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Concise reviews

Overcoming barriers to HCV screening in Latin America: From evidence to action

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Abbreviations: AASLD–IDSA, American Association for the Study of Liver Diseases and Infectious Diseases Society of America; CDC, Centers for Disease Control and Prevention; DAA, Direct-acting antiviral; DBS, Dried blood spots; EASL, European Association for the Study of the Liver; HBV, Hepatitis B virus; HCC, Hepatocellular carcinoma; HCV, Hepatitis C virus; HIV, Human Immunodeficiency Virus; ICER, Incremental cost-effectiveness ratio; PAHO, Pan American Health Organization; POC-NAT, Point-of-care nucleic acid tests; PWID, People who inject drugs; QALY, Quality-adjusted life year; SVR, sustained virological response; USPSTF, United States Preventive Services Task Force; WHO, World Health Organization.

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ABSTRACT

Chronic hepatitis C virus (HCV) infection remains a major global public health challenge. Despite the availability of highly effective therapies capable of curing the vast majority of patients, millions remain undiagnosed and often present for medical care at advanced stages of disease. This delay not only increases mortality and the burden of cirrhosis and hepatocellular carcinoma but also affects quality of life, productivity, and healthcare system costs.

In this context, screening emerges as a cornerstone for achieving HCV elimination. It enables the identification of hidden cases, early treatment initiation, prevention of complications, and reduction of community transmission. At the population level, prioritizing individuals with the highest likelihood of transmitting infection produces a multiplier effect, while both universal and risk-based strategies have consistently proven cost-effective, generating medium-term savings.

In Latin America, the epidemiological landscape is heterogeneous. While overall prevalence in the general population is relatively low, high endemicity persists in vulnerable groups such as people who inject drugs, incarcerated individuals, and patients undergoing hemodialysis. Major barriers include fragmented health systems, lack of clinical registries, stigma, and restricted access to diagnosis and therapy. Yet, the region also holds clear opportunities: simplified diagnostic pathways using rapid testing and reflex algorithms, micro-elimination in key populations, pooled procurement of antivirals through the Pan American Health Organization, and the integration of digital health and telemedicine.

In conclusion, HCV screening constitutes both a public health necessity and an ethical obligation. Its organized and sustainable implementation is essential to translate therapeutic efficacy into collective benefit and to accelerate progress toward the elimination of hepatitis C.

1. Introduction

Chronic hepatitis C virus (HCV) infection remains, despite remarkable therapeutic advances, a major global public health concern. It is estimated that more than 50 million individuals are chronically infected, with over one million new cases annually and approximately 242,000 attributable deaths in 2022 [1]. This magnitude makes HCV one of the leading causes of cirrhosis, hepatocellular carcinoma (HCC), and liver transplantation worldwide [2]. Beyond mortality, the burden of HCV extends to substantial hepatic and extrahepatic morbidity, with well-documented effects on quality of life and productivity, underscoring its clinical and socioeconomic significance [3]. The natural history of infection is characterized by a prolonged asymptomatic phase, explaining why a large proportion of patients present at advanced stages. Evidence indicates that 20−30% of chronically infected individuals progress to cirrhosis within 20−30 years, with a subsequent annual risk of HCC of 1−4%, highlighting the imperative of early diagnosis prior to clinical decompensation [4].

The epidemiological landscape in Latin America is heterogeneous: overall prevalence is lower than that reported in Eastern Europe or Central Asia, yet pockets of high endemicity persist among people who inject drugs, incarcerated individuals, and patients on hemodialysis, coexisting with areas of low prevalence in the general population [5]. This variability is compounded by structural limitations—including fragmented health systems, territorial inequities, and limited political prioritization—as well as social barriers such as stigma and the criminalization of drug use, which undermine the regional response. Regional harm-reduction analyses consistently document persistent gaps in service coverage for people who inject drugs and for incarcerated populations, perpetuating transmission and contributing to late diagnosis [6]. Modeling studies confirm that the region will not meet elimination targets without substantial expansion of diagnosis and treatment, particularly in these key populations [7,8]. A recent global report revealed that only 36% of individuals with HCV have been diagnosed and roughly 20% treated, with very few countries on track to achieve the interim targets set by the World Health Organization (WHO) [9]. These findings underscore the urgency of strengthening diagnostic and therapeutic capacity in Latin America, which otherwise risks falling short of the 2030 elimination goals.

A decisive turning point occurred in 2014 with the advent of direct-acting antivirals (DAAs), which achieve sustained virological response (SVR) rates above 95% in 8−12-week regimens, irrespective of genotype, and with excellent tolerability [10]. In Latin America, however, their introduction began only in 2016, with uneven distribution across countries and initial restriction to patients with advanced fibrosis (F3−F4), delaying regional progress toward elimination [11]. The WHO has defined HCV elimination as a public health threat by 2030, with targets of a 90% reduction in incidence and a 65% reduction in mortality. Nevertheless, recent reports emphasize that achieving these goals requires expanding access to diagnosis and treatment through simplified models of care, strategic procurement, and programmatic governance, particularly in low- and middle-income countries [12].

The current challenge is therefore organizational rather than therapeutic: ensuring that health systems can detect, confirm, and treat all individuals with active infection promptly and equitably. Screening constitutes the cornerstone of this effort. It should not be

conceived as an isolated diagnostic act, but as an organized public service with clear protocols, defined timelines, and explicit accountability for clinical and social outcomes [13]. In line with this perspective, the "no test without treatment" principle and the simplification of the cascade of care—including reflex confirmation and point-of-care testing—are essential to translating screening into tangible public health impact [14]. The Spanish experience offers a particularly illustrative example [15,16].

Against this background, the present manuscript aims to: (a) synthesize current evidence supporting the need for HCV screening; (b) analyze its clinical, social, and economic benefits as well as potential risks; (c) review the most effective implementation strategies; (d) describe the current status of screening in Latin America, identifying structural, social, and logistical barriers; (e) explore innovative opportunities to overcome these challenges, including diagnostic simplification, micro-elimination, and the role of the PAHO Strategic Fund; and (f) highlight the contribution of the REVIRAL initiative as a scientific, translational, and policy-driven framework in the region. Our ultimate objective is to translate the individual efficacy of DAAs into collective and sustainable benefit, thereby advancing HCV elimination in Latin America. Consistent with this aim, the REVIRAL initiative has developed a regional roadmap with standardized indicators and quality benchmarks designed for immediate integration into public health policies, which frames the present analysis [17].

2. Should HCV Screening be implemented?

Screening is one of the most established public health interventions. Its justification dates back to the seminal Wilson and Jungner report [17], commissioned by the WHO, which defined the classical criteria: significant health relevance, an identifiable latent phase, valid and acceptable diagnostic tests, the availability of effective therapy, and a favorable cost−benefit balance within continuous programs with follow-up [18,19]. This framework has proven particularly robust in infectious diseases, where treatment reduces both individual complications and community transmission—a condition especially applicable to HCV, for which virological cure directly lowers population incidence. Subsequent reviews have added contemporary criteria, including reduction of clinically meaningful outcomes, equity of access, social acceptability, and integration into organized services with quality auditing [20]. Accordingly, HCV screening programs should be structured as organized services with explicit accountability for outcomes (coverage, confirmation, treatment initiation) and adherence to the principle of "no test without treatment" [21], fully aligned with the 2030 elimination roadmap [22].

HCV epitomizes the application of these principles: more than 50 million people live with chronic infection, and 242,000 deaths are reported annually [23]. Without expanded diagnosis and treatment access, the 2030 elimination targets will not be achieved, particularly in middle-income countries and in Latin America, where gaps in coverage and limited harm-reduction services persist [24]. Migration adds further complexity: for instance, among Haitian migrants residing in Chile, HCV was absent, but Human Immunodeficiency Virus (HIV) and Hepatitis B virus (HBV) prevalence were 2.4% and 3.4%, respectively, underscoring the need for culturally and linguistically tailored screening strategies [25]. The natural history of HCV includes a prolonged latent phase, progression to cirrhosis in 20−30% of patients within 20−30 years, and an annual HCC risk of 1−4% [4,26]. DAAs have transformed this landscape, providing cure rates exceeding 95% even in advanced stages, reducing the risk of HCC, and reinforcing the imperative for early screening and treatment [10,27−29].

Simplified diagnostic tools—including reflex testing, rapid point-of-care assays, dried blood spots, and self-testing—minimize losses along the cascade of care and enable *test-and-treat* models, as demonstrated in emergency departments implementing opt-out screening [21,30,31]. Cost-effectiveness analyses further confirm feasibility: in Mexico, the incremental cost-effectiveness ratio (ICER) was estimated at USD 4380 per Quality-Adjusted Life Year (QALY) gained, while Brazil and Argentina documented net medium-term savings [32,33]. These findings are supported by international consensus. The WHO recommends one-time universal screening with repeat testing for individuals at risk [21,23]. The United States Preventive Services Task Force (USPSTF, 2020) advises screening for all adults aged 18−79 years [34], while the Centers for Disease Control and Prevention (CDC) extends recommendations to pregnant women and perinatally exposed infants [34,35]. Similarly, the American Association for the Study of Liver Diseases and Infectious Diseases Society of America (AASLD−IDSA) and European Association for the Study of the Liver (EASL) advocate universal screening with repeat testing in risk groups, under the "no test without treatment" principle [10,28].

Practical experiences highlight implementation pathways: in Spain, micro-elimination initiatives in Cantabria and Galicia have provided methodological benchmarks directly applicable to Latin America [16,36]. In Puerto Rico, Law 681/2023 established mandatory screening for hepatitis A, B, and C during all routine medical evaluations with guaranteed coverage, exemplifying the catalytic role of legislation in accelerating elimination [37]. The REVIRAL initiative further advances this agenda by proposing standardized regional indicators and benchmarks to guide elimination efforts [17].

In summary, HCV screening fulfills both the classical Wilson and Jungner criteria and the modern demands of public health (Table 1). It provides individual benefits by preventing hepatic and extrahepatic complications, and collective benefits through interruption of transmission. The challenge lies not in justifying its relevance, but in ensuring its effective, equitable, and sustainable implementation through organized programs, simplified diagnostic algorithms, integration into primary care, and stable financing mechanisms, including joint procurement strategies [21−23,38−43].

3. Advantages and disadvantages of HCV screening

HCV screening provides clinical, social, economic, and epidemiological benefits that extend beyond the individual. As with any public health policy, its risks and limitations must also be evaluated, particularly in Latin America. To translate detection into tangible health impact, screening must be conceived as an organized service with explicit performance metrics (coverage, virological confirmation, treatment initiation) and grounded in the principle of "no test without treatment" [44−47]. Clinically, screening enables the identification of asymptomatic infections and timely access to DAAs, which achieve SVR rates above 95% within 8−12 weeks, irrespective of genotype and with excellent tolerability [10,28]. Cure is associated with fibrosis regression, clinical recompensation, reduced risk of HCC, and improvement in extrahepatic manifestations such as cryoglobulinemia and non-Hodgkin lymphomas [27,48−50]. These benefits translate into improved quality of life, greater productivity [51], and significant reductions in both hepatic and extrahepatic mortality [52]. At the population level, treating individuals with high viral connectivity, such as people who inject drugs or incarcerated populations, exerts a multiplier effect by markedly reducing incidence [53−55]. Modeling studies confirm that universal screening reduces mortality and is cost-effective across diverse settings [56,57].

From an economic and societal perspective, universal screening with immediate initiation of DAAs has demonstrated high cost-effectiveness. The USPSTF based its recommendations on models with ratios well below accepted thresholds [34]. In Mexico, the ICER was estimated at USD 4380 per QALY gained for adults aged 18−79 years [32]. In Brazil, micro-elimination targeting key populations proved more efficient, while in Argentina the expansion of DAA use generated net medium-term savings [33]. Beyond financial outcomes, virological cure also reduces stigma and enhances workforce integration

Table 1
Classical and contemporary criteria for screening (Wilson–Jungner vs. current revisions) and their application to HCV.

Wilson & Jungner Principles (1968)	Contemporary Requirements (equity, quality, auditability, acceptability)	Application to HCV
1) The condition is an important public health problem.	Assess burden and inequalities; prioritize vulnerable populations; rights-based approach.	>50 million with chronic infection; ~242,000 deaths/year; high burden in PWID and prisons; priority for LAC with access gaps.
2) An accepted treatment exists.	Effective, safe, cost-effective, and accessible; secured financial and logistic coverage.	DAAs achieve >95% cure in 8–12 weeks; PAHO joint procurement reduces prices; integrate financing/supply.
3) Facilities for diagnosis and treatment should be available.	Organized, integrated, auditable models; test-to-treat pathways; digital interoperability.	Reflex confirmation, POC-NAT/DBS, clinical navigation, immediate linkage to DAAs; unique registry and cascade indicators.
4) There should be a recognizable latent or early stage.	Stratify risk and frequency; repeat in continuous exposure; pregnancy in every gestation.	Silent chronic infection for years; universal screening once in life + annual/biennial in risk groups; screening in every pregnancy.
5) Suitable and acceptable tests should be available.	Diagnostic validity + social acceptability; decentralized options; self-testing with confirmation.	Antibody → RNA/core Ag (reflex); POC-NAT; DBS; self-test with confirmatory linkage to treatment.
6) The test should be acceptable to the population.	Person-centered care; stigma reduction; ethical opt-out models.	Opt-out in primary care/ED; offered in prisons and addiction services with barrier reduction and psychosocial support.
7) The natural history should be well understood.	Link findings to hard outcomes; post-treatment surveillance (e.g., HCC in cirrhosis).	Cirrhosis in 20–30% over 20–30 years; annual HCC risk 1–4% in cirrhotics; SVR reduces events/mortality, continued HCC surveillance in cirrhosis.
8) Agreed policy on whom to treat.	Transparent guidelines; equity/non-discrimination; "no test without treatment".	Treatment for all active infection, including key populations; early initiation; simplified pathways.
9) Screening cost balanced against overall health expenditure.	Ongoing economic evaluation; prioritize high impact; strategic procurement.	Favorable ICER in Mexico/Brazil/Argentina; micro-elimination in prisons/PWID accelerates impact; PAHO procurement stabilizes prices.
10) Screening should be continuous, not one-off.	Governance, quality, audit, accountability; cascade indicators; continuous improvement.	Organized program with annual targets for coverage, confirmation, initiation, and completion of treatment; public audit/reporting.

[51]. Collaborative initiatives among industry, academia, communities, and the public sector have supported financing and micro-elimination efforts, provided that scientific independence is preserved [58].

Risks include the initial investment required, potential inequities if treatment access is not guaranteed, overdiagnosis in low-prevalence contexts, psychosocial anxiety or stigmatization, and attrition within fragmented health systems. These limitations are mitigated by standardized reflex algorithms, dried blood spots (DBS), point-of-care nucleic acid tests (POC-NAT), and self-testing linked to clear confirmation and treatment pathways [21–23,59]. Structural barriers, however, remain tied to the limited availability of harm-reduction services and the criminalization of drug use [24]. Evidence from Spain demonstrates that combining opportunistic screening, micro-elimination, and test-and-treat circuits reduces losses and improves outcomes [36]. In Latin America, re-engagement strategies have successfully retrieved patients lost to follow-up, increasing treatment initiation rates [11].

In the region, the overall balance is strongly favorable to screening. Pooled procurement through the Pan American Health Organization (PAHO) has reduced DAA prices by up to 90%, ensuring stable supply [38–43]. The progressive adoption of reflex testing, DBS, POC-NAT, and self-testing is simplifying the cascade of care and mitigating systemic fragmentation. Failure to act would increase morbidity, mortality, and healthcare costs from cirrhosis, HCC, and transplantation [60]. The *Global Hepatitis Report* underscores that achieving the 2030 targets requires expansion of diagnosis and treatment, integration of screening into primary care, and strengthened governance with programmatic auditing [34]. Initiatives such as REVIRAL contribute by providing a regional framework of indicators and standards [17], while national experiences such as that of Galicia highlight the value of regulatory frameworks, earmarked financing, and digital integration [16].

In conclusion, HCV screening delivers undeniable clinical benefit, a multiplier effect at the population level, and proven economic efficiency. Its limitations necessitate universal treatment access, equity, and robust governance. Operational priorities include: (i) diagnostic simplification through reflex testing, DBS, POC assays, and self-testing; (ii) clinical integration with rapid therapeutic decision-making; (iii) stable financing, including joint procurement; and (iv) continuous auditing, in line with WHO and PAHO recommendations [38–43].

4. How should HCV screening be implemented?

HCV screening should be designed according to epidemiological, clinical, and organizational criteria, embedded within structured public health programs with standardized protocols, performance indicators, and explicit institutional accountability [44,45]. Three main modalities can be distinguished: (i) population-based, involving systematic invitations to defined cohorts, which maximizes equity and coverage but requires substantial resources; (ii) opportunistic, offered during healthcare encounters, which is feasible in fragmented systems but risks inequity; and (iii) universal, recommended at least once in a lifetime for the entire adult population (Table 2), endorsed by both the WHO and USPSTF given the limited sensitivity of risk-based approaches alone [34]. Hybrid models, such as those implemented in Spain combining opportunistic screening with micro-elimination, have demonstrated feasibility and effectiveness [36]. Implementation can be reinforced through regulatory frameworks, exemplified by Puerto Rico's Law 681/2023 mandating hepatitis A, B, and C testing in all routine medical evaluations with guaranteed financial coverage [37] and by Uruguay's Decree 272/023 (September 8, 2023) and Ordinance 573/024, which incorporated anti-HCV serology into the mandatory national health certificate once in a lifetime. This preventive health check-up, required for all individuals engaged in employment or physical and sports activities, provides a mechanism for universal one-time HCV screening [61].

Screening performance depends on prevalence, with targeted testing being more efficient in high-prevalence groups [18]. Reflex confirmation using RNA or core antigen reduces cascade losses compared with traditional two-step strategies, which account for up to 30% attrition [59]. Regarding frequency, universal screening is

Table 2
Screening modalities and practical application.

Modality	Definition	Advantages	Limitations	Current Recommendations
Universal screening	Offer one HCV test to all adults at least once in their lifetime.	Captures "hidden" cases missed by risk-based strategies; simplifies messaging; promotes equity.	Requires sustained financing/logistics; may yield antibody-positive, RNA-negative results if reflex testing absent.	WHO, USPSTF, EASL, CDC recommend universal screening once; repeat in continuous exposure.
Opportunistic screening	Offer test during any healthcare encounter (primary care, hospital, ED).	Moderate cost-effectiveness; leverages existing contacts; feasible in fragmented systems; reflex enhances yield.	May perpetuate inequities depending on service use, variability across centers without protocols.	Useful as operational pillar (PC/ED); evidence supports opt-out + reflex in ED.
Risk-based screening	Focus on high prevalence/high-risk groups (PWID, prisons, dialysis, HIV, MSM, healthcare workers).	High PPV and yield; facilitates micro-elimination; reduces transmission when linked to immediate treatment.	Misses a significant % of infections if used alone; potential stigma if poorly implemented.	Maintain periodic screening (annual/biennial) in sustained risk; always with linkage to DAAs.
Screening in pregnancy	Offer test in each gestation (and follow-up of exposed infants).	High reach opportunity; prevents vertical transmission; links maternal-neonatal pathway.	Requires coordination across obstetrics–hepatology–pediatrics; ensure confirmation and postpartum care.	WHO, CDC, EASL recommend systematic pregnancy screening with defined neonatal pathway.

recommended once in a lifetime, while in populations with sustained risk (people who inject drugs, hemodialysis, men who have sex with men), it should be repeated annually or biennially [10,62]. The CDC recommends repeat testing under continuous exposure, as well as screening during each pregnancy and neonatal testing of exposed infants [62]. Among people who inject drugs, reinfection rates (~5.2/100 person-years) support biennial testing in some settings, provided harm-reduction interventions are in place [63]. Real-world impact requires integration into care pathways. *Test-and-treat* strategies—diagnosis and treatment initiation within a single visit—reduce losses and increase cure rates, even in vulnerable contexts [28]. Primary care serves as a cornerstone for expanding access and reducing stigma [10,62], while opt-out reflex testing models in emergency departments increase diagnoses and treatment linkage [64]. In key populations such as people who inject drugs and prisoners, systematic screening with immediate access to DAAs exerts a multiplier effect on community-level incidence [65].

Program audit is indispensable: coverage, diagnostic confirmation, cascade losses, treatment initiation and completion, and ultimate outcomes (HCC, mortality) must be monitored. This requires interoperable electronic registries with individual-level traceability and real-time analytics [44,45]. WHO and PAHO emphasize explicit governance and quality standards as prerequisites for effectiveness [20]. Experiences such as Cantabria's integrated model—combining opportunistic screening, audited registries, and clear governance—and European or Canadian national registry frameworks further support this approach [16,36,66,67]. Re-engagement of patients lost to follow-up is also essential: active outreach, contact, and clinical navigation strategies have proven effective in Latin America [11].

Economic evidence further reinforces the legitimacy of screening. In Mexico, universal screening yielded an ICER of USD 4380 per QALY gained [32]; in Brazil, focusing on high-risk populations maximized efficiency [68,69]; and in Argentina, budgetary models project net medium-term savings. The PAHO Strategic Fund ensures sustainability through pooled procurement mechanisms [38–43].

In summary, HCV screening should be organized as a mixed model: universal testing in the general adult population; repeat testing in high-risk groups and during pregnancy; simplified algorithms with reflex confirmation; integration into patient-centered models such as *test-and-treat*; interoperable registries with re-engagement protocols; and continuous auditing with stable financing. Only under these conditions can screening translate into measurable population impact and contribute to achieving the regional elimination target by 2030.

5. Status of HCV screening in Latin America

HCV screening in Latin America and the Caribbean is characterized by marked epidemiological and programmatic heterogeneity. While general population prevalence is lower than in Eastern Europe or Central Asia (≈0.5–1% in many countries), the region harbors foci of high endemicity among key populations, including people who inject drugs, incarcerated individuals, hemodialysis patients, and those coinfected with HIV. Several million people are chronically infected, and the 2030 elimination horizon will remain unattainable without diagnostic expansion and universal access to DAAs [56,70–72]. Programmatically, all countries have formally endorsed WHO elimination targets, yet implementation is uneven (Fig. 1): some have established national plans, while others lack explicit policies or protected funding, constraining diagnostic decentralization and coverage of vulnerable groups [21–23]. PAHO has facilitated access to DAAs and diagnostics through its Strategic Fund, stabilizing both prices and supply chains [38–43]. Regional guidelines for prison settings and a continent-wide initiative to eliminate infections among incarcerated populations further underscore this effort [38–43]. At a continental scale, the REVIRAL initiative, supported by Asociación Latinoamericana para el Estudio del Hígado (ALEH), provides a coordinated framework for research and governance, with harmonized indicators [17].

Structural barriers persist, including fragmented health systems, parallel public–private subsystems, and the absence of interoperable clinical registries, resulting in inequities, duplications, and discontinuity of care [73,74]. A notable response has been Brazil's 2025 *Guide for the Elimination of Viral Hepatitis*, which incorporates decentralization, micro-planning, and standardized indicators [75]. Social and legal barriers remain equally critical: stigma, criminalization of drug use, insufficient harm-reduction coverage [24], the predominance of inhaled cocaine, and the marginalization of indigenous, rural, and remote populations all exacerbate inequities in access [76]. Technological and logistical challenges include diagnostic centralization and the limited adoption of reflex algorithms or rapid assays (POC-NAT), resulting in substantial losses between screening and confirmatory testing [38–43]. Recent evidence demonstrates that integrating systematic reflex testing, DBS, and POC-NAT into *test-and-treat* circuits reduces attrition and accelerates treatment initiation, as shown both in Europe and in regional pilot experiences [77–79].

Financial constraints further limit progress, with high initial costs and vulnerable supply chains. The PAHO Strategic Fund has been pivotal in stabilizing prices but requires multi-year budgeting and long-term planning [38–43]. Lessons from sub-Saharan Africa and Southeast Asia, as documented in the *Global Hepatitis Report 2024* [12], show

Fig. 1. Status of Hepatitis C Virus (HCV) screening implementation in Latin America. Programmatically, all countries have formally endorsed the World Health Organization elimination targets and have access to treatments and diagnostics through the Pan American Health Organization Strategic Fund. However, implementation is uneven, as some countries have developed national plans and policies, while others do not. Besides, most countries have joint the REVIRAL initiative, which provides a coordinated framework for research and governance, with harmonized indicators of HCV elimination.

that combining sustained financing, pooled procurement, and community-based strategies can rapidly expand coverage and treatment.

In synthesis, the region combines the availability of diagnostic tools and formal political commitment with persistent implementation gaps that maintain inadequate coverage. Overcoming these requires: universal one-time screening plus systematic testing during pregnancy and periodic re-testing in risk groups; adoption of reflex confirmation, DBS, POC-NAT, and self-testing; integration of care through *test-to-treat* models; sustainability via pooled procurement and multi-year budgets; and governance based on interoperable registries, cascade indicators, and programmatic auditing [10,80]. Subnational experiences in Spain [16,36] and the REVIRAL roadmap [17] provide transferable models for the Latin American context.

6. Opportunities to overcome barriers to HCV screening in Latin America

The limitations described do not undermine the rationale for screening but rather highlight the urgent need for strategies tailored to the

Table 3
Diagnostic algorithms and applicability in latin america (LAC).

Algorithm	Advantages	Limitations	Applicability in LAC
Antibody → RNA/core Ag (reflex in same sample)	Quality standard; reduces cascade losses; shortens time-to-treatment; high specificity.	Requires lab reflex capability + IT integration.	Strongly recommended; feasible in regional labs; priority for PAHO/APHL protocols.
POC-NAT (point-of-care virological confirmation)	Confirms viremia in 60–120 min; enables test-and-treat in one visit (prisons, addictions, ED).	Higher per-test cost; equipment/logistics; QA needs.	Ideal for micro-elimination (prisons, mobile units, remote areas); ED high throughput.
DBS (dried blood spots)	Facilitates field collection/shipping; useful in remote areas; reliable for RNA; potential for genotyping.	Slightly less sensitive at very low viral loads; requires SOPs.	Valuable for rural/remote areas; proven to increase treatment initiation in real-world programs.
Self-testing	Expands coverage in hard-to-reach groups; user empowerment; high acceptability if confirmation available.	Requires clear linkage to confirmatory testing and treatment; risk of dropout without navigation.	Strategic complement for PWID, mobile and young populations; integrate with digital/tele-navigation.

Latin American context. In this setting, regional coordination offers a unique opportunity to transform screening into an effective public health policy, underpinned by clear governance, sustainable financing, and equity through the integration of science and health policy. Major opportunities to overcome barriers are summarized in Table 4.

6.1. Diagnostic simplification

Simplified diagnostic pathways are central to the effectiveness of HCV screening and treatment (Table 3). Reflex testing (automatic RNA or core antigen testing following a positive antibody result on the same sample) is one of the most cost-effective strategies to reduce cascade losses and expedite treatment initiation, recognized by WHO as a standard, [21] and endorsed by laboratory guidelines [59]. POC-NAT can confirm infection within two hours and enable *test-and-treat* models in prisons, addiction programs, and emergency departments [28]. DBS have proven reliable for RNA detection and, in some contexts, for genotyping [30,81]; their integration into decentralized circuits increases treatment uptake [77]. WHO-endorsed self-testing expands coverage among marginalized groups, provided it is linked to confirmatory and treatment pathways [31]. Comprehensive diagnostic assessment should also include fibrosis staging, testing for HIV and HBV coinfections, and evaluation of comorbidities, thereby maximizing health value in fragmented systems [82]. Re-engagement strategies have demonstrated effectiveness in recovering previously diagnosed individuals lost to follow-up, increasing treatment initiation and preventing disease progression in real-world Latin American settings [11]. Finally, strategic alliances across industry, academia, communities, and non-profit organizations act as catalysts: programs such as LEGA-C have funded studies, advanced micro-elimination in marginalized populations, and accelerated translation of evidence into practice, while preserving scientific independence and transparency [58].

6.2. Micro-elimination in key populations

Micro-elimination strategies focus screening and treatment on high-prevalence groups, achieving near-universal coverage with demonstrable impact. Prisons represent a priority setting: prevalence can be up to tenfold higher than in the general population [83], with overlapping vulnerabilities [38–43,65]. PAHO has launched a regional initiative to eliminate infections in correctional facilities [38–43]. *Test-and-treat* programs in prisons have shown high feasibility, acceptance, and efficacy [55,84]. In Europe, the SINTESI project in Sicily combined POC testing with immediate dispensing, achieving high acceptability and cost-effectiveness [85]. In Spain, clinical navigation with *test-and-treat* among individuals in alternative judicial programs yielded high diagnostic and cure rates [86]. The concept of a "micro-elimination environment" in closed settings validates the operational elimination of HCV in defined populations [54]. These lessons are directly transferable to Latin America if combined with pooled procurement, simplified algorithms, and clinical governance.

6.3. Joint procurement and price stabilization

Financial sustainability relies on stable pricing and supply. The PAHO Strategic Fund enabled reductions of up to 90% in the cost of DAAs between 2015 and 2023, while ensuring regulated quality and availability [38–43]. Countries such as Argentina (REMEDIAR) and regional blocs such as MERCOSUR have employed joint procurement with PAHO's technical support. Long-term impact requires multi-year budgets and robust regulatory frameworks to ensure continuity and equity [76].

6.4. Digital technologies, telemedicine, and interoperable registries

Digitalization mitigates fragmentation by enabling interoperable electronic records that ensure cascade traceability and real-time auditing [80]. Telemedicine and telementoring initiatives such as

Table 4
Strategic opportunities to overcome barriers.

Axis	Description	Examples	Applicability in LAC
Diagnostic simplification	Implement reflex testing, POC-NAT, DBS, self-testing with clear confirmatory/test-and-treat pathways.	APHL 2023; POC-NAT pilots in ED/prisons; DBS improved initiation (NSW).	National regulatory priority; lab clusters with reflex; DBS kits in PHC; self-testing + digital navigation.
Micro-elimination	High-coverage interventions in prisons, PWID, dialysis, pregnancy.	SToP-C (Australia); SINTESI (Sicily); navigation in judicial alternatives (Spain).	Entry points: prisons/addictions; protocols with POC-NAT/DBS and in situ DAAs.
PAHO joint procurement	PAHO Strategic Fund stabilizes prices/volumes, ensures supply.	>90% price reduction 2015–2023; regional technical support.	Regional negotiation + multi-year budgets; prioritize DAAs/diagnostics.
Digitalization	Interoperable registries, cascade dashboards, tele-mentoring/telemedicine.	WHO/Europe framework; Project ECHO; Brazil RPM.	Scale-up ECHO; integrate HCV into national EMRs; post-SVR follow-up; public audit.
REVIRAL	Science–policy interface with comparable indicators and translational agenda.	Regional roadmap.	Adapt standards/audit in LAC; synergy with PAHO and ministries.

Project ECHO empower primary care providers and improve DAA prescribing, with strong evidence of large effect sizes [83,87,88]. During the COVID-19 pandemic, Brazilian experiences demonstrated high system engagement through telemonitoring [89]. Countries such as Chile and Mexico are advancing national digital health plans incorporating viral hepatitis [90,91]. Multilateral initiatives [40] further promote regional interoperability and comparability of indicators.

6.5. Programmatic governance and regulatory frameworks

Effective HCV screening requires explicit governance that goes beyond the mere availability of diagnostics and antivirals, encompassing quality standards, auditing, and institutional accountability. Regulatory frameworks can accelerate implementation and reduce inequities, as illustrated by Puerto Rico's Law 681/2023, mandating hepatitis A, B, and C testing in all routine medical evaluations with guaranteed financial coverage, thereby demonstrating the catalytic role of legislation [37]. In parallel, Brazil's 2025 *Guide for the Elimination of Viral Hepatitis* formalized decentralization to primary care, territorial micro-planning, cascade monitoring, and quality indicators, offering an operational governance model with clear applicability to the region [75].

In summary, overcoming barriers to HCV screening in Latin America requires an integrated approach combining diagnostic simplification, targeted micro-elimination, joint procurement, digital innovation, and programmatic governance. These strategies, rooted in equity and sustainability, provide a pathway to accelerate regional progress toward the 2030 elimination goals.

7. Discussion

The evidence reviewed confirms that HCV screening fulfills both the classical and contemporary criteria that define a legitimate public health program. It meets the Wilson and Jungner principles by addressing a prevalent and severe disease with a well-characterized natural history, reliable diagnostic tests, highly effective treatment, and a favorable cost–effectiveness profile. In parallel, it satisfies modern requirements of equity, acceptability, and programmatic quality [19,20]. The controversy is no longer about whether screening is justified, but about ensuring its effective, sustainable, and equitable implementation.

When understood as an organized public health service, screening must guarantee defined coverage, traceable indicators, and explicit accountability for outcomes, avoiding isolated interventions without continuity of care [21,92]. From a clinical perspective, it enables early diagnosis, access to DAAs achieving cure rates above 95%, and prevention of hepatic and extrahepatic complications, translating into reduced mortality [28]. At the population level, it serves as an epidemiological control strategy: treating each infected individual interrupts transmission chains and lowers future incidence [65,84]. Sustained virological response is associated with reduced incidence of hepatocellular carcinoma and major clinical events, with sustained benefits even in real-world cohorts [27,48], in addition to consistent improvements in quality of life [51].

The social and economic benefits are equally robust. Cost-effectiveness models in Mexico, Brazil, and Argentina place universal or targeted screening well below accepted thresholds, generating net savings by preventing hospitalizations and liver transplantation [32]. Ethically, equitable access to screening and treatment is inseparable from human rights commitments and the goals of universal health coverage. Yet the region faces a persistent gap between evidence and practice: heterogeneous programs, limited protected financing, fragmented health systems, and lack of shared quality standards and auditing neutralize much of the potential impact of screening [21–23,38–43].

Among technical limitations, the absence of reflex algorithms and the insufficient deployment of DBS and POC-NAT largely explain cascade losses between antibody positivity and virological confirmation [59,93]. Additional barriers include inadequate harm-reduction services and stigma affecting key populations, which reduce screening efficiency [24]. These challenges contrast with tangible opportunities: diagnostic simplification through reflex testing, DBS, POC-NAT, and self-testing [93]; micro-elimination strategies in prisons, people who inject drugs, dialysis programs, and pregnancy, validated in Europe and North America [84–86]; and pooled procurement and price stabilization mechanisms through the PAHO Strategic Fund, which release resources to expand diagnostic coverage and sustain programs [38–43].

Digitalization, interoperable registries, and telemedicine further provide a strategic opportunity to overcome fragmentation, ensure traceability, and enable program auditing [21–23]. Universal opt-out screening in emergency departments, supported by reflex confirmation and clinical navigation, has demonstrated substantial increases in diagnosis and treatment linkage [64,94–101]. Accumulated evidence confirms that success depends less on technological availability — which is already in place — than on programmatic organization with explicit accountability, quality standards, and continuous auditing. Within this framework, initiatives such as REVIRAL serve as indispensable catalysts, bridging science, policy, and clinical practice across the region [17].

8. Conclusions

Chronic HCV infection remains a major public health challenge in Latin America. Despite the availability of highly effective DAAs, the primary barrier to achieving elimination by 2030 lies in the implementation gap. The region already possesses the scientific evidence, diagnostic tools, and curative therapies; what is lacking is their transformation into organized, equitable, and sustainable policies.

HCV screening should not be considered optional but rather an ethical, medical, and economic obligation. Ethical, because it prevents avoidable complications and premature deaths. Medical, because it is the only way to detect hidden infection and translate the individual efficacy of DAAs into a collective benefit. Economic, because it reduces hospitalizations, liver transplantation, and associated costs, generating medium-term net savings [32], in addition to improvements in quality of life and productivity [51].

In conclusion, achieving HCV elimination in Latin America depends on moving from evidence to action. Screening, conceived as an organized public service, is the cornerstone of this transition. The historical opportunity is exceptional: seldom in public health has a chronic infection been both curable and detectable with accessible tools, within a framework of strong international consensus. The challenge is no longer conceptual but operational: to design and implement programs with the same technical and ethical rigor applied to other public health priorities.

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Author contributions

Study concept and design; JC, JLC, ER. Acquisition of data; All. Analysis and interpretation of data; JC, JLC, ER. Drafting of the manuscript; JC, MA-P. Critical revision of the manuscript for important intellectual content; All. Obtained funding, administrative, technical, or material support; JC, JLC. Study supervision; JC, JLC, ER.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used chatGPT 5.0 in order to improve English editing. AI has provided timely assistance, without unsupervised automatic generation. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Declaration of interests

FR-P has served as a speaker on behalf of Epclusa and Mavyret, and GEC-N has received fees from Gilead speakers. The other authors have declared no conflicts of interest related to this manuscript.

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