None is collected	1	1.5	0.1-7.9			
5.5 The team requests information from the pharmacy service about:						
a) Compliance	2	3.0	0.4-10.5			
b) Many aspects (including compliance and medication and procedure questions)	42	63.6	51.3-76.0	73.3% ^r	61.1% ^r	
c) Only procedural/administrative matters	20	30.3	18.5-42.1			
d) No information requested	2	3.0	0.4-10.5	26.7% ^r	38.9% ^r	NS
Registers and Quality						
6.1 The data on the pharmacologic registry is collected:						
a) Manually	14	20.6	10.2-30.9			
b) On computer	14	20.6	10.2-30.9	64.5% ^s	83.8% ^s	NS
c) Only the dispensation history by computer	35	51.5	38.9-64.1			
d) None is collected	3	4.4	0.9-12.4	35.5% ^s	16.2% ^s	
e) Manual + computer	2	2.9	0.4-10.2	18	18	
6.2 The data collected includes (n=68)						
a) Only the dispensing history	41	60.3	47.9-72.7	38.7% ^t	78.4% ^t	
b) Also compliance estimation	2	2.9	0.4-10.2			
c) Dispensing, compliance, and PRM	9	13.2	4.4-22.0	61.3% ^t	21.6% ^t	.002/0.17 (0.05-0.57)
d) The above plus data from pharmaceutical interventions	16	23.5	12.7-34.3			
6.3 Choose the sentence most fitting to your situation (n=67)						
a) Standard working procedures manual	36	53.7	41.0-66.4			
b) Manual + continuous improvement plans drafted	8	11.9	3.4-20.5	61.3% ^u	86.1% ^u	.04/0.26 (0.06-0.95)

(Continued)

Table 2. Survey Results. Grouped and Stratified by Hospital Size (*Continuation*)

Structure and Resources	Survey Results			Stratified According to Size		
	No.	Percentage		No. of Beds		P, OR (95% CI)
				<500	>500	
c) PC certified or in the process of certification	6	9.0	1.4-16.5			
d) Does not work in a standard way	17	25.4	14.2-36.5	38.7% ^u	13.9% ^u	
6.4 Indicators calculated (n=67)						
a) Only the economics required by Administration	15	22.4	11.7-33.1			
b) The above plus the activity	33	49.3	36.5-62.0	93.5% ^v	97.2% ^v	NS
c) Economics, activity, and quality	16	23.9	12.9-34.8			
d) They are not calculated	3	4.5	0.9-12.5	6.5% ^v	2.8% ^v	
Subjective Evaluation						
7.1 Considers that the pharmaceutical care supplied to the HIV+ patient is:						
a) Good or very good	21	30.9	19.2-42.6	48.4% ^w	16.2% ^w	
b) Only acceptable	13	19.1	9.0-29.2			
c) The minimum acceptable. taking into account the means	19	27.9	16.5-39.3	51.6% ^w	83.8% ^w	.009/4.8 (1.4-17.9)
d) There is much room for improvement	15	22.1	11.5-32.6			
7.2 How suitable do you consider the means available for providing services? (n=68)						
a) Ideal	0	0.0				
b) Adequate	9	13.2	4.4-22.0			
c) Sufficient	18	26.5	15.2-37.7	48.4% ^x	32.4% ^x	NS
d) Insufficient	41	60.3	47.9-72.7	51.6% ^x	67.6% ^x	
7.3 Specify the type of resources you consider the most insufficient:						
a) Personal	34	50.0	37.4-62.6			
b) Physical environment	19	27.9	16.5-39.3			
c) Material resources	4	5.9	1.6-14.4			
d) Specific training	11	16.2	6.7-25.7			
7.4 If I had more personnel and resources:						
a) I would use them on this activity	35	52.2	39.5-64.9			
b) HIV care already has enough resources	1	1.5	0.1-8.0			
c) I would only partially use them in the outpatient area	26	38.8	26.4-51.2	93.3% ^y	91.9% ^y	NS
d) I would use them in areas other than pharmacy	5	7.5	2.5-16.6	6.7% ^y	8.1% ^y	
7.5 Feel sufficiently valued by patients in their work by:						
a) Patients	12	18.5	8.3-28.7			
b) Healthcare team and patients	35	53.8	41.0-66.7			
c) Administration	1	1.5	0.1-8.3	86.2% ^z	63.9% ^z	NS
d) Nobody	17	26.2	14.7-37.6	13.8% ^z	36.1% ^z	
7.6 Which statement do you feel best reflects your opinion?						
a) I think that PC and HIV have reached a peak	0	0.0				
b) I believe that with the new therapies. in a short time it will have reached a peak	0	0.0				
c) I believe that the pharmacist will continue to have an important role to play in HIV+ patient care	43	63.2	51.0-75.4	74.2% [*]	54.1% [*]	NS
d) I believe we are still far from providing acceptable PC	25	36.8	24.6-49.0	25.8% [*]	45.9% [*]	

^aCI indicates confidence interval; NS, not significant; OR, odds ratio. ^bOption c)+d). ^cOption a)+b) = more than 20 h weekly; and c) +d) = fewer than 20 h weekly. ^dOption a)+b)+c) = computer equipment and d) without computer equipment. ^eOption a) = monthly and b)+c)+d)+e) = every 2 months or more. ^fOption a) the pharmacist intervenes in all the processes and b)+c)+d) = Only in special situations. ^gOption a)+b)+c) = oral and written information is given and d) It is not given. ^hOption a)+b)+c) = an occasional prospection of PRMS is made and d) it is not made. ⁱOption a)+b)+c) = some written information is available and d) = none is available. ^jOption a)+b)+c) = compliance to the treatment is monitored at least occasionally and d) it is not done. ^kOption a) = registers of dispensation is the method used for their estimation and b)+c)+d) = combinations of methods. ^lOption a)+b)+c) = every 3 months or less adherence is estimated and d) = every plus 3 months. ^ma)+b)+c) = yes, factors relating to compliance are suboptimal and d) = they are not investigated. ⁿOption a)+b)+c) = yes there are clinical data about the patients and d) = they are not available. ^oOption a)+b)+c) = yes the results of the pharmaceutical action are notified and d) = they are not communicated. ^pOption a)+b)+c) = yes, they participate in some way and d) they do not participate. ^qOption a) = orally, b)+c) = in writing and d) = the option that it is not done is not taken into consideration. ^rOption a)+b) = the team requests information from the Pharmacy Service on adherence and other aspects and c)+d) = only bureaucratic questions or not requested. ^sOption a)+b)+c)+e) = data is collected in some way and d) = it is not collected. ^tOption a) = only data from the dispensation history is collected and b)+c)+d) = dispensation and others. ^uOption a)+b)+c) = there is some standardisation of work and d) = they do not work in a standard manner. ^vOption a)+b)+c) = at least the economic indicators are calculated and d) = they are not calculated. ^wOption a) = considers that the pharmaceutical care provided to HIV+ people is good or very good and b)+c)+d) = acceptable at most. ^xOption a)+b)+c) = the measures available for providing it are at least sufficient and d) = insufficient. ^yOption a)+b)+c) = if I had more personnel or measures I would use them in this activity or similar and d) = I would use it in other areas. ^zOption a)+b)+c) = feels his work is sufficiently valued on some level and d) = by nobody. ^{*}Option c) = the pharmacist continues to do an important job and d) = we are still very far from acceptable PC.

The pharmacist's opinion of the HIV+ patient's PC was good or acceptable; although the resources available were considered inadequate, especially in terms of personnel and they felt that their work was valued by the patients and the healthcare group, although a quarter felt they were not valued by anybody.

The same table sets out the results, taking the hospital size into consideration. The responses grouped around 2 possibilities give a significant statistical representation of how large hospitals provided attention over longer hours, used the combined methods for estimating compliance, and had more normalised working methods. The pharmacists at the larger hospitals were less satisfied with the care given.

DISCUSSION

A series of strengths were observed in current PC including: the availability of material resources, an adequate timetable for providing services and the intervention of the pharmacist at key moments. Despite this, the following areas requiring improvement were detected: the PC should always take place in a consulting room to ensure the confidentiality and privacy of the patient^{9,10}; the dispensation must always be accompanied by information; compliance and the PRM^{11,22} must be monitored systematically; combine several methods for assessing compliance³; introducing programmes for improving compliance¹³; improving communication with the prescribing physician, for example through compliance reports and/or PRM; introducing the patients' pharmacologic histories or computerising the activity^{14,15}; ensuring the quality of the PC using standard working procedures, quality indicators and continuous improvement plans¹⁶; and improving the human resources employed in this area.

Although the stratified analysis only reached statistical significance for some items, the data suggests that larger hospitals, although better equipped and organised, provide poorer quality services, as perceived subjectively by the pharmacists. The cut-off point of 500 beds is certainly arbitrary, although we think it could be a useful approximation with regard to the size of the hospital. It is possible that another type of stratification may provide more information, but it did not seem relevant or proportionate to the characteristics of the studio, to do a more ambitious analysis.

One of the main limitations of the study is its representation, taking into account that there is no calculation of the size of the sample, nor was a standardised method used throughout the sample. The authors were faced with a complex situation since all the approaches are based on estimates, as there is no census of hospitals dispensing to HIV patients, nor is the exact number of patients receiving treatment known. Based on the survey of hospitals of the Spanish Ministry of Health and Consumer Affairs, there could be as many as 220 hospitals dispensing antiretroviral medications,¹⁷ which means it has been possible to include almost a third of all hospitals in our sample. With regard to the number of patients on treatment, our survey detected a number no less

than 30 198. In a publication from 1999,¹⁸ the estimated number given is 50 000, meaning our data represents more than half the total population.

With regard to geographical distribution, the presence of hospitals in Cantabria, Aragon, and Murcia (21 surveys did not cite the hospital of origin) could not be confirmed, whereas the other autonomous regions presence was confirmed. With regard to the type of hospital, the survey showed a balanced representation of hospitals according to their size. Based on the above, the authors consider that in spite of its obvious limitations, the results provide an interesting reference with regard to PC of HIV patients in Spain. It would be appropriate to start a register in hospitals providing PC to these patients to have better quality methodological information available.

It is difficult to compare the situation in Spain with that in other countries as the authors have not found similar studies. However, there are recommendations on PC in HIV patients^{5,19} similar to ours,⁸ even studies where the benefit of pharmaceutical care can be seen in the HIV patients.^{20,21}

In conclusion, the PC situation of HIV patients is of a good standard, but there is still a lot to be done to achieve an acceptable PC quality. Carrying out this type of survey is beneficial, although data quality needs to be improved, to establish a starting point and to detect areas of improvement that can be used by the HIV group to approach future projects and establish standards.

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