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10 years of the *Strategic Plan for Tackling Hepatitis C in the Spanish National Health System* (PEAHC): A national project for the elimination of Hepatitis C as a Public Health problem

10 años del *Plan Estratégico para el Abordaje de la Hepatitis C en el Sistema Nacional de Salud* (PEAHC): un proyecto de país para la eliminación de la hepatitis C como problema de Salud Pública

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ABSTRACT

The tenth anniversary of the *Strategic Plan for Addressing Hepatitis C in the National Health System* (PEAHC) represents a milestone in Spanish healthcare, consolidating the country as a global leader in the fight against this disease. In these ten years, it has been demonstrated that a well-structured strategy can transform a health crisis into an opportunity. This has been witnessed in the notable decline in the prevalence of active hepatitis C virus (HCV) infection in the general population from 1.2% (95% CI: 0.3%-1.8%) in 2014 to 0.12% (95% CI: 0.03-0.24) in 2022, achieving a cure rate greater than 94% in the more than 172,000 patients treated with direct-acting antivirals until 2024. This represents a marked and sustained improvement in all morbidity and mortality indicators in the last decade as evidenced by the reduction from 32% in 2015 to 7% in 2024 of patients with HCV on the waiting list for liver transplant. Reductions in active HCV infection among people living with the human immunodeficiency virus, people who inject drugs (PID), and people in the prison setting have been especially dramatic. Key factors ensuring success include political commitment and sustainable funding, integrated public health strategies for primary prevention of new HCV cases (improvements in health care safety, transfusion safety, risk and harm reduction programs for PID), a universal public health system that ensures equitable access to treatment, decentralized tasks, and interinstitutional coordination.

KEYWORDS // Hepatitis C; National health strategies; Direct Acting Antivirals (DAA); Screening; Health equity.

RESUMEN

El décimo aniversario del *Plan Estratégico para el Abordaje de la Hepatitis C en el Sistema Nacional de Salud* (PEAHC) marca un hito en la sanidad española, consolidando al país como referente mundial en la lucha contra esta enfermedad. En estos diez años se ha demostrado que una estrategia bien estructurada puede transformar una crisis sanitaria en una oportunidad, logrando una reducción de la prevalencia de infección activa por el virus de la hepatitis C (VHC) en la población general del 1,2% (IC 95%: 0,3%-1,8%) en 2014 al 0,12% (IC 95%: 0,03-0,24) en 2022, una curación superior al 94% en los más de 172.000 pacientes tratados con antivirales de acción directa hasta 2024, y una marcada y sostenida mejora de todos los indicadores de morbimortalidad en la última década como la reducción del 32% en 2015 al 7% en 2024 de pacientes con VHC en lista de espera para trasplante hepático. Las reducciones de infección activa por el VHC en personas con el virus de la inmunodeficiencia humana, personas que se inyectan drogas (PID) y personas privadas de libertad han sido espectaculares. Los factores clave que han garantizado el éxito han sido compromisos políticos y financiación sostenible, estrategias integradas de Salud Pública para la prevención primaria de nuevos casos de VHC (mejoras en la seguridad de la asistencia sanitaria, seguridad transfusional, programas de reducción de riesgos y daños en PID), un sistema sanitario público universal que asegura el acceso equitativo al tratamiento, la descentralización de tareas y, por último, la coordinación interinstitucional.

PALABRAS CLAVE // Hepatitis C; Estrategia de salud nacionales; Antivirales de acción directa (AAD); Cribado; Equidad en salud.

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INTRODUCTION

In 2025, the tenth anniversary of the *Strategic Plan for Addressing Hepatitis C in the National Health System* (PEAHC) **(1)** has been celebrated, marking a milestone in the fight against this disease in Spain. The PEAHC has attained a notable reduction in the prevalence of hepatitis C virus (HCV) disease and has positioned the country as a global reference in addressing this condition **(2)**, standing out for its innovative and multidisciplinary approach. It has integrated early diagnosis programs across different population groups and diverse settings, while ensuring universal access to state-of-the-art treatments for all individuals.

The objectives of the PEAHC are aligned with those of the World Health Organization (WHO), which in May 2016 and for the first time established the goal of eliminating viral hepatitis by reducing new cases by 90% and associated deaths by 65% in 2030 compared to 2015 **(3)**. In Europe, the objective for 2030 is that 90% of people with HCV infection will be diagnosed and 80% of people with chronic infection will be on treatment **(4)**.

This article provides a synthesis of the accomplishments, remaining challenges, and lessons learned over this decade of transformation, many of which were highlighted during the commemorative event held on April 11, 2025 at the Ministry of Health in collaboration with the Alliance for the Elimination of Viral Hepatitis (AEHVE) which brought together many of the key stakeholders of the PEAHC. Spain has shown that effective collaboration, sustained strong political commitment, evidence-based strategies, and a determined effort to reduce health inequalities can transform the approach to a chronic disease and set a precedent for other public health challenges.

THE ORIGIN OF THE 2025 STRATEGIC PLAN FOR ADDRESSING HEPATITIS C (PEAHC)

On January 14, 2015, the Interterritorial Council of the National Health System of Spain (CISNS) unanimously approved the creation of the PEAHC as a response to the severe health and social crisis caused by the high burden of HCV disease in Spain. In previous years, clinical trials of direct-acting antivirals (DAAs) had demonstrated an efficacy rate of nearly 99% in curing the infection and a high level of therapeutic safety **(5-9)**. These ground-breaking medicines had the potential to eliminate HCV infection when administered to individuals requiring treatment in Spain. However, the high cost of these agents sparked an intense debate about access to treatment and the financial sustainability of their large-scale distribution within the National Health System.

Between late 2014 and early 2015, thousands of people affected by HCV took to the streets to demand that

health authorities develop a coordinated and effective strategy to fight the disease **(10)**. They called for public funding of the new DAAs for all those in need. This mobilization became a historic milestone, underscoring the strength of the patient advocacy movement and its ability to transform health policy. With thousands of patients awaiting treatment, the need arose for a nationwide strategy that would ensure equitable access to these medicines while prioritizing the most severe cases and safeguarding the sustainability of the system.

In response to this crisis, the Ministry of Health led a collaborative effort involving patients, healthcare professionals, scientific societies, representatives of the National Health System, and the pharmaceutical industry. A centralized procurement system for medicines was introduced by negotiating prices with laboratories to reduce the economic impact. The coordination of the PEAHC was entrusted to the Directorate-General for the Basic Services Portfolio of the NHS and Pharmacy, and its governance included an institutional committee and a scientific advisory committee **(1)**.

The mission of the institutional committee was to coordinate the implementation of the PEAHC within the NHS (National Health System) in close collaboration with Spain's regional governments (the autonomous regions and cities, CCAA, the Spanish acronym). Its functions included monitoring all related actions, ensuring equitable access to DAAs, analysing treatment effectiveness and patient outcomes, and promoting collaboration among different groups and professionals. It was also responsible for presenting semiannual reports to the CISNS, disseminating progress and results, and coordinating meetings with medical societies, professional associations, and patient organizations. The committee was chaired by the Secretary-General for Health and Consumer Affairs, with the Director-General for the Basic Services Portfolio of the NHS and Pharmacy serving as vice-chair. Its members included senior officials from public health, the pharmaceutical sector, professional regulation, the Carlos III Health Institute, representatives from various autonomous regions, and other health-related institutions. Working groups reporting to the committee were also established to address specific issues and develop recommendations and, additionally, the committee could invite external experts as needed.

The PEAHC scientific advisory committee was chaired by Dr. Joan Rodés Teixidor. Its members included experts in hepatology, gastroenterology, internal medicine, clinical pharmacology, and public health, such as Drs. Agustín Albillos, Antonio Luis Andreu, María Buti, Javier Crespo, Alfonso Moreno, and Daniel Zulaika **(1)**.

The PEAHC was structured around **universal access to treatment**, an **adapted financing system**, and the **optimization of diagnosis and follow-up**, establishing objectives and priority actions for 2015–2017, many of which have continued to be developed up to the present.

The overall objective of the PEAHC has been to reduce morbidity and mortality caused by HCV through a comprehensive strategy for disease prevention, diagnosis, treatment, and patient follow-up, articulated into four strategic lines **(1)**:

1. Quantifying the magnitude of the problem, describing the epidemiological characteristics of patients with HCV infection, and establishing prevention measures. This line was coordinated by the Directorate-General for Public Health.

2. Defining scientific and clinical criteria to establish the appropriate therapeutic strategy, considering the use of DAAs for HCV treatment within the NHS. This line was coordinated by the Directorate-General for the Basic Services Portfolio of the NHS and Pharmacy.

3. Establishing coordination mechanisms to ensure the proper implementation of the hepatitis C strategy within the NHS. This line was coordinated by the Directorate-General for the Basic Services Portfolio of the NHS and Pharmacy.

4. Promoting progress in knowledge on prevention, diagnosis, and treatment of hepatitis C within the NHS through R&D&I initiatives. This line was coordinated by the Carlos III Health Institute (Ministry of Science, Innovation, and Universities).

SECOND SEROPREVALENCE SURVEY (2017–2018) AND EVOLUTION OF HCV PREVALENCE FROM 1996 TO 2022

General Population. Strategic Line 1, coordinated by the Directorate-General for Public Health, designed the second seroprevalence study in the general population with a sample of 9,103 individuals aged two to eighty years, recruited within the framework of primary care. Fieldwork was conducted between May 2017 and May 2018. This second seroprevalence study followed the same methodology as the first one carried out in 1996, which had identified an anti-HCV prevalence of 1.4% in 2,124 individuals aged fifteen to thirty nine years, at that time equivalent to active infection **(11)**. National estimates available in 2015 were based on extrapolation from studies published before 2014 and suggested prevalence rates of 1.7% (95% CI: 0.4%–2.6%) for anti-HCV antibodies and 1.2% (95% CI: 0.3%–1.8%) for active HCV infection **(12)**.

In 2019, this line of work was assigned to the former National HIV (Human Immunodeficiency Virus) Plan and, since October 2021, to the Division for HIV, Sexually Transmitted Infections (STIs), Viral Hepatitis, and Tuberculosis (TB) Control (DCVIHT), pursuant to *Royal Decree 852/2021 of October 5* **(13)**. Results of the *Second seroprevalence survey in Spain* **(14-16)** showed an anti-HCV prevalence of 0.85% (95% CI: 0.64–1.08%) in 2017–2018, and an active HCV infection prevalence of 0.22% (95% CI: 0.12–0.32%), measured by PCR, in 7,675 individuals aged twenty–eighty years. This corresponded to approximately 297,000 people with HCV antibodies and 77,000 with active HCV infection in the general population attending primary care. A pattern was identified by sex and birth cohort, with higher active infection prevalence in men born between 1958–1967 (0.86%) and 1948–1957 (0.72%), while other groups remained below 0.20%. Active infection prevalence was higher among individuals from disadvantaged social classes and those born outside Spain.

To estimate the undiagnosed fraction, autonomous regions were asked to identify whether cases of HCV infec-

tion detected in the survey had been previously recorded in health information systems. The undiagnosed fraction of active infection was estimated at 29.4% overall, 21.4% in men and 66.6% in women, lower among men in higher-prevalence birth cohorts and higher among individuals from disadvantaged social classes **(16)**. These proportions may have been overestimated, as regional information systems might not include prior testing conducted in other autonomous regions, private centers, or community NGO facilities.

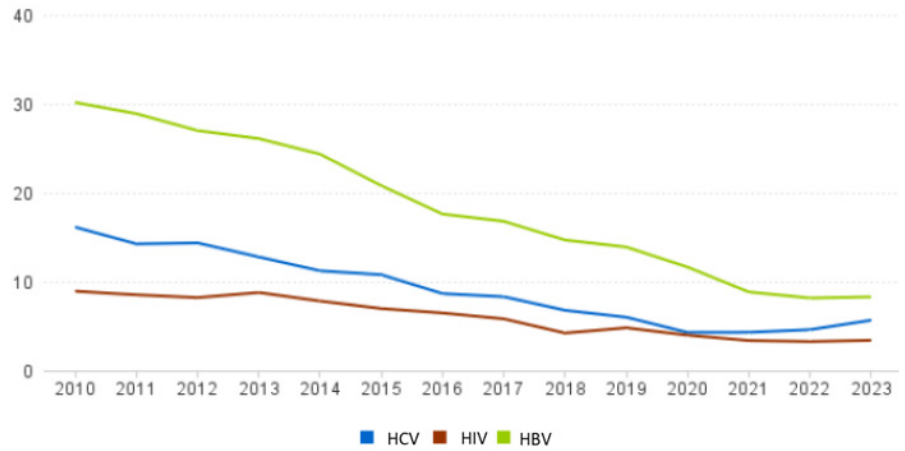
These findings were consistent with those of the *ETHON study (National Population-Based Study of Liver Diseases)*, conducted in 12,246 individuals aged twenty–seventy four years between 2015 and 2017 in the regions of Cantabria, Madrid, and Valencia. ETHON identified an anti-HCV prevalence of 1.2% (95% CI: 1.0–1.4) and an active infection prevalence of 0.3% (95% CI: 0.2–0.4) **(17)**.

These results confirmed the well-known dynamics of HCV infection in Spain, largely associated with the sharing of contaminated injection equipment for drug use during the 1980s, which mainly affected cohorts born between 1948 and 1967, involving more men than women, as well as transmission linked to healthcare exposures prior to the introduction of preventive measures in the 1970s and 1980s **(18)**, and before systematic HCV screening in blood transfusions, use of blood derivatives, and organ transplants began in 1990 **(19,20)**. Integrated prevention strategies for HIV, HBV, and HCV among people who inject drugs (PWID), including large-scale implementation in the 1990s of harm reduction programs —needle and syringe exchange programs (NSP) and methadone maintenance programs (MMP)— also contributed to the decline in new HCV infections **(21,22)**. This trend is consistent with declining anti-HCV prevalence among blood donors, which has shown a clear decrease since 2010 **[Figure 1]** **(23)**.

Modelling studies conducted by DCVIHT (Ministry of Health), and the National Center for Epidemiology (CNE) of the Carlos III Health Institute, in collaboration with ECDC and the University of Cyprus in 2022 and 2025, confirmed the decreasing trend in active HCV prevalence in the general population: 0.15% (95% CI: 0.06–0.27) in 2019 **(24)** and 0.12% (95% CI: 0.03–0.24) in 2022 **(25)**. In absolute terms, the prevalence in the general population in 2022 was 45,000 cases. Based on the upward estimate of the undiagnosed fraction from 2018, approximately 13,000 cases remained undiagnosed. These figures consolidate Spain as one of the countries with the lowest prevalence of active HCV infection in the European Union and the European Economic Area, where prevalence in 2019 was 0.50% (95% CI: 0.46–0.55) and 0.59% (95% CI: 0.50–0.69) for Southern Europe **(24)**.

HIV Co-Infected Population. Studies conducted by GeSIDA (Grupo de Estudio del Sida/AIDS Study Group of the Spanish Society of Infectious Diseases and Clinical Microbiology, SEIMC for its Spanish acronym) over the past two decades and with data from the *National HIV hospital survey* show a significant reduction in the prevalence of active HCV infection among people living with HIV in Spain **[Figure 2]**. GeSIDA reported reductions in anti-HCV and active infection prevalence from 60.8% to 27.4% and from 46.3% to ▶

Figure 1
Viral markers for HIV, HBV, and HCV per 100,000 donations. National average (2010-2023).



Source: Source: Hemovigilance Unit. Transfusion Medicine Department.
Subdirectorate General for Health Promotion, Prevention, and Equity. General Directorate of Public Health and Health Equity.
https://www.sanidad.gob.es/profesionales/saludPublica/medicinaTransfusional/hemovigilancia/docs/Informe2023.pdf

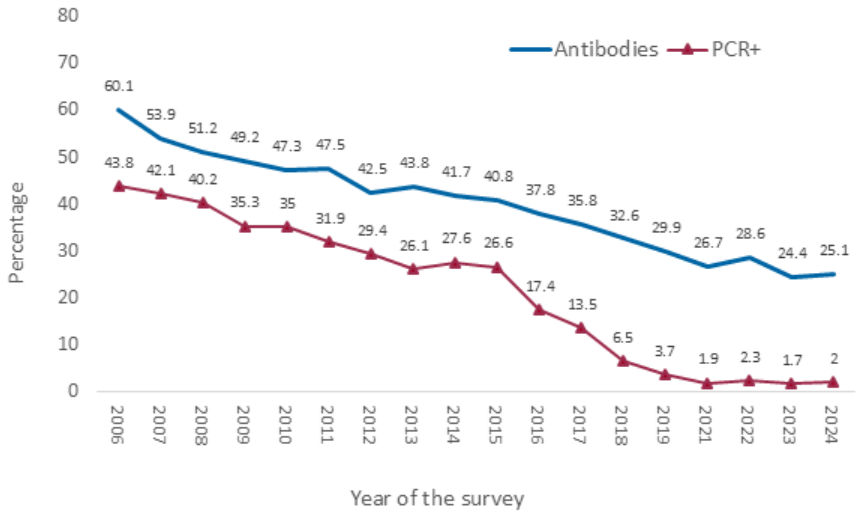
0.9%, respectively, between 2002 and 2023 **(26)**. Similar figures were observed in the HIV hospital survey, where anti-HCV prevalence decreased from 60.1% in 2006 to 25.1% in 2024. Over the same period, active infection prevalence declined from 43.8% to 2.0% **(27)**. These declines are the result of integrated public health strategies for HIV, HBV, and HCV prevention among PWID, particularly through large-scale harm reduction programs (NSP and MMP) implemented in the 1990s, along with increased access to HCV treatment —initially with pegylated interferon and ribavirin, and later with DAAs.

People in Prisons. Hepatitis C has historically been a major health concern in prisons due to factors such as histories of injection drug use and limited access to healthcare services prior to incarceration. Since the 1990s, universal and voluntary testing for HIV and HCV has been systematically offered in prisons. Since the implementation of the PEAHC, remarkable progress has been achieved in ensuring access to DAAs, combined with the harm reduction programs previously described, leading to significant declines in both anti-HCV and active HCV prevalence. These advances have positioned Spain as a benchmark in eliminating hepatitis C in prison settings. In fact, anti-HCV prevalence declined from 27.0% to 8.3% between 2008 and 2024, while active infection prevalence decreased from 11% in 2016 to 0.7% in 2024 **[Figure 3]** **(28)**.

People Who Use Drugs. Active HCV infection prevalence remains considerably higher among populations with higher-risk exposures, reaching 12.5% and 6.7% in 2022 among active and former people who inject drugs, respectively, and 8.4% among Gay, Bisexual and other

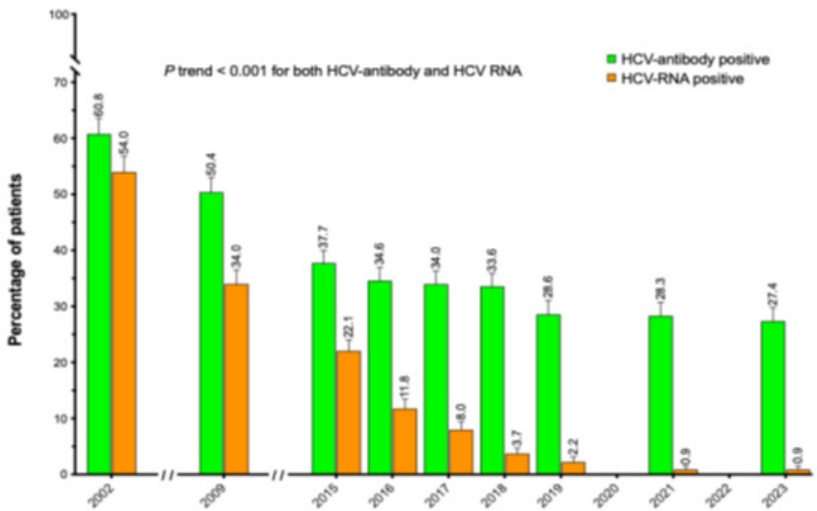
Figure 2
Prevalence of antibodies against HCV and active hepatitis C in people with HIV infection.

Prevalence of HCV antibodies and viremic cases (PCR+) in people with HIV infection.
Hospital Survey of HIV Patients.



Source: *Hospital Survey of Patients with HIV Infection.*
https://cne.isciii.es/documents/d/cne/informe-encuesta-hospitalaria_2009_2024

Prevalence of HCV antibodies and viremic cases (PCR+) in people with HIV infection.
GESIDA Study 8514.



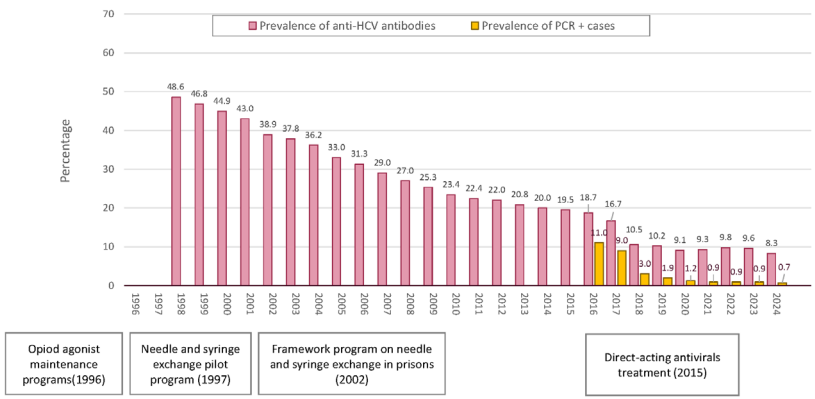
Source: Berenguer J *et al. Trends in HCV Infection Prevalence Among People with HIV in Spain Over Two decades (2002-2023).* Clin Infect Dis 2025. Doi: *https://dx.doi.org/10.1093/cid/ciaf407*

Men who have sex with men (GBMSM) engaging in chemsex, defined as *intentional use of drugs to have sexual relations over a long period of time among GBMSM* **(25)**. Among chemsex users, higher incidence of new infections and reinfections has been documented **(29)**, with anti-HCV prevalence among PWID declining since 2015. According to the latest report from the Spanish Observatory on Drugs and Addictions, anti-HCV prevalence among lifetime PWID admitted to treatment decreased from 66.5% in 2015 to 48.2% in 2023, while among those who injected in the past year it fell from 68.9% to 40.4% during the same period (2015–2023) **[FIGURE 4] (30)**. Unfortunately, this record does not provide data on active HCV infection. Nonetheless, despite reductions in both the size of the PWID population and HCV prevalence, they remain a group highly vulnerable to this infection.

HCV SCREENING GUIDELINES IN SPAIN (2020 Y 2022)

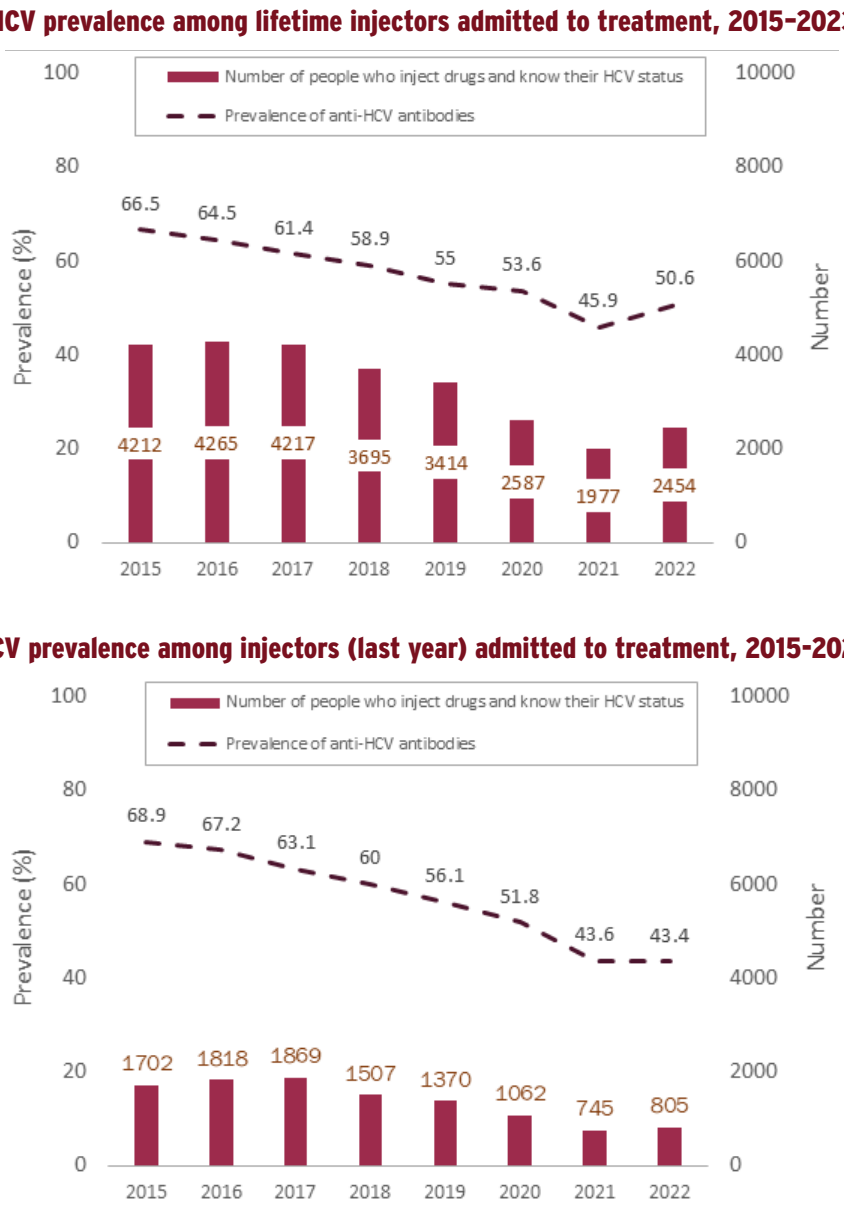
Strategic Line 1 also included the objective of *Promoting early diagnosis in priority populations*. This objective was launched in 2019 following the results of the second seroprevalence survey. Recommendations had to adhere to the main criteria established within the Ministry of Health's framework document on population-based screening. Considerations included: disease burden in both the general population and groups with specific risk factors, natural history of infection, possibility of detection during the latency period, and availability of primary prevention measures. In addition, the existence of an initial screening test that was safe, valid, reliable, and efficient, as well as effective treatment in early stages of disease, was evaluated. Benefits of the screening program

Figure 3
Prevalence of antibodies against HCV and active hepatitis C, and HCV control programs in penitentiary institutions in Spain.



Source: Modified by the General Secretariat of Penitentiary Institutions. Subdirectorate General of Penitentiary Health. *Prevalence of HIV and hepatitis C infections in penitentiary institutions 2024.*

Figure 4
Prevalence of HCV antibodies in people who inject drugs.



Source: Spanish Observatory on Drugs and Addictions. *2025 Report. Alcohol, Tobacco, and Illegal Drugs in Spain.* Madrid: Ministry of Health. Government Delegation for the National Drug Plan. 2025. 294. 229 p. *https://pnsd.sanidad.gob.es/profesionales/sistemasInformacion/informesEstadisticas/*

had to outweigh risks and ensure quality, equity, cost-effectiveness, and feasibility within the NHS, with the possibility of optimizing existing approaches to screening in routine healthcare **(31)**.

The decline in HCV incidence in Spain had already begun with the introduction of preventive measures for safe injection practices during the 1970s **(18,19)**, systematic screening for HCV, HBV, and HIV in blood transfusions, blood derivatives, and organ transplants in 1990 **(20)**, and progressively scaled-up integrated harm reduction programs for PWID since the 1990s **(21-23)**.

However, these preventive and control measures were not accompanied by the development of epidemiological surveillance. Thus, while hepatitis A and B were included in the list of notifiable diseases in the creation of the National Epidemiological Surveillance Network in 1995, hepatitis C was relegated to the *other viral hepatitis* category. The absence of epidemiological surveillance data for HCV hindered accurate estimation of prevalence declines. Nevertheless, before the *Second seroprevalence survey* in 2017–2018, declines of approximately 50% in anti-HCV prevalence and 82% in active infection prevalence in the general population had already been observed between 2013 and 2018 **(11-12,14-17)**, and 39% and 84% between 1996 and 2018 **(11-12,14-17)**. These declines are attributable to multiple integrated public health interventions described above **(18-22)**, the mortality of individuals with HCV, and the fact that by the end of the 2018 seroprevalence survey, 120,000 people had already been treated and cured using DAAs.

Based on this updated evidence, and in close collaboration with the Unit for Population-Based Screening Programs of the Directorate-General for Public Health and the guideline drafting team, the first *Spanish guideline for HCV screening* was approved by the Public Health Commission in June 2020 **(19,32)**. It recommended offering HCV testing to individuals with exposure history and risk situations, such as injection and/or inhaled drug use, high-risk sexual practices, HIV/HBV co-infection, aesthetic procedures with sharp instruments performed without adequate safety precautions, imprisonment, and origin from high-prevalence countries. Screening was not recommended for people without exposure history or risk situations, given the HCV epidemiological situation in Spain in 2019. Screening in risk-exposed populations was already included in the NHS common primary care services portfolio (*RD 1030/2006*), allowing immediate implementation, unlike universal screening of the general population which, had it been epidemiologically justified, would have required a more complex and time-consuming nationwide rollout. This approach, justified by Spain's epidemiological context in 2020, was consistent with most countries with similar or worse epidemiological situations, such as the United Kingdom, Germany, France, Ireland, Canada, and Australia **(19,33-38)**.

The guideline also highlighted examples of good practices in the autonomous regions, including active search and follow-up of individuals with HCV diagnosis in health records but no evidence of subsequent follow-up or DAA treatment; training and support for healthcare professionals to identify patients with risk histories, such as alerts in electronic health records or training to reduce stigma; simplification and tailo-

ring of care models for vulnerable populations; promotional activities for screening directed at the general and specific populations; and ongoing prioritization of one-step diagnostic approaches. The guideline reiterated the essential equity-based approach in the design, implementation, and evaluation of HCV screening programs with a view to identifying and addressing barriers and facilitators of access and service use in each context. Given the Spanish epidemiological context in 2020, targeted screening of risk groups rather than universal screening enabled resources and efforts to be focused on those most in need, who are not necessarily frequent users of primary care, thereby aligning with the principle of equity established in the General Public Health Act for screening programs.

In 2021, an evaluation of the implementation of the *HCV screening guideline* was conducted using 11 quantitative and qualitative indicators, with responses from twelve autonomous regions **(39)**. The evaluation identified substantial room for improvement in the implementation and coverage of screening for risk populations/situations. While most regions had implemented one-step diagnosis, active search for patients with positive serology without confirmatory testing or follow-up was heterogeneous, and alerts in primary care electronic records were infrequent. Areas for improvement were also identified in coordination with addiction treatment centers, prisons, and community STI clinics.

Based on this evaluation, in 2022 new criteria for offering HCV testing were expanded to include people experiencing homelessness and people with severe mental illness in a revised version approved by the Public Health Commission **(40)**. The second evaluation of implementation, conducted in 2022, showed results similar to those of 2021 **(41)**.

One of the priority actions was the development of screening programs targeting pregnant women at higher risk of HCV exposure. In 2024, this recommendation was formalized through the incorporation of the prenatal infectious disease screening program into the NHS common public health services portfolio. This program includes, among other interventions, HCV screening in pregnant women belonging to defined risk groups, in line with the recommendations of the guideline **(42)**.

EVOLUTION OF PATIENTS TREATED WITH DAAS AND SITHEPAC DATA IN SPAIN (2015-2024)

Within Strategic Line 2, specific objectives were developed, including the definition of clinical criteria to guarantee effective treatment and the optimization of access to direct-acting antivirals (DAAs). It was ensured that all patients with active HCV infection could access DAAs; initially, in 2015, prioritizing those with more advanced stages of fibrosis, F3 and F4, and subsequently, in 2017, extending treatment to patients in F0, F1, and F2. An information system, CONPACT, was created to record the number of patients initiating DAAs from April 2015 to the present, and the *Therapeutic Monitoring Information System for Patients with Chronic Hepatitis C* (SITHepaC), which compiles therapeutic follow-up data from patients treated with DAAs, was also developed with the aim of monitoring therapeutic effectiveness. SITHepaC records clinical data ▶

such as viral genotype, fibrosis stage, and previous treatments.

Between January 2015 and December 2024, a total of 172,414 patients were treated with DAAs **[Figure 5]** **(43)**. The highest number of patients initiating DAAs was recorded in 2015, with 38,024 individuals, decreasing to around 28,000 patients per year during 2016, 2017, and 2018, and subsequently declining to 5,460 patients treated with DAAs in 2024. Slightly less than half of these patients, 78,475, are registered in SITHepaC, among whom therapeutic effectiveness reached 94.7%. In 2016, 41% of treated patients were at stage F4 (equivalent to cirrhosis) and 11% at stage F1 (equivalent to mild fibrosis). By 2024, these proportions were 16% and 44%, respectively. Sixty-three percent of treated patients were males. The median age among men, 55 years, was lower than that of women, 61 years. Eighteen percent of patients had HIV coinfection. The most frequent genotype was 1b (42.8%), followed by 1a (25.5%) and genotype 3 (12.1%) **(43)**.

EVOLUTION OF LIVER TRANSPLANTS IN SPAIN (2015-2024)

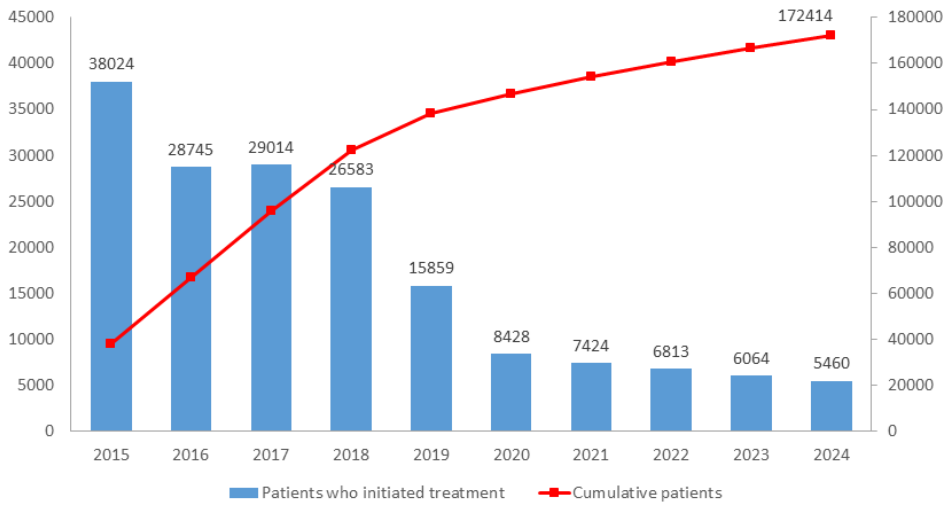
Thanks to DAAs, the need for liver transplants has been significantly reduced, as fewer patients with hepatitis C require a transplant and viral recurrence after transplantation has decreased, thereby improving quality of life. In 2015, 32% of HCV patients were on the waiting list for a liver transplant, whereas by 2024 this figure had decreased to 7%, reflecting the success of DAAs in eliminating infection and preventing advanced liver damage **[Figure 6]**. Furthermore, improved patient prognosis has allowed optimization of the waiting list, reducing waiting times and expanding indications for certain patients, thereby increasing access to transplantation for other pathologies **(44)**.

Advances in treatment have also had a positive effect on organ donation and use, enabling transplantation of organs from HCV-positive donors into seronegative recipients, which has increased the number of organs utilized and contributed to reducing waiting lists. Additionally, the incorporation of thoracic organ transplants from HCV-positive donors has expanded therapeutic options for patients awaiting transplantation. All of this has been achieved while maintaining high standards of safety and quality, ensuring the survival of both recipients and grafts. Overall, one of the most significant effects has been the marked reduction in the need for liver transplants, demonstrating how therapeutic innovation and healthcare management in Spain have transformed the transplantation landscape, optimizing resources and increasingly directing these procedures toward patients with other conditions.

EVOLUTION OF HOSPITAL ADMISSIONS DUE TO HEPATITIS C-RELATED CAUSES

A study analysing the minimum basic dataset of hospital discharge between 2005 and 2017 described a 23% reduction in hospitalization rates between 2016–2017 and 2005–2015, as well as a decrease in length of stay and in-hospital mortality **(45)**. After the implementation of the PEAHC, these indicators improved across all autonomous regions, and thus, between 2016 and 2018, most of them showed a reduction

Figure 5
Patients starting hepatitis C treatment since the start of the PEAHC (April 2015–December 2024).



Source: Directorate General for the Common Portfolio of Services of the National Health System and Pharmacy (DGCF). *Patients starting treatment for chronic hepatitis C with direct-acting antivirals.* Updated as of December 31, 2024. *https://www.sanidad.gob.es/areas/farmacia/publicaciones/planOptimizacion/docs/hepatitisC/Pacientes_Tratados_Hasta_31_12_2024.pdf*

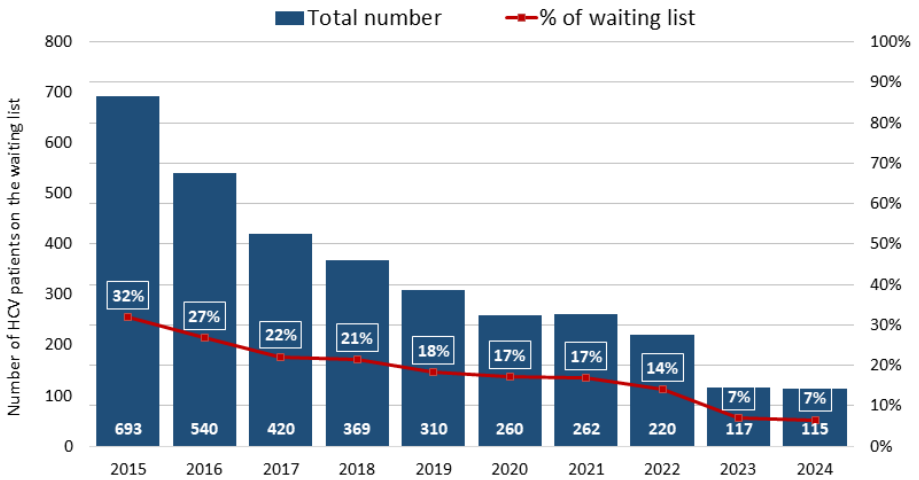
of more than 20% in hospitalization rates for conditions related to hepatitis C **(46)**. According to a study conducted in a tertiary-level hospital between 2011 and 2019, the decline in admissions due to cirrhosis attributable to hepatitis C also extended to admissions to the Intensive Care Unit, and it was estimated that hospital admissions due to this cause were expected to be residual by 2025 **(47)**.

EVOLUTION OF MORTALITY DUE TO HEPATITIS C-RELATED CAUSES

The introduction and expansion of DAAs and their high cure rates have translated into a reduction in population-level mortality due to hepatitis C. In the study by Politi et al., it was observed that while mortality rates from HCV had already begun to decrease around 2010, from 2015 onwards there was an accelerated decline in mortality due to HCV and hepatocellular carcinoma, although cirrhosis-related mortality remained unchanged **(48)**. Nevertheless, although access to DAA treatment is universal and free of charge in Spain, the reduction in mortality does not affect the whole population homogeneously, as certain groups face greater difficulties in benefiting from treatment, such as individuals with lower educational level **(49)**, people who inject drugs, and other vulnerable populations **(50)**.

The quantification of hepatitis C-related mortality presents methodological complexities, since deaths due to hepatitis C are mainly caused by long-term consequences such as chronic hepatitis and cirrhosis. It is therefore necessary ▶

Figure 6
Evolution of HCV-related indications for adult liver transplantation.
Spain 2015-2024.



Fuente: National Transplant Organization. *Liver donation and transplant activity.* Spain, 2024.
https://www.ont.es/wp-content/uploads/2025/03/ACTIVIDAD-DE-DONACION-Y-TRASPLANTE-HEPATICO-ESPANA-2024.pdf

to disentangle the proportion of deaths from these causes attributable to HCV infection, to other hepatotropic viruses, or to other factors such as excessive alcohol consumption **(51)**.

CONCLUSIONS AND NEXT STEPS

On this tenth anniversary of the PEAHC, it is essential to reflect on the outstanding challenges and the lessons learned during this decade of transformation. The discovery of DAAs and their large-scale implementation from 2015 onwards, were added to the positive impact of integrated public health strategies for the primary prevention of new HCV cases, as well as improvements in healthcare safety, transfusion safety, harm reduction programs (needle and syringe exchange programs and opioid substitution therapy), and targeted interventions for vulnerable populations, particularly people who inject drugs, all of this achieved by following approaches grounded in human rights, contribute to the fight against stigma and discrimination.

With the ambitious goal of eliminating this disease as a public health problem by 2030 on the horizon, it is crucial to renew commitments. Current challenges include continuing to strengthen primary prevention of new infections and reinfections, particularly among people who use drugs and especially those involved in chemsex, with a comprehensive approach that incorporates user participation in the design and implementation of these policies **(1,52)**. Secondary prevention, through the identification of undiagnosed HCV cases, is also key; the implementation of the *2022*

HCV screening guideline **(40)** in the autonomous regions requires renewed evaluation, as in the two previous assessments, areas for improvement were identified **(39,41)**. Diagnosis must be linked to treatment with DAAs, providing an integrated approach that includes all individuals, also those in irregular administrative situations, and ensuring proper treatment adherence. The equity perspective is instrumental in reaching the most vulnerable populations and guaranteeing the sustainability of interventions.

Outstanding tasks also include improving the information collected through epidemiological surveillance. At present, surveillance protocols are being reviewed jointly with the autonomous regions to agree on case definitions and variables to be collected **(53)**. This shared effort is essential to monitor progress toward the elimination of hepatitis as a public health problem by 2030 and to certify this achievement according to WHO indicators **(3,4)**.

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- Dr. Silvia Fernandez Rodriguez.
- Dr. Monica Morán Arribas.
  Technical Unit for the Prevention of HIV and Other STIs. Health Promotion Service. Subdirectorate General of Prevention and Health Promotion.

14. Murcia (Región de)
- Dr. Olga Monteagudo Piqueras.
  Head of the Health Promotion and Education Service. General Directorate of Public Health and Addictions. Ministry of Health.
- Miss Mª Isabel Barranco Boada.
  Epidemiology Service. Department of Health.
- Dr. María Antonia Belmonte Gómez.
  Health Promotion and Education Service. Ministry of Health.

15. Navarra
- Dr. Jesús Castilla Catalán.
  Epidemiology and Health Prevention Service. Public and Occupational Health Institute of Navarre.

16. Euskadi (País Vasco)
- Dr. Oskar Ayerdi Aguirrebengoa.
  Coordinator of the AIDS and Sexually Transmitted Infections Plan. Subdirectorate of Hospital Care Coordination. Osakidetza.

17. Rioja (La)
- Dr. Eva Martínez Ochoa.
  Deputy Ministry of Health and Social Health Policies. Directorate General of Public Health, Consumer Affairs, and Care.

Autonomous cities:

• Ceuta autonomous city
- Dr. Irene López Corrales.
- Dr. Cleopatra R´Kaina.
  Plan on Drugs and Other Addictive Behaviors.

• Melilla autonomous city
- Dr. Daniel Castrillejo Pérez.
  Head of the Epidemiology Service.

Annex I (continuation)
Authorship/participation of autonomous communities in the PEACH.

Ministery of Health
- National Transplant Organization (NTO).
- Dra. Gloria de la Rosa.
  Head of the liver transplant program at the NTO.
- Dra. Beatriz Domínguez-Gil.
  Director of the NTO.

Government Delegation for the National Drug Plan
- Alberto Domínguez Lázaro.
  Technical advisor.

Ministerio of Interior
- General Secretariat of Penitentiary Institutions.
- Dra. Carmen Martínez Aznar.
  Deputy Director General of Penitentiary Health.