Artificial intelligence-assisted identification and retrieval of chronic hepatitis C patients lost to follow-up in the health area of Pontevedra and O Salnés, Spain

Pablo Parada Vázquez
Twitter @pparadav

Gilead Sciences’ FOCUS Program funding supports screening & linkage to a first appointment after diagnosis regardless of how organizations handle subsequent patient care and treatment.
Welcome to Pontevedra and O Salnés
Our health service:

- ≈300,000 population
- 2 hospitals
- 40 health centers
- 3 Drug Addiction Assistance Units
- 1 jail
Lost in SPAIN

Results of the 2nd Seroprevalence Study in Spain (2017-2018).

- Anti-HCV + 0.85% (IC95%: 0.64-1.08%)
- 337,107 Anti-HCV+
- Active infection 0.22%
- 76,839 Active infection
- Diagnosed 70.6%
- 54,361 Diagnosed
- Undiagnosed 29.4%
- 22,478 Undiagnosed
Lost in Pontevedra and O Salnés

- 2 hospitals
- 40 health centers
- 3 Drug Addiction Assistance Units
- 1 jail
- ≈300,000 people

Positive for HCV RNA and antibodies

- n = 1832
- n = 459
Lost in Pontevedra and O Salnés

HCV patients never treated in our hospital

\[ n = 459 \]

- Deceased \( n = 9 \) (2%)
- Treatment with DAAs ruled-out \( n = 31 \) (6.8%)
- Cured in other centers/clinical trials \( n = 129 \) (28.1%)
- Active follow-up \( n = 101 \) (22%)
- Belonging to other health areas \( n = 64 \) (13.9%)
- Not candidates for treatment \( n = 11 \) (2.4%)

HCV patients lost to follow-up

\[ n = 114 \) (24.8%)
Lost in Pontevedra and O Salnés

Characteristics of patients with chronic HCV patients lost to medical care.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronically infected HCV patients lost to care, n (%)</td>
<td>99 (100%)</td>
</tr>
<tr>
<td>Sex (male), n (%)</td>
<td>68 (68.7%)</td>
</tr>
<tr>
<td>Age (years), mean ± SD</td>
<td>55 ± 10.5</td>
</tr>
<tr>
<td>History of drug use, n (%)</td>
<td>65 (65.7%)</td>
</tr>
<tr>
<td>Background of psychiatric disorders, n (%)</td>
<td>23 (23.2%)</td>
</tr>
<tr>
<td>Never referred to care, n (%)</td>
<td>21 (21.2%)</td>
</tr>
<tr>
<td>Loss of follow-up, n (%)</td>
<td>78 (78.8%)</td>
</tr>
<tr>
<td>Years from diagnosis, mean ± SD</td>
<td>10.3 ± 6.3</td>
</tr>
<tr>
<td>Previous unsuccessful treatment, n (%)</td>
<td>13 (13.1%)</td>
</tr>
</tbody>
</table>
Lost in Pontevedra and O Salnés

- **HCV patients lost to follow-up**: 114 (24.8%)
  - Patient co-infected with HIV: 15 (13.2%)
  - Candidate for DAA treatment at our center: 99 (21.6%)

- **Never derived** vs **Lost to follow-up**: 21 (21.2%) vs 78 (78.8%)
  - Retrieved: 14 (66.7%) vs 39 (50%)

- **Total chronic HCV retrieved**: 53 (53.5%)

**Liver Stages**:

- **F0-F1** (<8.8 kPa)**: n=33 (62.3%)
- **F2** ([8.8-9.5] kPa)**: n=3 (5.7%)
- **F3** ([9.6-14.5] kPa)**: n=4 (7.5%)
- **F4** (>14.5 kPa)**: n=13 (24.5%)
Lost in Pontevedra and O Salnés

Analysis of the reasons attributed in the survey for previous loss of medical follow-up

- Fear of adverse events: 21%
- Inability to travel to the hospital: 19%
- Lack of derivation: 15%
- Patient forgetfulness or confusion: 13%
- Lack of perception of the disease: 10%
- Other reasons: 5%

HCV patients lost to follow-up
- Patient co-infected with HIV: 15 (13.2%)
- Candidate for DAA treatment at our center: 99 (21.6%)
- Total chronic HCV retrieved: 53 (53.5%)

Retrieved: 39 (50%)  
Lost to follow-up: 78 (78.8%)  
Never derived: 21 (21.2%)
Just one day…

“High-risk patients” for follow-up loss

“Covid risk”

Contact
• Nursing
• Doctor

Doctor
• Anamnesis
• Explanation

Nursing
• Analytical
• Fibroscan

Pharmacy
• Pickup
• Delivery

Nursing
• Monitoring
• Treatment

Doctor
• Survey
• Treatment

Fast-Track Cities 2023 • September 25-27, 2023
Lost in Pontevedra and O Salnés

- HCV patients lost to follow-up: $n = 114$ (24.8%)
  - Patient co-infected with HIV: $n = 15$ (13.2%)
- Candidate for DAA treatment at our center: $n = 99$ (21.6%)
  - Never derived: $n = 21$ (21.2%)
  - Retrieved: $n = 53$ (53.5%)
  - $n = 14$ (66.7%) retrieved
  - Lost to follow-up: $n = 78$ (78.8%)
  - $n = 39$ (50%) retrieved
Lost in Galicia is coming…

"SUMMARY OF THE STRATEGY FOR THE ELIMINATION OF HEPATITIS C AS A PUBLIC HEALTH PROBLEM IN GALICIA"
Conclusions

• We are in the final stretch of eliminating Hepatitis C.

• New technologies in Big Data and Artificial Intelligence will help us achieve this goal. However, they will never replace the human element.

• It's not the answer to all our problems in achieving Hepatitis C elimination, but it can be the solution for a part of them.
Thanks…

"The great achievements of any person generally depend on many hands, hearts, and minds." - Walt Disney
Gilead Sciences’ FOCUS Program funding supports screening & linkage to a first appointment after diagnosis regardless of how organizations handle subsequent patient care and treatment.