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# Drug consumption rooms in Spain (2000-2013)

## Salas de consumo higiénico en España (2000-2013)

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**ABSTRACT** The aim of this review is to provide a new interpretation of the results found in the scientific literature on drug consumption rooms (DCR) in Spain published from 2000-2013. A search was carried out using several data bases – PubMed, Índice Bibliográfico Español en Ciencias de la Salud (IBECS), Índice Médico Español (IME), Scientific Electronic Library Online (SciELO) and SIIS Centro de Documentación y Estudios – as well as other secondary sources and information solicited from professionals of DCR. A total of 21 articles or research reports, 17 presentations or speeches in specialized conferences, 5 journalistic reports and 2 institutional records were included in a meta-synthesis divided into different thematic areas. The opening of a DCR is a public health strategy with positive effects for drug consumers and society as a whole, but this review demonstrates that technical, strategic and functional improvements are necessary to increase their effectiveness.
**KEY WORDS** Drug Dependence; Cocaine; Heroin; Harm Reduction; Spain.

**RESUMEN** El objetivo de esta revisión es presentar una nueva interpretación de los resultados de la bibliografía sobre las salas de consumo higiénico (SCH) de España publicados en el periodo 2000-2013. Se realizó una búsqueda bibliográfica en las bases de datos PubMed, Índice Bibliográfico Español en Ciencias de la Salud (IBECS), Índice Médico Español (IME), Scientific Electronic Library Online (SciELO) y SIIS Centro de Documentación y Estudios, en otras fuentes secundarias y solicitando información a los profesionales de las SCH. Se seleccionaron 21 artículos o informes de investigación, 17 presentaciones o comunicaciones en jornadas y/o congresos especializados, 5 reportajes y 2 memorias de actividad, para la realización de una metasíntesis desglosada en diferentes temáticas. La apertura de las SCH es una estrategia de salud pública con efectos positivos para los consumidores de drogas y todo el conjunto de la sociedad, pero esta revisión constata que son necesarias mejoras técnicas, estratégicas y de funcionalidad para aumentar su efectividad.
**PALABRAS CLAVES** Drogodependencia; Cocaína; Heroína; Reducción del Daño; España.

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## INTRODUCTION

In the 1990s, harm reduction policies were launched in Spain with the aim of fighting against the high rates of deaths caused by drug overdose and HIV and hepatitis infections related to drug consumption through a parenteral route.[1,2] Different strategies (methadone programs, syringe exchange programs, among others) proved to be effective[3,4]; however, open drug scenes where drugs were parenterally administered were still found, leading to serious health consequences. Therefore, the possibility of implementing drug consumption rooms (DCRs) was considered, based on the European experiences.[3,5] Rooms and materials for hygienic consumption, as well as professional supervision in case of an overdose or other complications, are provided in the DCRs. In addition, the DCRs are planned to bring social-health care closer to those users who live away from socio-sanitary services.[3,5-8]

In May 2000, a supervised injection facility [*dispositivo asistencial de venopunción*] was implemented in Las Barranquillas, Madrid.[8,9] Since then up to the first quarter of 2012, ten DCRs have operated in five different cities located in the Spanish Autonomous Communities of Madrid, Catalonia, and the Basque country. (Table 1)[a]

Anecdotally, between the summer and fall of 2007, a DCR for oral, nasal, and pulmonary routes of administration was experimentally implemented on three occasions in leisure spaces in the community of Madrid. The facility was widely used without further complications, and the information, advice, and drug analysis services offered were positively evaluated by the users. Nevertheless, this project could not pass the experimental stage due to lack of financial means and support from responsible entities.[25,26]

In October 2007, the International Network of Drug Consumption Rooms (INDCR) was created[27] with the aim of promoting working groups and communication channels to support the development of DCRs.[28] Two scientific meetings were held in the city of Bilbao, in 2007 and 2010.[27]

This work includes the summarized history of DCRs in Spain, of which there is limited and incomplete information available, both in the national and international literature. The objective of this work is to summarize the information obtained through different searching methods in order to increase the amount of information, as well as to provide a new interpretation of the results published to date. This research study attempts to answer the following questions:

- What is the users' profile of the Spanish DCRs?
- What type of programs and interventions are carried out in the Spanish DCRs in order to improve the users' quality of life?
- What benefits do these facilities bring about? What can be done to improve their effectiveness?

In addition, guidelines to promote research studies and publications about this phenomenon are also introduced.

## MATERIALS AND METHODS

In order to conduct this research study and prior to the search for bibliographic references in the literature on databases and other means, a revision protocol explaining the different steps to obtain the information was prepared. (Figure 1) The inclusion of references was carried out following specific eligibility criteria and, once the bibliographic references were selected, they were analyzed according to the chosen methodology.

### Sources of the information and search strategies

An article research was conducted between April and November 2013, in the PubMed reference database for the period between January 1 and November 31, 2013, using the MeSH terms "Supervised Injecting Center," "Supervised Injection Facility," "Spain," "Harm Reduction," "Heroin," and "Cocaine," and isolated terms "injection drug use," "drug consumption room," and "harm reduction programs" on a combined basis. A search through the Spanish collection of the Scientific Electronic Library Online (SciELO), the Spanish Bibliographic Index in Health Sciences [Índice *Bibliográfico Español en Ciencias de la Salud*] (IBECS), and the Spanish Medical Index [Índice *Médico Español*]

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**Table 1. Drug consumption rooms in Spain (2000-2013).**

| Drug consumption room | Operation period | No. of available places | Context of the DCR |
|---|---|---|---|
| Supervised injection facility (DAVE), Las Barranquillas, Madrid. | May 2000 – December 2011. | 10 places for injection consumption. | This center is located 500 meters away from the slums and neighborhoods in which drug dealing was reported. It was implemented after the approval of the Anti-drug Agency of Madrid during the spring of 1999[8,9] and it was run by different entities. The program was terminated in 2011 due to health care cuts in the Community of Madrid. |
| Harm reduction program of Can Tunis, Associació Benestar i Desenvolupament – Agència de Salut Pública from Barcelona (ABD-ASPB). | September 2001 – End of 2004. | When the center was opened, it was a 3-place tent.[10] At the beginning of 2002, a 5-place mobile unit for injected drug use was implemented.[5,11]. | It was set up after visiting the DCR of Madrid. The center was located about 100 meters away from this neighborhood, where drug dealing and consumption, which ended in 2004, were reported. Between October and November 2003, a temporary suspension of drug dealing was reported,[5,11] which led to a series of issues that proved that Barcelona was not well-equipped for drug user assistance, see "Manifiesto de Can Tunis."[12] The program continued up to the second half of 2004 and the permanent closure coincided with the opening of Sala Baluard. |
| Socio-sanitary care and prevention service of Creu Roja of Barcelona. | October 2003 – Present. | 2 places for injection consumption. | This center is located in Raval (downtown Barcelona). The DCR was set up in an old warehouse in this harm reduction center that opened in 1993 for the care of drug users and socially excluded sex workers.[3,6,13]. |
| Supervised drug consumption room of Médicos del Mundo in Bilbao. | November 2003 – Present. | 6 places for injection consumption.<br>6 places for inhalant consumption as from June 2005.[14,15]. | The unit is located in a downtown area of the city of San Francisco in Bilbao and was implemented after carrying out a research study concerning the needs of the area and a long community research study in which all the involved social agents participated.[14,15] Since then, the implemented protocol,[16] the activity of the DCR,[17] and the socio-community impact[18] were positively evaluated. |
| "El Local" in La Mina, Institut per a la Promoció Social i de la Salut (IPSS), Sant Adrià de Besòs, Barcelona. | June 2004 - Present. | 2 places for injection consumption. The number of places for injection consumption increased to 4 places, and to 8 places in August 2013. | The implementation of the DCR was part of a plan concerning the overall transformation of the area, where drug dealing was detected.[5,19] Despite the community work conducted in the neighborhood, the DCR has been vandalized several times by neighbors. Presently, this is the busiest DCR due to the progressive referrals of users from the DCRs located in Barcelona and other neighboring towns. |
| Health care and monitoring center for drug-dependence "Sala Baluard," Associació Benestar i Desenvolupament – Agència de Salut Pública de Barcelona (ABD-ASPB). | December 2004 – Present. | 5 places for injection consumption.<br>6 places for inhalant consumption since the beginning of 2009. | After the closure of the DCR located in Can Tunis, the professional team moved to the facilities located at Maritime Museum of Barcelona in Raval, near the supervised injection facility of the Servei d'Atenció i Prevenció Sociosanitària.[20] Since the opening of this DCR, several complaints from the neighbors were reported, which were usually supported by the media and politicians opposing the use of these rooms. A change of location of this DCR is planned.[21] |
| Mobile unit [Bus] of Zona Franca, Associació Benestar i Desenvolupament – Agència de Salut Pública from Barcelona (ABD-ASPB). | April 2005 – Present. | 3 places for injection consumption.[20] | This unit is located near an area where drug dealing was detected and has been relocated several times. For a certain period of time it was located near the mobile unit for methadone supply that has been circulating in the area for more than 20 years. Presently, the mobile unit has two stops[22]: one is near the neighborhood in which drug dealing was reported and the other is next to an ambulatory health center. A change of location of this DCR is planned.[21] |
| Health Care and Monitoring Center for Drug-dependence of the Hospital de la Vall d'Hebron from Barcelona. | July 2005 – Present. | 3 places for injection consumption.[20] | Initially, a prefabricated building was set up in the yards of the hospital.[20] The neighbor's response was unsatisfactory and, due to their strong opposition, by mid 2006, it was moved to a hospital unit, which decreased the neighbors' hostility. |
| Harm reduction program of Arrels – Sant Ignasi de Lleida. | February 2009 – Present. | 2 places for injection consumption since February 2009.<br>2 places for inhaled heroin consumption since January 2010; and 1 place for cocaine consumption since September 2010.[b] | The DCR was opened in a center, which was created in 1994, when a growing number of drug users in the area in need of specific medical attention was noticed. There was no neighbor opposition regarding its implementation as it was supported by the Departament de Salut de la Generalitat de Catalunya, which is a medical center well known for providing care to socially-excluded people.[b] |
| Health Care and Monitoring Center for Drug-dependence Fòrum of Barcelona. | January 2012 – Present. | 1 place for injection consumption. | The unit was opened in this center, which operated from 2010 to 2011 and which was located in an ambulatory and hospital center near the boundaries of Barcelona[23,24], really close to the DCR "El Local" of La Mina of the neighboring city. |

Source: Own elaboration based on the selected literature.

DCR = Drug Consumption Room.

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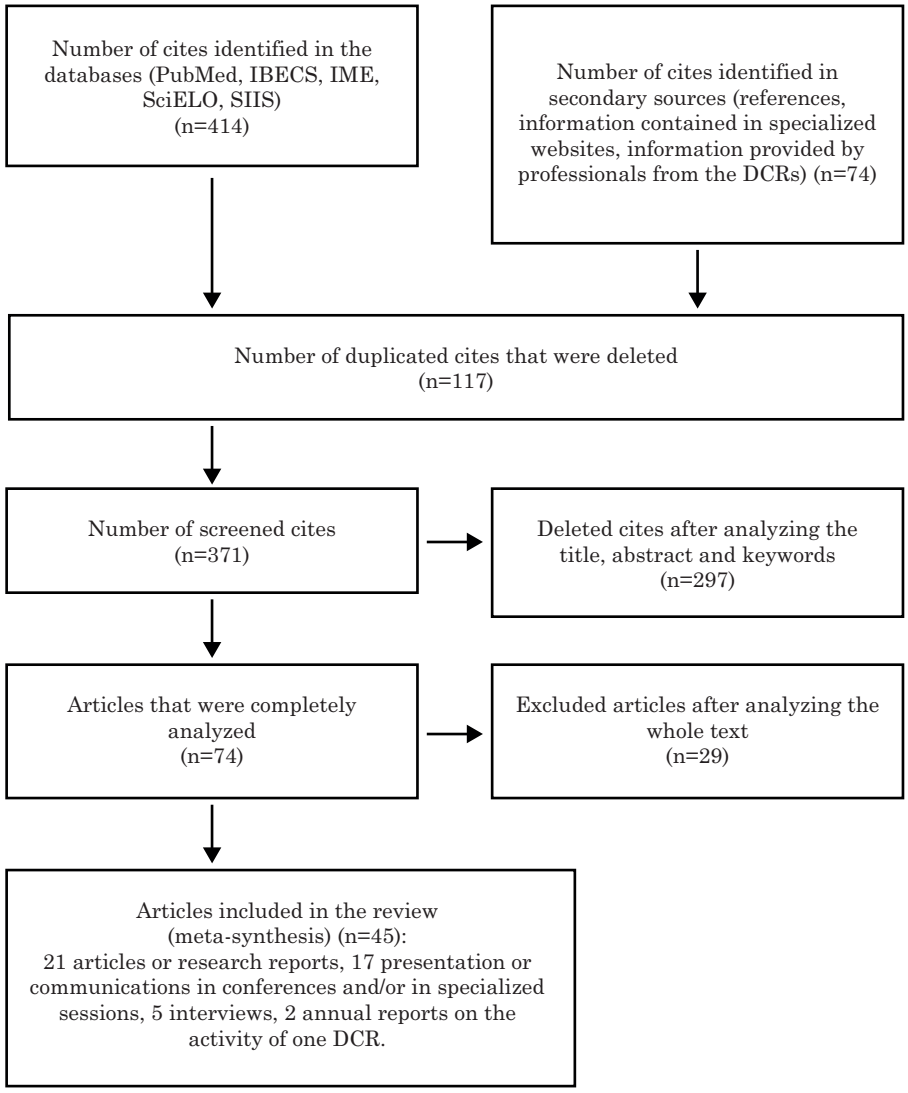


**Figure 1. Flow diagram on the search and selection of references.**

Source: Own elaboration.

(IME) was also conducted using the following terms on a combined basis: "*sala de consumo*," "*espacio de venopunción asistida*," "*heroína*," "*cocaína*," "*drogodependencias*," "*reducción de daños*," "*consumidores de drogas*," and "*consumo por vía inyectada*." Once the different articles were found and selected, the name of the authors were searched in search engines in order to find previous and/or subsequent articles.

Next, the following sources were consulted: public websites of different organizations for drug addiction – National Plan on drugs [*Plan Nacional Sobre Drogas*], Agència de Salut Pública de Barcelona and Òrgan Tècnic de Drogodependències de Catalunya – documentation centers and/or specialized groups – European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Documentation and Studies Center of San Sebas-

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tián [*Centro de Documentación y Estudios de San Sebastián*] (SIIS), and *Grup IGIA* from Barcelona –, specialized websites on DCRs,[27,29] and noted and commented references lists[30-32] within the agreed search periods. In addition to the articles found on the databases, the references of the articles found were checked so as to conduct a more thorough revision.

Finally, those professionals of and those responsible for DCeRs in Spain were contacted to obtain additional information and to clarify the results arising from the analysis.

## Selection of references

All duplicated documents were not considered. Then, a first selection based on the analysis of the title, abstract, and keywords was conducted. The texts were revised, and classified as included or excluded according to established basic criteria. The following documents were selected: articles and research reports, presentations in conferences and/or specialized sessions, interviews and annual reports about the activity of the DCRs that analyze the implementation, interventions, programs, users' profiles, and drug consumption in the DCRs that were published between 2000 and 2013. The accepted languages for the research studies were English, Spanish, Catalonian, Portuguese, and French. The following documents were not included: articles not providing specific results concerning the different subjects of interest of the DCRs and articles only superficially dealing with harm reduction strategies, in which the DCRs are included. No information about the DCRs implemented as from the second half of 2012 was searched or included, given that no results were published in articles nor publicly presented in specialized sessions.[a] After this selection, the references that were not excluded in the previous step were fully analyzed, assessing their inclusion according to the eligibility criteria. Lastly, the selected literature was analyzed as per the selected methodology. The analyzed documents were: 21 articles or research reports (14 empirical research works including qualitative and/or quantitative methods[c] and 7 theoretical researches), 17 presentations in conferences and specialized sessions (scientific communications, posters, and summaries), in which primary descriptive results and brief analyses are presented, 5 interviews, and 2 annual reports concerning the performance of the DCRs. Related references were cited so as to increase the knowledge and understanding of the subject under study.

## Data analysis

A methodology called metasynthesis was implemented. This methodology is an open process that integrates information, theories, findings, and any other type of knowledge in order to summarize results of researches and theories produced under different perspectives and methodologies.[41,42] Metasynthesis provides opportunity to obtain a more comprehensive view of this phenomenon and to produce new knowledge about it. Moreover, it allows to critically analyze the limits of the scientific production on this specific phenomenon.[41]

The analysis was based on the principles and procedures of the grounded theory proposed by Glaser and Strauss,[43] which consists in formulating theories using inductive reasoning based on the analysis and constantly making comparison of the information or, in this particular case, of the selected materials. Firstly, an open coding of extracts from the documents selected during the theoretical sampling process was conducted, in which the search and selection of bibliographical references was performed.[44] In this process, all the information from the texts was carefully broken down and meticulously classified to pinpoint provisional concepts. During this process, memorandums, theoretical ideas about the codes and the relations established among them were recorded.[43,44] A series of concepts arose from this process, which in turn, from their comparison, gave rise to categories, which are classification items describing relevant contents to formulate the emerging theory.[43] During this step, an axial coding process was conducted, in which every category was extensively analyzed, developing sub-categories and the relations among them.[43,44] Therefore, a data matrix for each category was elaborated, and from

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them, properties and relations between these categories were analyzed, modifying the categories until obtaining more precise codes to identify the selected information. Thus, the information was systematized, providing further explanation of the questions of the phenomenon under study. Lastly, a theory was formulated from the group of core categories, which provided a theoretical explanation of the information and their relationship with the subject matter of this study.

### Synthesis

A meta-synthesis of the core categories was performed, which can be broken down into the following topics:

1. *Implementation of the DCRs*: The legal, political, and strategic frame is put forward for the opening, setting up, and development of the DCRs; different State experiences are exemplified.
2. *Programs and interventions of the DCRs*: The different activities conducted in the DCRs are specified; the impact of some of the interventions and programs conducted in these DCRs are highlighted.
3. *Profile of the DCR users*: The socio-demographic, socio-economic, health, psycho-social, and legal characteristics of the users attending the DCRs are specified.
4. *Drug consumption and side effects*: Drug use prevalence is stated according to the type of substance and the route of administration, a reflection about overdoses and side effects treated in the DCRs is made.
5. *Effectiveness of the DCRs*: a global assessment of the DCRs is performed, stating their positive effects at different levels: health, social, and public order.
6. *Improvement proposals*: Different aspects to be improved are specified for a better performance of the DCRs.

## FINDINGS

### Implementation of drug consumption rooms

The contents of the publications concerning the implementation of the DCRs in Spain between the years 2000 and 2013 are detailed in Table 2. The interpretation of the Spanish statutory framework does not prohibit the implementation of the DCRs.[45] Section 43 of the Spanish Constitution acknowledges the right to protect health through preventive actions, health care benefits, and necessary services, although this requirement is not considered a fundamental right.[15,45] Moreover, the Spanish General Health Act No. 14/1986 [*Ley General de Sanidad 14/1986*] acknowledges the legal character of DCRs, as these rooms help promote health and prevent diseases.[15,45] Furthermore, the Basque Prevention, Assistance, and Inclusion concerning Drug-dependence Act No. 18/1998 [*Ley 18/1998 sobre Prevención, asistencia e Inserción en materia de Drogodependencias*] provides that measures to prevent drug-related damage to the consumer health and third parties' health[16] shall be adopted. Nonetheless, planning negotiations with the community is recommended for a non-conflictive implementation, without any legal repercussions.[16,18,48,49] However, the DCRs have been implemented in Spain in different ways. (See Table 1)[a]

A series of technical considerations are necessary before the implementation of the DCRs:

a. The professional team should be multidisciplinary in order to provide bio-psychosocial and educational care.[46,47]
b. The team should be able to know how to act in case of health care need (such as an overdose, start of the treatment, among others) and to provide social support (work-related accidents or violence, among others).[50] The performance of simulations is recommended for obtaining greater knowledge on the matter.[47]
c. The DCRs should provide rest areas, which shall be free from elements that may disturb the users.[46,47]
d. Materials for drug consumptions through parenteral, pulmonary, and nasal routes of admin-

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**Table 2. Publications on the implementation of the drug consumption rooms in Spain, 2000-2013.**

| Author(s) | Year | Objectives of the publication | Comments/Conclusions |
|---|---|---|---|
| Calvet G. | 2000 | In this communication, the legislation concerning the implementation of the DCRs is interpreted. The DCRs are introduced as preventive strategies for harm reduction.[45] | As there is no legal impediment for the opening of a DCR, its implementation is advisable. A good distribution of space, appropriate personnel, and community services are recommended as the keys to prevent conflicts. Moreover, studies to evaluate the implementation of the DCRs in the area are also recommended . |
| Ilundain E, Markez I. | 2005 | Study analyzing the sociopolitical situation concerning the implementation of the DCRs in Barcelona, Bilbao, and Madrid.[5] | The models of implementation of the DCRs vary depending on the city where they are located. Madrid responds to a technocratic model, Bilbao to a participative model, and the Barcelona DCR acts under the politician's concealment to justify the need of these rooms, which causes rejection among neighbors and shop owners. Generally, these strategies question harm reduction policies and aid-based policies of the cities under study . |
| Médicos del Mundo | 2006 | Safety protocol for preventing and decreasing the risks concerning the team involved in a DCR.[46]. | Regulations and basic conditions for the opening of the DCRs are described. Moreover, safety and basic operation protocols are presented. |
| Delàs J, Aragó JV, Brasó J, Campañá E, Cebrián S, Coll R, *et al*. | 2007 | Chapter of a manual describing recommendations for the opening of DCRs.[47] | Strategies concerning negotiation with all the pertinent parties (institutions, neighbors, traders, users, media, human resources, and financing) are described. Guides for interviews that were used in the DCRs implementation process are attached. |
| Bua A, del Río M. | 2010 | Manual of good practice for the opening of the DCRs, which describes the process of community, democratic, and participative work concerning the implementation of the DCR in Bilbao.[16]. | Strategies concerning negotiation with all the pertinent parties (institutions, neighbors, traders, users, media, human resources, and financing) are described. Guides for interviews that were used in the DCRs implementation process are attached. . |
| Arostegi E, Pérez T. | 2012 | Study analyzing the social-community impact arising from the Bilbao DCR in terms of citizen coexistence.[18] | This study represents the third and last part of the evaluation process of the Supervised drug consumption room of Médicos del Mundo in Bilbao. This study involves qualitative and quantitative methodology in which all the pertinent parties (users, neighbors, professionals, and others) participate. It has been confirmed that no citizen coexistence conflict has been reported and that the DCR has caused Bilbao to become a model of inclusive city. |
| Vecino C, Villalbí JR, Guitart A, Espelt A, Bartroli M, Castellano Y, Brugal MT. | 2013 | Quasi-experimental study on the evolution of injected drug consumption in public places in Barcelona between 2004 and 2012. The number of syringes discarded in public places is used as an indicator to assess the implementation of DCRs and police action.[23] . | The monthly median rate of retrieved syringes decreased from 13,132 in 2004 to 3,190 in 2012. The implementation of the DCRs is considered a factor for the reduction of discarded syringes in public places. Police action does not seem to have a homogeneous effect in this matter. |

Source: Own elaboration based on the selected literature.

DCRs: Drug consumption rooms.

**Table 3. Programs and interventions of the Spanish drug consumption rooms, 2000-2013.**

| Drug consumption rooms | Community work | Syringe collection in the neighborhood | Hygiene area (showers) | Laundry | Clothes shop | Locker area | Rooms for inhalant consumption | Substance analysis | Legal counseling | Psychological carea | Methadone programs | Lodging |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAVE de Madrid | Yes | Yes | Yes | Yes | Yes | Yes | - | Yes[a] | Yes | - | - | Yes[b] |
| Harm reduction program of Can Tunis, Barcelona | Yes | Yes | - | - | Yes | - | - | - | - | - | Yes[c] | - |
| Socio-sanitary care and prevention service [Servicio de atención y prevención socio sanitaria] (SAPS) of Barcelona | - | Yes | Yes | Yes | Yes | - | - | Yes[d,e] | Yes | - | - | Yes[f] |
| Supervised drug consumption room [Sala de consumo supervisado] of Bilbao | Yes | Yes | Yes | - | - | Yes | Yes | - | - | Yes | - | - |
| "El Local" of La Mina de Sant Adrià del Besòs | Yes | Yes | Yes | - | Yes | Yes | - | - | - | - | - | - |
| Health Care and Monitoring Center for Drug-dependence [Centre d'Atenció Sociosanitària] (CAS) – Sala Baluard, of Barcelona | Yes | Yes | Yes | - | Yes | - | Yes[g] | Yes[e,h] | Yes | Yes | Yes[i] | - |
| Mobile unit of Zona Franca, Barcelona | Yes | Yes | - | - | - | - | - | - | - | - | - | - |
| Health Care and Monitoring Center for Drug-dependence [Centre d'Atenció Sociosanitària] (CAS) of Vall d'Hebron in Barcelona | - | - | Yes | - | - | - | - | - | - | Yes | Yes[i] | - |
| Harm reduction program of Arrels – Sant Ignasi de Lleida | Yes | Yes | Yes[j] | Yes[j] | Yes[j] | Yes[j] | Yes | - | - | Yes[j] | - | - |
| Health Care and Monitoring Center for Drug-dependence [Centre d'Atenció Sociosanitària] (CAS) Fòrum of Barcelona | Yes[k] | Yes[k] | - | - | - | - | - | - | - | Yes | Yes[i] | - |

a. During the first stage, colorimetric tests were conducted in order to determine if the obtained substance contained the required substance or not. However, the purity percentage or the excipients[9] could not be determined by this test.

b. By the end of 2001, a mixed-sex lodging including 50 beds (34 for men and 16 for women) and some others for emergency cases was opened.

c. From May 2004 until its closure, the social-health resource of Can Tunis dispensed methadone in single doses to those users in need, who after 3 or 4 weeks were referred to the methadone mobile unit of the Barcelona City Council [Ayuntamiento de Barcelona] with a special stop in the center of Barcelona. In turn, these users were referred to Health Care and Monitoring Centers for Drug-dependence [Centros de Atención y Seguimiento de las Drogodependencias] (CAS) of the city.[55]

d. Analyses are not conducted in this center, but, in 2011, a study on the drug market[56] was carried out and samples of the substances were collected through special filters (Sterifilt®) in order to analyze these samples in collaboration with Energy Control. Regularly, this center collaborates with CAS Sala Baluard and Energy Control in sample collection.

e. The main adulterants found in cocaine were phenacetin, caffeine, levamisole, tetracaine, and lidocaine. In the case of heroin, caffeine, dextromethorphan, and paracetamol[56,57] the adulterants were found. Both drugs are mixed with pharmacologically active adulterants and diluents.[56]

f. SAPS does not provide lodging, but, since 1997, it has implemented the Lits Program consisting in the referral to lodgings in case of short-term stays for users who need palliative care.[13,58]

g. Since July 2013, aluminum foil was removed from heroin consumption and was replaced with lead-free foil (Exchange supplies tools for harm reduction®). This material has been positively assessed by the users. Since September 2013, specific kits for crack consumption[59] are being designed.

h. Sala Baluard does not have a laboratory in situ. Since 2011, Sala Baluard and Energy Control, both entities belonging to the same organization, have periodically conducted substance analysis in order to determine the purity percentages and the impurities. The method selected for this is thin layer chromatography and gas chromatography-mass spectrometry. Once the results were obtained, they are communicated to the users in the three-month workshops, participation round-tables using the "snowball" method, and individualized care to the owner of the sample.[57] In the summer of 2013, injectable and smoking substances, other than heroin and cocaine, which needed special attention, were detected.[60]

i. CAS Sala Baluard, CAS Vall Hebron, and CAS Fòrum are integral outpatient centers for drug-addiction, where the methadone program is carried out. In the case of Sala Baluard, it consists of a low-threshold or single-dose program,[61] which is similar to the program carried out in Can Tunis and in the mobile unit for methadone supply of Barcelona.[55]

j. All these services are not provided in the harm reduction center located in Arrels but in the open center of this entity, which is located 100 meters away from it.

k.This work is carried out by the team of the mobile unit of Zona Franca, which goes to the CAS Fòrum area three days a week and to the Zona Franca area twice a week.

Source: Own elaboration based on the selected literature.

DAVE: Supervised Injection Facilities [Dispositivo asistencial de venopunción]. SAPS: Servei d'Atenció i Prevenció Sociosanitária. CAS: Health Care and Monitoring Center for Drug-dependence.

istration, as well as resuscitation equipment in good operating condition, shall also be provided.[46,47]

e. Operational rules should be agreed by consensus along with the users. Basic rules are the following: no acts of violence against the professional team and the users, no drug dealing, and drug use only in the authorized rooms.[6,13,47]

## Programs and interventions of the DCRs

DCRs are included in the group of measures aimed at harm reduction.[11,13-15,40] The basic interventions and programs of all the rooms for injected drug consumption are the following: syringe exchange programs, workshop for safe and hygienic consumption, dining and resting rooms (for coffee and warmth), health care, and referral to health and social centers. Owing to the implementation of these basic interventions, the different DCRs have developed different programs and activities in accordance with the users' needs and the provision of economic resources. (Table 3)[a]

The activity of the syringe exchange programs is noteworthy. In the cities of Bilbao[17] and Lleida,[b] it is estimated that between 70% and 80% of used syringes are retrieved. In Barcelona in 2012, there was a remarkable decrease in syringes discarded in public places: only 24.3% of syringes were collected in 2012 in comparison with syringes collected in 2004.[23]

The activity performed by the nursing teams is also noteworthy. In different analyses, it is estimated that between 30% and 40% of the care provided accounted for injuries that were caused by drug injections, followed by the care and monitoring of the abscesses and cellulitis (around 20%) and podiatric care (around 15%).[11,51-54]

## Profile of Drug Consumption Rooms Users

Tables 4 and 5 show the socio-demographic, socioeconomic, epidemiological, and drug consumption variables of the individuals analyzed in the articles or reports resulting from empirical research. More than 70% of the users are men and their ages are mainly between 30 and 40 years old.[8,11,17,34,40,62,63] The place of origin of the users varies depending on the city, year, and route of administration. In Can Tunis, during the period 2001-2002, 67% of the users were Spanish citizens, 14.5% were EU citizens, 9% were non-EU citizens, and 8% were from Northern Africa.[11] Currently, in Barcelona and its surroundings, the profile of injected drug users has been changing, with a slight decrease in the percentage of Spanish citizens and subtle variations in the places of origin of the other users.[64] In contrast, in the DCRs where treatments for drug-dependent users are prescribed (CAS Fòrum and CAS Vall d'Hebron), it is remarkable that between 70% and 80% of the users are native citizens.[24,40] In cities with a smaller immigration rate, such as Lleida[b] and Bilbao,[17] similar information has been recorded. In rooms for assisted inhalation, such as CAS Sala Baluard, 65% of users are foreigners, mainly from Italy (12%) and from Maghreb (11%).[65]

In general, DCR users are individuals who have been consuming drugs for more than ten years,[8,13,17] and who show behavioral problems and severe mental health problems.[33,66] Regarding their serological state, incidences of more than 30% of HIV and more than 70% of hepatitis C cases are recorded.[11,17,34] In Bilbao, in 2008, a considerable reduction of both infections was registered.[17]

On a social level, DCR users have low educational levels,[13,17,34] and little connection with the working world.[8,13,17] Due to their social and health deterioration, many of the users' request and get the minimum welfare payments necessary for subsistence.[8,13] In other cases, users perform illegal or non-regulated activities in order to get money and to cover daily expenses.[8,11,13] Consequently, many users are in a delicate legal situation, with open legal proceedings.[8,13,34] In such cases, legal counseling is provided, and alternative actions are processed.[6,13]

DCR users are homeless, or have an irregular housing situation, in addition to the limitations of their reduced social network.[11,13,34] In the supervised injection facility of Madrid, in 2003, 47% of the users lived on the streets, spending long periods of time in the area.[8] In the Servei d'Atenció i Prevenció Sociosanitària of Barcelona, in 2008, 85% of the users lived in irregular households.[13,37] However, in other DCRs in Barcelona (CAS Forum

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**Table 4. Research studies about users of Spanish drug consumption rooms, 2000-2013.**

| Authors | Year | No. of users, city, and period | Type of study | Characteristics of the users | Interventions of the DCRs | Comments/ conclusions |
|---|---|---|---|---|---|---|
| Anoro M, Ilundain E, Santisteban O. | 2003 | 1,667 users of the Can Tunis program.<br><br>Barcelona. July 2001 – December 2002. | Descriptive study on the Can Tunis program, specifically on the development of supervised injection rooms. [11] | Age: under 31 years old (median).<br>Sex: 82.4% men; 17.3% women; 0.3% transsexuals.<br>Origin: 67% from Spain; 14.5% from Europe; 9% from non-EU community countries; 8% from Maghreb; 1.7% from Africa and Latin-America.<br>Serology: 31% HIV; 22% HBV; 70% HCV; 15% free from virus.<br>Other information: between 55% and 60% of the users are homeless; 70% do not own a health card. | Syringe exchange program: 2000 syringes per day distributed to 200 users. 90% of the distributed syringes are recovered.<br>377 overdose cases: 80% are assisted by nurses, 20% are assisted by a doctor.<br>Nursing services, social work, and group workshops on prevention. | Advantages: an assisted drug consumption room is a hygienic and safe place for consumption. From this service, socio-sanitary centers are connected. Due to the fact that this DCR is a mobile unit, it can reach specific areas.<br>Disadvantages: limited opening hours and space, and lack of support from social and political establishments. |
| Torrents O. | 2006 | 68 users of the Sala Baluard. Barcelona. April – May 2006. | Descriptive study on the psychological profile of the users of Sala Baluard.[33] | Age: 34 years old (median).<br>Sex: 75% men; 25% women.<br>Other information: low socioeconomic level; opioid and cocaine addiction<br>. | Hygienic drug consumption room, syringe exchange programs, care rooms to assist user's basic and socio-educational needs. | Between 69.11% and 88.23% of interviewed individuals suffer from psychopathological disorders, mainly typical of depressive personalities, psychoticism, and paranoid ideation.<br>30 to 40 year–old users suffer from more depression problems. |
| Bravo MJ, Royuela L, De la Fuente L, Brugal MT, Barrio G, Domingo-Salvany A; Itínere Project Group. | 2009 | 98/249 injected drug users (39.3% are DCRs' users) Madrid – Barcelona. 2002 - 2005. | Comparative epidemiological study between injected drug users who use and do not use DCRs in Barcelona and Madrid.[34] | Age: 40% older than 25 years old, and 37.3% 25 years old or younger.<br>Sex: 44.3% men, 25.8% women.<br>Serology: 31.7% HIV, 83.4% HCV.<br>Other information: 48.5% are homeless, 46.6% are ex-convicts. | 49.3% of DCR users always utilize syringes from the syringes exchange program. | Although DCR users are more vulnerable than the rest of injected drug users, they share less syringes.<br>It is necessary to promote room for inhalant consumption. |
| Daigre C, Comín M, Rodríguez-Cintas L, Voltes N, Alvarez A, Roncero C, Gonzalvo B, Casas M. | 2010 | 7/12 interviewed individuals and 2/8 individuals from a focus group were users of the assisted drug consumption rooms of CAS Vall Hebron. Barcelona March – May 2009. | Qualitative research study about the connection between the users and a harm reduction center with assisted drug consumption rooms.[40] | Age: 33 years old (median).<br>Sex: 71.1% men.<br>Origin: 80% from Spain.<br>Other information: 69.5% are heroin- dependent, 42.2% live in a familiar household, and 38.5% live in a shared household. | 61.9% of the users are in a methadone maintenance program.<br>80.3% use coffee and warmth provided by the room.<br>37.5% use the program of syringe exchange.<br>35.7% use the room of assisted drug consumption.<br>34.2% use showers. | Easy access, but coldness in the DCR atmosphere because of neighbor protests.<br>More legal counseling and psychotherapy are required. User discourse shows acceptance and feeling of no discrimination. |

Source: own elaboration based on the selected literature.

DCR = Drug Consumption Room; HIV = Human Immunodeficiency Virus; HCV = Hepatitis C Virus; HBV = Hepatitis B Virus.

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**Table 4. Continued.**

| Authors | Year | No. of users, city, and period | Type of study | Characteristics of the users | Interventions of the DCRs | Comments/ conclusions |
|---|---|---|---|---|---|---|
| Rodríguez E, Martín U, Bacigalupe A. | 2010 | 1,959 users of the DCR of Bilbao Bilbao. November 2003 – August 2009. | Statistical analysis of the activity and the users that attend DCR of Bilbao.[17] | Age: 36 years (median). Sex: 83.3% men, 16.7% women. Origin: more than 80% are from Spain. Serology: reduction in HIV in men from 28.5% in 2004 to 18.3% in 2008 and in women from 54.4% in 2004 to 16.3% in 2008. Reduction in HCV from 80% in 2003 to 50% in 2008. Other information: low educational level, no partners, decrease in the number of homeless individuals. | 161,668 visits, 2,353 medical records between the years 2003 - 2009.<br><br>38,837 interventions: 48% educational, 30% active listening, 17% nursing.<br><br>Syringe exchange program; 438,726 syringes exchanged.<br><br>107 cases of heroin overdose and 56 adverse reactions to cocaine; no cases of death registered. | Users with high levels of loyalty and adherence to the center are those who have become chronic drug consumers. |
| Clua R. | 2011 | 8 users and 3 professionals of assisted drug consumption rooms from SAPS.<br><br>Barcelona. February – June 2010. | Ethnographic research study on usage, motivations, and changes of the users from the assisted drug consumption room, and the role of professionals.[13] | Age: 36.5 years old (median). Sex: 75% men, 25% women. Origin: 75% from Spain, 25% from Italy. Serology: 7 cases of HCV (2 of them with HIV) and 1 case of HIV. Other: users with more than 10 years of active drug use have undergone more than two treatments for drug addiction. All of them are unemployed and with no permanent housing. They all have a health card. | Syringe exchange program, nursing, coffee and warmth, hospitalization in guest houses, legal counseling, and workshops on socio-sanitary issues. | Coordination with the social assistance and health care standardized network should be improved. The diversification of consumption rooms, the extension of opening hours, and the increase of the number of places for inhalant drug use, and of the professional staff were suggested. |

Source: own elaboration based on the selected literature.

DCR = Drug Consumption Room; HIV = Human Immunodeficiency Virus; HCV = Hepatitis C Virus; HBV = Hepatitis B Virus.

and CAS Vall d'Hebron), where treatments for tracking drug dependence are prescribed, the percentages of people living in a regular and/or family household are higher than 40%, followed by 30% of the users living in a shared home.[24,40] In Bilbao, between the years 2007 and 2009, only 5% to 10% of the users were homeless.[17]

Lastly, users are people with the right to health care and to meet their needs comprehensively in this type of socio-sanitary centers.[5,40]

## Drug Consumption and Negative Effects

Table 5 shows the results of consumption prevalence and its negative effects in the Spanish DCRs, which are analyzed in the empirical research studies. The tendency to consume a certain type of substance on the DCRs varies depending on the city, the period, and the route of administration. In the supervised injection facility of Madrid, since its opening, the most consumed substance has been an injected blend of heroin and cocaine (speedball),[67]

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**Table 5. Research studies on drug consumption and its negative effects in the Spanish drug consumption rooms, 2000-2013.**

| Authors | Year | No. of cases, city and period | Type of study | Characteristics of the observations | Interventions | Comments/ Conclusions |
|---|---|---|---|---|---|---|
| Anoro M, Ilundain E, Rodríguez R, Rossell L, Begoña I, Guinovart C, Gabari M. | 2004 | 222 overdose cases.<br><br>Barcelona. March 2001 – June 2002. | Analysis to determine the factors linked to respiratory arrests due to opioid overdose in the Can Tunis program.[35] | 60.8% of overdose cases presented a respiratory arrest caused by heroin consumption through intravenous route. There were no cases of death. The median of abstinence days was 21.2 in patients not suffering from a respiratory arrest, and 38.6 in patients presenting a respiratory arrest. | 87 overdose cases had spontaneous breathing. 135 users needed assistance as they had a respiratory arrest. | The most important factor is the loss of tolerance over the use of benzodiazepines, methadone, or alcohol. Overdose cases assisted in the drug consumption room respond positively to naloxone. Therefore, as a preventive measure, users are trained to use naloxone. |
| Delàs J, Priore AG, Pigem A, Aguas M. | 2008 | 72 patients in 168 intakes.<br><br>Barcelona. (unspecified period) | Description and analysis of cocaine post-consumption syndrome in the SAPS drug consumption room.[36] | 79.2% cocaine intakes, 20.8% speedball intakes. Frequent symptoms: verbosity (49.4%), profuse sweating (35.1%), mydriasis (29.8%), hyper-salivation (14.9%), searching for nonexistent objects (14.9%), visual hallucinations (13.7%) and delusions (1.2%). No headaches, seizures, or precordial pain. | Diazepam use in case of seizures, precordial pain, and psychomotor agitation. | The following changes are needed in the DCRs: security measures, relaxation areas, and removal of elements that may promote hallucination. Better training to detect emergency situations. Spaces for inhalant consumption. . |
| Delàs J, Adán E, Díaz O, Aguas M, Pons M, Fuertes R. | 2010 | 56 participants.<br><br>Barcelona. January 2008 . | Analysis of inhaled cocaine consumption of SAPS users.[37] | Age: 32.68 +/- 3.74 years old. Sex: 80% men, 20% women. Origin: 19.6% from Spain, 42.8% from the European Community, 37.6% from other countries. Other information: 54.4% have ID card, 51.8% have health card.<br><br>Frequent symptoms: mydriasis (83.3%), profuse sweating (72.92%), search for non-existent objects (70.83%), verbosity (66.67%), tachypnea (64.58%). | No room for inhalant consumption, but material for this type of consumption is supplied. | Spaces for inhalant consumption and hygienic material for that practice are needed. |
| Roncero C, Martínez-Luna N, Daigre C, Grau-López L, Gonzalvo B, Pérez-Pazos J, Casas M. | 2013 | 21 users in 375 intakes.<br><br>Barcelona. 2007-2010. | Observational analysis of the effects of cocaine consumption by injected route, from a psychopathological perspective.[38] | Psychotic symptoms were observed in 62% of patients, and in 21% of self-administered injections, delusions (9.3%), self-referential delusions (9.1%), illusions (6.4%), and hallucinations (5.3%). A larger number of psychotic symptoms were present in those patients who had consumed cannabis and benzodiazepines in the previous month and who had reduced the amount of prescribed methadone. Motor disorders are observed: tremor (58%), stereotyped movements (24%), and disturbed behavior (6%), mainly in the group showing psychotic symptoms. | Special attention to encourage adherence to the treatment. Psychopathological diagnosis of the patients. | Special attention to injected cocaine users is required, mainly to those showing psychotic symptoms. |

Source: own elaboration based on the selected literature.

DCR = Drug Consumption Rooms; SAPS = Servei d´Atenció i Prevenció Sociosanitària.

**Table 5. Continued.**

| Authors | Year | No. of cases, city and period | Type of study | Características de las observaciones | Intervenciones | Comments/ Conclusions |
|---|---|---|---|---|---|---|
| Andreo L, Rogés J, Marco C, Bua A, Segador M, Gómez-Heredia S, Henar E, Coromina M, Camí J, Delás J, Díaz O, Aguas M. | 2013 | 182 users in 540 intakes. Barcelona, Bilbao, Lleida, and Madrid. June and July 2011. . | Prospective, observational and multi-centered study of cocaine post-consumption syndrome in 6 Spanish DCRs.[39] | Age: 37.31 years old (median). Sex: 83.5% men.<br><br>The consumption side effect median was 3.49. The most frequent side effects were: mydriasis (73.9%), diaphoresis (36.3%), tachycardia (28.3%), motor and mental retardation (27%), verbosity (26.1%).<br>In one of the centers (Bilbao), blood pressure levels were above 140/90 in 52.5% of the cases; 5 users (2.7%) presented a medical history of angina pectoris or myocardial infarction. | Control of blood pressure levels after the intake. | Control of blood pressure levels in cocaine consumers is needed to determine established hypertension in moments other than immediately after consumption.<br>In the future, the prevalence of hypertension in the studied population should be analyzed in a larger study context regarding cardiovascular risk factors. |

Source: own elaboration based on the selected literature.

DCR = Drug Consumption Rooms; SAPS = Servei d´Atenció i Prevenció Sociosanitària.

which is chosen by 60-80% of the users, followed by cocaine and heroin consumption.[8] In Barcelona, generally speaking, the most consumed substance is heroin,[24,67] with some variations depending on the year and area in which the DCR is located. However, in CAS Vall d'Hebron between 2008 and 2011[68,69] and in CAS Fórum, in the years 2012 and 2013,[24] 60% and 70% of the users consumed cocaine, followed by more than 20% of users consuming heroin, and the rest consuming "speedball." In Arrels-Sant Ignasi de Lleida, between the years 2010 and 2012, very similar information was recorded.[b] In contrast, in the mobile unit of Zona Franca in Barcelona, since its beginnings up to these days, users consume cocaine almost exclusively, and cocaine consumption rates are higher than 90%.[20][d] Although in "El Local" of Mina de Sant Adrià de Besòs during the years 2010 and 2011 the rate of consumption of heroin was higher than 50%, followed by 20% in cocaine and "speedball," during the years 2012 and 2013 heroin consumption decreased, with percentages higher than 40% as well as rates higher than 30% of cocaine consumption and about 20% of "speedball."[e] In Bilbao, between 2003 and 2005 a higher rate of cocaine consumption was recorded. However, since then up to 2009, heroin consumption rates are higher, coinciding with the opening of the inhalant consumption room. Furthermore, a decrease in injected cocaine use since 2007 and an increase in inhalant use was registered.[17]

In the drug inhalation rooms from Arrels-Sant Ignasi de Lleida and CAS Sala Baluard, the heroin use rate was higher than 90%.[b][65]

Regarding heroin consumption, based on observations carried out at the supervised injection room of the Can Tunis program of Barcelona, the loss of tolerance due to long terms of abstinence and the use of the injected route of administration are considered to be the factors causing overdose with the use of alcohol and benzodiazepines not being relevant.[35] Naloxone use and resuscitation techniques are the most effective methods for overdose recovery[35]; therefore, the training of users and the distribution of rescue kits among them are highly advisable.[35,70,71] On a psycho-pathological level, it has been confirmed that heroin consumption rarely causes psychotic

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behavior, which only occurs when heroin is blended with cocaine.[69]

Concerning cocaine consumption, the post-consumption syndrome has been described, which is characterized by common symptoms such as verbosity, diaphoresis, mydriasis, hyper-salivation, search for non-existent objects, and visual hallucinations.[36,37,39] Furthermore, in the Bilbao DCR, in more than 50% of the cases, the blood pressure levels were higher than 140/90, accompanied by precordial pain and other common symptoms.[39] In view of this symptomatic picture, the need of emergency care is remarked.[36,39] On a psycho-pathological level, psychoticism is highlighted (62%), with frequent self-referential delusion, illusions, and hallucinations.[38] Considering all the above mentioned, the facilities should be adapted to provide a special place for this type of drug consumption.[36-38]

In general, more opioid overdose cases than adverse reactions to cocaine have been registered.[17,35,51] The registered percentage varies depending on the year and the drug consumption center. For instance, in Servei d'Atenció i Prevenció Sociosanitària, between the years 2007 and 2009, heroin overdose rates ranged from 65% to 75% out of the total number of adverse reactions[52,63]; whereas in this service and in Sala Baluard between 2011 and 2013, overdose rates were higher than 90% out of the total number of adverse reactions.[72] In the case of "El Local" of Mina de Sant Adrià de Besòs, between 2010 and 2013, heroin overdose rates ranged from 65% to 75% out of the total number of adverse reactions, followed by rates higher than 20% in adverse reactions to cocaine.[e] In contrast, in DCRs where cocaine is the most consumed substance, there are more adverse reactions to this drug; such is the case of the mobile unit of Zona Franca[20][d] and CAS Vall d'Hebron[68] of Barcelona.

## Effectiveness of DCRs

On a health care level, DCRs are facilities for safe drug consumption, and for preventing and/or reducing blood-borne diseases and overdoses[8,10,11,13,17,18,40]; in fact, no death cases have been recorded. Drug-use techniques and consumption guidelines are encouraged to avoid abscesses and other skin problems.[11,13,18] In addition, DCR users are less prone to reusing and/or sharing used syringes.[34] In DCRs, users can get advice and referrals, and start treatments for drug addictions and other drug-related problems.[8,11,13,17]

On a social level, DCRs are easy-to-access facilities, although to different degrees. In the supervised injection facility of Madrid and in the Can Tunis program, proving legal age was the only requirement to get a user number for future visits.[8,11] In the DCRs of Barcelona later established, users can be admitted just by signing an informed consent form, requiring the minimum of user's personal information.[13,67] In Bilbao, admission is straightforward if legal age is proven; and both the creation of the medical record and the assignation of the user's number are only available when the user so requests them.[14,18] In general, users appreciate the useful information and guidance they receive concerning the resources of the social health care network, in addition to the good care provided to meet their different needs.[13,18,40]

DCRs have a positive socio-communal impact if all social agents are involved, as it happens with the Bilbao DCR,[16,18] which is considered to be necessary by local citizens so as to improve the image of the neighborhood.[18]

Concerning mobile DCRs, they can move to the focal points in need[11,22] and may lead to the future opening of a fixed DCR, such as in the case of Barcelona where three DCRs were set up after the closing of the Can Tunis facility.[22]

On a public order level, DCRs reduce drug consumption and the number of syringes discarded in public places.[18,23] Police intervention varies in its effects; however, its power to move drug consumption to other areas is actually homogeneous.[23] Users perceive that attending a DCR is a way of going unnoticed by the neighbors and the police.[13,18]

## Improvement proposals

DCRs need more political, institutional, and funding support, as stated by the professionals of the first DCR harm reduction program of Can Tunis in Barcelona.[5,11,51] Researchers and professionals from the first Spanish DCRs (Bilbao and Can Tunis) have emphasized the need to carry out social and

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communal efforts to communicate the benefits of DCRs to the society.[5,11,16,18] In addition, during the implementation stage of the Bilbao DCR, having means of communication readily available to spread proper information was suggested.[16] Moreover, the professionals from Can Tunis highlighted the need of changing the legislation to mitigate police persecution of drug users.[5]

Different researchers and technicians in charge of the Catalan DCRs suggest that the facilities and functionality of these rooms should be improved.[11,13,22] For that purpose, their design should be revamped, and their spaces expanded,[11,13,36] mostly in the case of users of small rooms such as the mobile unit Zona Franca.[22] In different research studies conducted in Barcelona and Madrid, it was suggested that the number of DCRs should be increased and spread to areas and neighborhoods that may need these rooms, as well as the number of places for drug inhalation which should also be increased.[13,34,36,37] In addition, in research studies from the Barcelona and Bilbao DCRs, the extension of opening hours was recommended.[11,13,18,40] Furthermore, research studies conducted in the first DCRs of Barcelona concluded that the operating rules should be revised and adjusted to fit the needs of professionals and drug users.[11,13]

A research study carried out in Madrid and Barcelona recommended to encourage hygienic consumption behavior among drug users, and to always provide them with hygienic kits when they leave the facilities, so as to avoid HIV and hepatitis (B and C) transmission caused by sharing injecting material.[34]

Lastly, research studies conducted in the DCRs of Barcelona recommended to improve drug users' referrals to health care and social services of the standardized network.[11,13,51]

## DISCUSSION

This article is the first review about the Drug Consumption Rooms phenomenon in Spain for the period 2000-2013. One of the most important achievements of this work is the possibility to provide a description of the profile of drug users in these centers. In general, these users are men over 30 years of age, from Spain, who have been consuming drugs through parenteral route for a long period of time, and who have serious medical, social, and legal problems. These users mostly consume heroin and cocaine, which varies depending on the city, year, and type of drug consumption room. For instance, in Madrid the consumption of an injected blend of cocaine and heroin is the most common form of drug use; in Bilbao, injected and smoked heroin; and in Catalonia, the consumption of injected heroin and cocaine, separately, with some variations depending on the year; though in the centers where treatments are prescribed, or which are close to neighborhoods where there is a cocaine market, cocaine is the most consumed substance.

Regarding the type of programs and interventions, the adverse reactions caused by the consumption of these drugs are mentioned, with the cases of heroin overdose more frequent than cocaine adverse reactions. The most relevant result is that there were no cases of death as a consequence of substance consumption.

The implementation of DCRs in Spain is a necessary strategy, but the responsible bodies should give more support to these types of centers. In addition, a deeper analysis of the functional and technical aspects of the DCRs is necessary to raise the satisfaction level among users and professionals.

This review confirms that Spanish DCRs are centers that imply benefits for public health, as evidenced in research studies carried out in other European countries, Canada, and Australia. The Spanish DCRs helped achieve a reduction in HIV and hepatitis (B and C) transmission-risk behaviors, due to the hygienic material and space that are provided, and overdose-caused deaths are prevented as a result of immediate attention, as stated in studies conducted in DCRs in Vancouver,[73,74] Sydney,[75] Germany,[76] Netherlands,[77,78] and in international reviews.[79,84] Positive effects brought about by these centers on social and public order levels are also confirmed, by reducing the number of discarded syringes and drug consumption in public places, as stated in the research studies of DCRs in Sydney,[85] Vancouver,[86] Netherlands,[77,78] and in international reviews.[79,84]

Throughout Spain, the number of drug users consuming drugs through parenteral administration has been decreasing since the mid-nineties

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up to the present, due to the rejection to this type of route of administration.[2] There has been a generational switch in drug consumption towards more recreational practices, leading to fewer public health consequences,[1] and the implementation of harm reduction programs.[87] However, in the Spanish DCRs the attention focused on injected drug consumption, since its consequences cause more problems to public health. Despite the increase in the users' demand of spaces for inhalant consumption and the recommendation in different research studies carried out in Barcelona and Madrid,[13,34,36,37] insufficient coverage to inhalant consumption is being provided in the Spanish DCRs. In the period 2012-2013, among the analyzed and not analyzed DCRs[a] in this review, there were only three facilities for inhalant consumption (supervised consumption room in Bilbao, Arrels-Sant Ignasi de Lleida, and CAS Sala Baluard), making a total of 15 places in comparison with the 12 facilities for injected consumption with 37 places. In contrast, countries such as the Netherlands have bet on covering these demands by acting from the DCRs,[77] and in some cities where there was a switch from injected to inhalant consumption, for instance Rotterdam,[88,89] the number of places for inhalant consumption increased in relation to the number of places for injected consumption.

This revision provides an analysis of the information obtained from collected bibliographical references and from data supplied by professionals and those responsible for the Spanish DCRs, delving into different aspects not extensively studied in international reviews.[67,79-84] These reviews only include articles in English, in which information is limited and incomplete so as to go deeper into the analysis of DCRs within our geographic framework. Moreover, Spanish publications are limited and scantily homogeneous, in comparison with experiences from other countries where the scientific production in these types of centers is greater, for instance, in the case of Sydney Medically Supervised Injecting Centre,[90] or Insite Supervised Injection Site from Vancouver.[91] Almost half the studies included in this revision are taken from analyses presented in conferences or seminars related to drug-addiction; only a few studies have been published as articles in scientific journals. Although the approaches of the material related to the Spanish DCRs include different perspectives with varied goals and hypotheses, drawing common conclusions from the results has not been difficult. Due to these limitations or specific features, a meta-synthesis based on different thematic areas has been more appropriate. However, using this methodology shows some problems, such as generalizing some issues that have not been extensively studied in the bibliography, which impedes to make a deeper analysis of some extremely important matters for the assessment of the DCRs.

Opening DCRs have beneficial effects for drug consumers and for society as a whole, but we do not have enough analysis and conclusions available in the Spanish or in the international scientific production so as to support, with strong arguments, the positive effects of these centers in Spain. Moreover, the lack of research studies does not enable knowing the strengths and weaknesses of the DCRs, which are necessary aspects in the assessments to generate new proposals to enhance the effectiveness of these centers. Given that scientific evidence is scarce, databases only dealing with articles about the experiences in other countries are still being consulted in Spain. These articles describe policies and strategies about risk and harm reduction matters that are very different from the social and political context of Spain. Similarly, the proposals about health prevention and promotion that have been considered effective in international studies may not be applicable if we are not better aware of the social representations and practices of drug users and professionals within the Spanish contextual framework. Therefore, research studies taking into account the reality of Spain are required, in order to improve and validate DCR interventions. For a future time, I suggest the following lines of action:

a. Feasibility studies to implement DCRs, analyzing the key aspects of negotiation with social agents for non-conflictive implementations.
b. Research studies on health care and social impact assessment of the implemented DCRs, so as to know the level of effectiveness of the different actions encouraged by these centers.
c. Studies on the level of satisfaction and on the needs of drug users and professionals, in order to improve the offered programs and to promote new strategies.

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d. Creation of journals or journal sections to comment or reflect upon the DCRs and harm reduction policies.
e. Greater support to specialized groups of the DCRs.

The publications, along with the work and demands of the different entities, networks and teams of drug users, professionals and technicians, will help positively improve the DCRs and harm reduction policies in Spain.

## ENDNOTES

a. Since mid-2012 up to the present, four spaces for injected consumption have been created in Catalonia, three of them in health care and monitoring centers for drug dependence [centro de atención y seguimiento a las drogodependencias] (CAS) of Garbivent (2 places), Sants (2 places), and Sarrià (1 place) in Barcelona, and one mobile unit in Badalona (2 places). No information about these DCRs was included in this review as no results have been publicly reported in empirical or theoretical research studies, specialized conferences, or interviews.

b. Information provided by Raquel Iturralde, from Arrels – Sant Ignasi (Lleida).

c. Research studies that included the testimony of drug users were evaluated on ethical aspects at different levels. Research studies by Anoro et al.[11] and Rodriguez et al.[17] included information taken from medical records and monitoring registers of health care and social health care programs carried out in different units. This information was collected through confidential interviews. Research studies by Torrents,[33] Bravo et al.,[34] Anoro et al.,[35] Delàs et al.,[36] Delàs et al.,[37] Roncero et al.,[38] and Andreo et al.[39] include clinical and/or epidemiological information confidentially collected through observations and/or questionnaires. Research studies carried out by Bravo et al.,[34] Delàs et al.,[37] and Andreo et al.[39] specified that users signed an informed consent form. In the case of Bravo et al.,[34] the questionnaire was approved by the Ethics Committee of Instituto de Salud Carlos III, and in the case of Délas et al.,[37] the questionnaire was supervised by the Departament de Salut de Cataluña. In the case of the qualitative studies by Clua,[13] Arostegi et al.,[18] and Daigre et al.[40] confidential interviews were carried out, and the analyzed information was anonymous. In the case of Daigre et al.,[40] participants signed an informed consent form approved by the ethics committee of the Vall d'Hebron Hospital from Barcelona.

d. Information provided by the team of the mobile unit of Zona Franca (Associació Benestar i Desenvolupament – Agéncia de Salut Pública de Barcelona).

e. Information provided by Laura Pérez from "El Local" of La Mina (Institut per a la Promoció Social i de la Salut – Ajuntament de Sant Adrià Del Besós).

## ACKNOWLEDGMENTS

The author is grateful for the information and bibliography provided to Olga Díaz from Servei d'Atenció i Prevenció Sociosanitària de of the Creu Roja from Barcelona, to Raquel Iturralde from the Harm Reduction Program of Arrels-Sant Ignasi de Lleida (Fundació Sant Ignasi de Loiola de Lleida), to Laura Pérez from "El Local" of La Mina (Fundació Institut per a la Promoció Social i de la Salut - Ajuntament de Sant Adrià del Besòs), to Elena Sala from the health care and monitoring center for drug-dependence "Sala Baluard" (Associació Benestar i Desenvolupament - Agència de Salut Pública de Barcelona), to Arnau Serra from the health care and monitoring center for drug-dependence "Fòrum," and to the whole team of the mobile unit of Zona Franca (Associació Benestar i Desenvolupament - Agència de Salut Pública de Barcelona), as without them this article would not have been possible.

SALUD COLECTIVA, Buenos Aires, 11(2):261-282, April - June, 2015

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**CITATION**
Clua García R. Drug consumption rooms in Spain (2000-2013). Salud Colectiva. 2015;11(2):261-282.

Received: 23 Mar 2014 | Modified: 11 Oct 2014 | Approved: 31 Oct 2014



https://doi.org/10.18294/sc.2015.688

The translation of this article is part of an inter-departmental and inter-institutional collaboration including the Undergraduate Program in Sworn Translation Studies (English < > Spanish) and the Institute of Collective Health at the Universidad Nacional de Lanús and the Health Disparities Research Laboratory at the University of Denver. This article was translated by Dafne Setráncola and Cecilia Baldo under the guidance of María Victoria Illas, reviewed by Brittany Hayes under the guidance of Julia Roncoroni, and prepared for publication by Aldana Micaela Schöenfeld under the guidance of Vanessa Di Cecco. The final version was approved by the article author(s).