

# INTERVENTIONS TO IMPROVE TESTING, LINKAGE TO CARE, AND TREATMENT UPTAKE FOR HEPATITIS C INFECTION IN PRISON: A SYSTEMATIC REVIEW

## Authors:

[Evan B Cunningham](#)<sup>1</sup>, Alice Wheeler<sup>1</sup>, Behzad Hajarizadeh<sup>1</sup>, Clare E French<sup>2,3</sup>, Rachel Roche<sup>4,5</sup>, Alison D Marshall<sup>1,6</sup>, Guillaume Fontaine<sup>1,7,8</sup>, Anna Conway<sup>1,6</sup>, Braulio M Valencia<sup>1</sup>, Sahar Bajis<sup>1</sup>, Justin Presseau<sup>7</sup>, John W. Ward<sup>9</sup>, Louisa Degenhardt<sup>10</sup>, Gregory J Dore<sup>1</sup>, Matthew Hickman<sup>11</sup>, Peter Vickerman<sup>11</sup>, Yumi Sheehan<sup>1</sup>, Matthew Akiyama<sup>12</sup>, Nadine Kronfli<sup>13,14</sup>, Joaquin Cabezas<sup>15</sup>, Lise Lafferty<sup>1,6</sup>, Andrew Lloyd<sup>1</sup>, and Jason Grebely<sup>1</sup>

<sup>1</sup> The Kirby Institute, University of New South Wales Sydney, Sydney, NSW, Australia, <sup>2</sup> Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, BS8 1UD, UK, <sup>3</sup> NIHR Health Protection Research Unit (HPRU) in Behavioural Science and Evaluation, University of Bristol, Bristol, UK, <sup>4</sup> Blood Safety, Hepatitis, Sexually Transmitted Infections (STI) and HIV Division, National Infection Service, UK Health Security Agency Colindale, London, UK, <sup>5</sup> The National Institute for Health Research Health Protection Research Unit (NIHR HPRU) in Blood Borne and Sexually Transmitted Infections at UCL, NIHR, London, UK., <sup>6</sup> Centre for Social Research in Health, University of New South Wales Sydney, Sydney, NSW, Australia, <sup>7</sup> Centre for Implementation Research, Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Canada, <sup>8</sup> Faculty of Medicine, University of Ottawa, Ottawa, Canada, <sup>9</sup> Coalition for Global Hepatitis Elimination The Task Force for Global Health Decatur GA USA, <sup>10</sup> National Drug and Alcohol Research Centre, University of New South Wales, Randwick, Australia, <sup>11</sup> Oakfield House, Population Health Sciences - Bristol Medical School, University of Bristol, Bristol, BS8 2BN, UK, <sup>12</sup> Divisions of General Internal Medicine and Infectious Diseases, Department of Medicine, Montefiore Medical Center and Albert Einstein College of Medicine, New York, United States, <sup>13</sup> Centre for Outcomes Research and Evaluation, Research Institute of the McGill University Health Centre, Montreal, QC, Canada, <sup>14</sup> Department of Medicine, Division of Infectious Diseases and Chronic Viral Illness Service, McGill University Health Centre, Montreal, QC, Canada, <sup>15</sup> Gastroenterology and Hepatology Department, Marqués de Valdecilla University Hospital, Clinical and Translational Research in Digestive Diseases Group-IDIVAL, Cantabria, Santander, Spain

## Background:

With hepatitis C virus (HCV) prevalence over 15% in prison globally, improving HCV diagnosis and treatment in prison could greatly advance elimination efforts; however, interventions designed to overcome the unique barriers to care experienced in prison are needed. We aimed to identify and evaluate the efficacy of interventions to improve HCV care in prison.

## Methods:

We conducted a systematic review by searching bibliographic databases and conference abstracts for studies assessing interventions to improve HCV antibody testing, RNA testing, linkage to care, and treatment initiation until July 21, 2020. We included randomised and non-randomised studies assessing nonpharmaceutical interventions that included a comparator. Publications in all languages were included. Studies were excluded if the intervention and comparator were in different healthcare settings.

## Results:

Of 15,342 unique records, we included 11 studies (1 randomised and 10 non-randomised studies) in prison assessing an intervention to improve HCV antibody testing (k=7), HCV RNA testing (k=4), and treatment initiation (k=2). No included studies assessed an intervention to improve linkage to care. Interventions that improved antibody testing included point-of-care antibody testing (k=1; OR 13.0, 95%CI 10.3-16.4), dried blood-spot testing (k=1; OR 1.60, 95%CI 1.38-1.88), and nurse-led care (k=1;

OR 2.28, 95% CI 1.47-3.53). Interventions that improved RNA testing included point-of care RNA testing (k=1; OR 4.1, 95% CI 3.4-4.8) and reflex RNA testing (k=1; OR 8.9, 95% CI 5.2-15.3). Lastly, nurse-led care (k=1; OR 15.5, 95% CI 4.9-49.5) and point-of-care RNA testing (k=1; OR 7.5, 95% CI 3.7-15.2) improved HCV treatment initiation.

**Conclusion:**

Few studies have assessed interventions to improve HCV care in prison. Interventions to simplify testing (point-of-care testing, dried blood spot testing, and reflex RNA testing) and increase healthcare access (nurse-led care) improve HCV care in prison. Further high-quality research is needed to speed adoption of effective interventions to eliminate HCV among incarcerated populations

**Disclosure of interest statement:**

JG is a consultant or adviser for, and has received research grants from, AbbVie, Camurus, Cepheid, Gilead Sciences, Hologic, Indivior, and Merck, and has received honoraria from AbbVie, Cepheid, Gilead Sciences, and Merck. GJD is a consultant or adviser for, and has received research grants from, AbbVie, Abbot Diagnostics, Gilead Sciences, Bristol Myers Squibb, Cepheid, GlaxoSmithKline, Merck, Janssen, and Roche. JWW is supported by The Task Force for Global Health, which receives funds for the general support of the Coalition for Global Hepatitis Elimination from Abbott, Gilead, AbbVie, Merck, Siemens, Cepheid, Roche, Pharco, Zydus-Cadila, governmental agencies, and philanthropic organisations. MH has received unrestricted honoraria and travel expenses from MSD and Gilead unrelated to the submitted work. PV has received research grants from Gilead Sciences. All other authors declare no competing interests. NK reports research funding from Gilead Sciences, McGill Interdisciplinary Initiative in Infection and Immunity, Canadian Institutes of Health Research, and Canadian Network on Hepatitis C; reports advisory fees from Gilead Sciences, ViiV Healthcare, Merck, and AbbVie; and reports speaker fees from Gilead Sciences, AbbVie, and Merck, all outside of the submitted work.