HEALTHCARE OUTCOMES OF ONE-STEP DIAGNOSIS IN PATIENTS WITH CHRONIC HEPATITIS C

García F[1], Domínguez-Hernández R[2], Alados JC[3], Casado M[4], Macías J[5], Tellez F[6], Pascasio JM[7], Casado MÁ[2]

[1]Hospital Universitario San Cecilio, Granada, Spain; [2]Pharmacoeconomics & Outcomes Research Iberia (PORIB), Madrid, Spain; [3]Hospital Universitario de Jerez, Jerez de la Frontera, Cádiz, Spain; [4]Complejo hospitalario Torrecárdenas, Almería, Spain; [5]Hospital Universitario de Valme, Sevilla, Spain; [6]Hospital Universitario de Puerto Real, Puerto del Real, Cádiz, Spain; [7]Hospital Universitario Virgen del Rocío, Sevilla, Spain

BACKGROUND

- To achive the goal towards hepatitis C virus (HCV) elimination proposed by the World Health Organization (WHO)[1], interventions to improve testing, facilitate linkage and treatment are necessary.
- A diagnosis of active infection in the same serum sample would simplify the cascade of care and stablish rapid access for patients to treatment.

OBJECTIVE

Estimate the impact on healthcare and economic outcomes of chronic HCV diagnosis, based on a single blood sample (one-step diagnosis) in Andalusia (8.38 million people), Spain from a National Health System perspective.

METHODS

POPULATION

- A total of 269,526 of new request HCV antibody testing out of a total of 8.38 million people[2] (population of Andalusia), was estimated from a Panel of Expert in Microbiology and Gastroenterology, which are carried out during one year (67% outpatient and 33% inpatient care).

CASCADE OF CARE FLOWCHART FOR HEPATITIS C VIRUS (Figure 1 and Figure 2)

- In both scenarios, one-step and standard diagnosis:
  - A decision tree model was developed to estimate the impact on detection, referral to specialists, loss of follow-up and access to treatment comparing one-step diagnosis versus standard diagnosis, in which HCV viremia is not investigated in the first visit.
  - Diagnosis was based on HCV antibody testing, HCV-RNA (viral load) and genotyping.
  - Patient follow-up included: initial visit, diagnosis testing, referral or not to specialists and, where appropriate, treatment.
- In one-step diagnosis, a positive test was confirmed in the same microbiology laboratory.
- In standard diagnosis also was considered:
  - In inpatients, referal to the specialty center was included (in 31%), before they were refered to the hospital. These patients also had an additional visit (in 15%) for the collection of test results before being refered to specialist.
  - A second HCV antibody testing in 10% of patients.
- Patients who did not return to medical visit were considered loss of follow-up. In the non-referral, only those patients with anti-HCV positive test not referred to the specialist for their assessment were considered.
- All data for the model were obtained from literature or, if not available, from an Expert Panel.

COSTS

- Unit costs (€, 2018) of the health resources were obtained from databases of the Andalusian Health Service[4], public prices of the Government of Andalusia[5]. The pharmacological cost was not considered.

Figure 1. Cascade of care flowchart for hepatitis C virus for one-step diagnosis

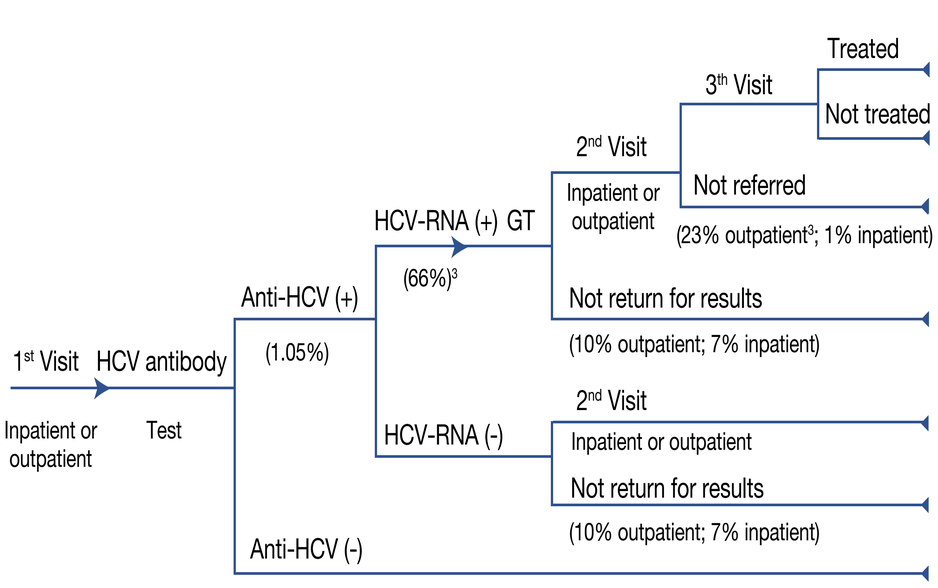
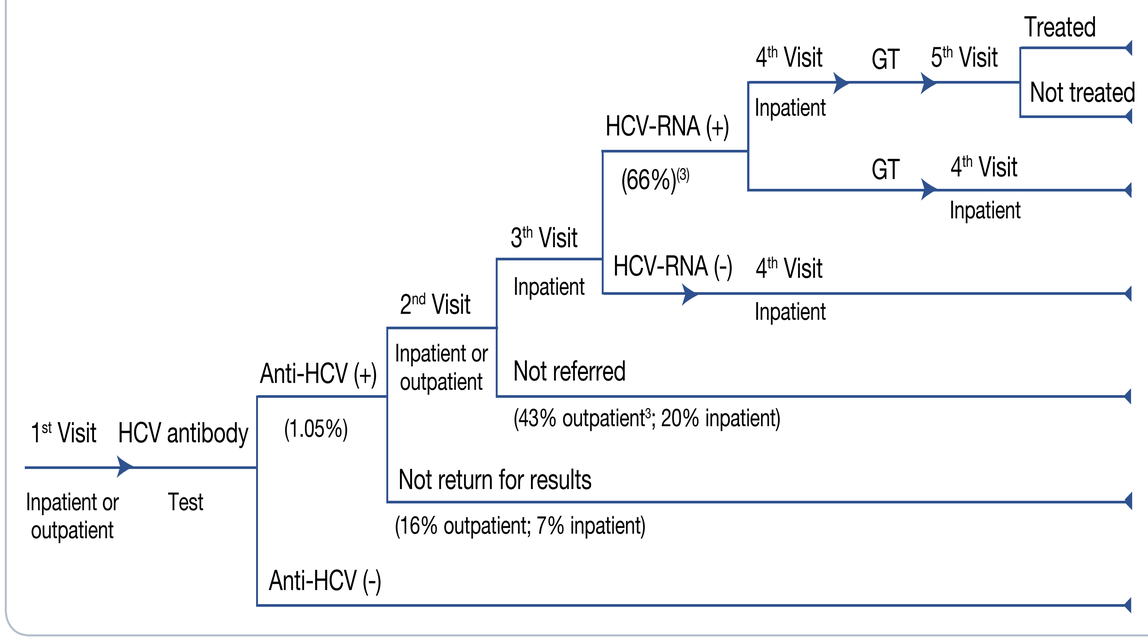


Figure 2. Cascade of care flowchart for hepatitis C virus for standard diagnosis



RESULTS

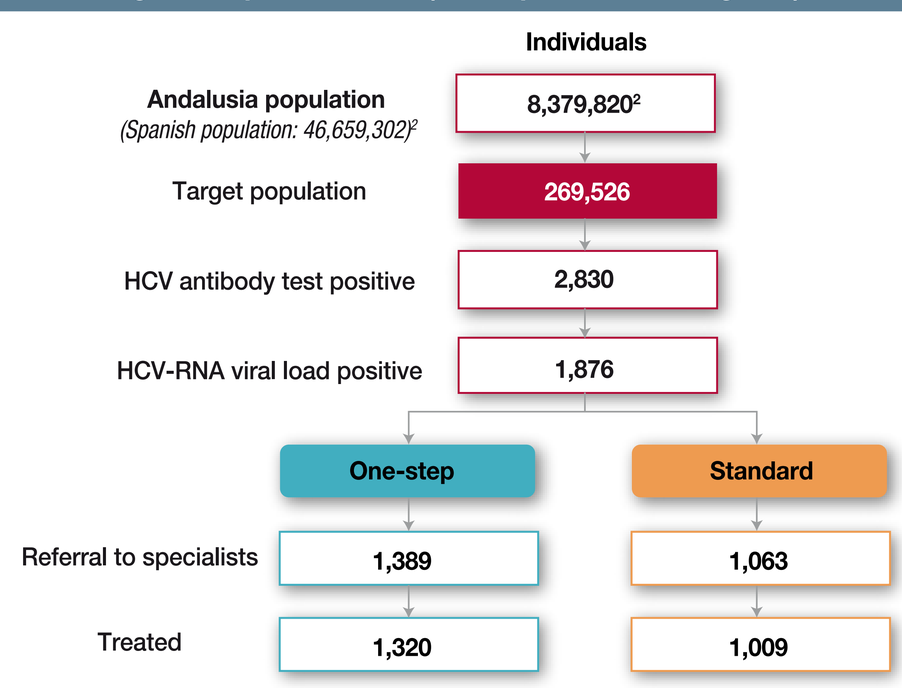
- In the analysis, a total of 2,830 individuals of the tested population would be detected as positive for HCV antibody, of whom 1,876 would be HCV-RNA positive. From this population, using one-step diagnosis, 1,389 chronic HCV patients were referred to specialised care (1,320 treated) and 1,063 patients (1,009 treated) with standard diagnosis. (Figure 3)
- No HCV-RNA negative patient were referred to specialist using one-step diagnosis versus 540 with standard diagnosis.
- Compared to one-step diagnosis, using standard diagnosis 63% more patients were not referred to specialists and 30% more patients were considered a lost to follow-up.

Table 1. Economic results

	One-step	Standard	Difference
Medical visits	€14,995,124	€15,252,927	- €257,803
Tests	€676,369	€603,495	€72,875
Total costs	€15,671,493	€15,856,421	- €184,928

- When compared D1P to DTRA, savings of €184,928 linked to one-step testing are obtained, and savings of €3,634 per patient with positive referred to specialised care. (Table 1)

Figure 3. Population results (one-step vs. standard diagnosis)



CONCLUSION

One-step diagnosis contribute to achieve the WHO HCV elimination target simplifying the HCV diagnosis procedure, enhancing linkage to care as more patients with chronic infection are identified and treated, making better use of healthcare outcomes. In addition, one-step diagnosis would generate economic savings to the Andalusian Health System.

REFERENCES

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Poster: PMD120

Presented at ISPOR Europe 2018
10-14 November 2018 | Barcelona, Spain

This study had received unconditional funding from Gilead Sciences

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