Appendices for Systematic review on active case finding of communicable diseases in prison settings

The main report to which the appendices refer to can be found here https://ecdc.europa.eu/en/publications-data/systematic-review-active-case-finding-communicable-diseases-prison-settings

Appendix 1. Search and selection strategy for MA1, MA2 and MA3 ................................................................. 2
Appendix 2. Quality appraisal checklists other than NICE .................................................................................. 9
Appendix 3. Expert panel members and ECDC/EMCDDA staff ........................................................................... 11
Appendix 4. Exclusion table peer-reviewed literature and corresponding reference list ...................................... 12
Appendix 5. Peer-reviewed literature references that could not be retrieved in full text ........................................ 26
Appendix 6. Report on field researchers for grey literature ................................................................................. 28
Appendix 7. Exclusion table grey literature and corresponding reference list ...................................................... 29
Appendix 8. Summary tables and guideline summaries – hepatitis ........................................................................ 32
Appendix 9. Summary tables and guideline summaries – HIV ............................................................................. 43
Appendix 10. Summary tables and guideline summaries – STI .......................................................................... 55
Appendix 1. Search and selection strategy for MA1, MA2 and MA3

This appendix covers the general methodology used for all three macro areas (MA). It is important to get an overview of this overall process since the search and selection phases were carried out jointly for all three MAs. This appendix is attached to each one of the systematic review reports of each individual MA, while the methods section of the systematic review reports only information relevant to a specific MA, and a summary of the process is presented.

Review objectives and questions

The following three review objectives were defined:

**Macro area 1: Active case finding**

To gain insight into the evidence base (peer-reviewed as well as grey literature) for active case finding (i.e. at entrance and during stay) for communicable diseases in prisons, jails and other custodial settings which function as prisons.

**Macro area 2: Vaccination**

To gain insight into the evidence base (peer-reviewed as well as grey literature) for vaccination (i.e. at entrance and during stay) against communicable diseases in prisons, jails and other custodial settings which function as prisons.

**Macro area 3: TB prevention and care**

To gain insight into the evidence base (peer-reviewed as well as grey literature) for diagnosis, treatment, care and prevention of TB in prisons, jails and other custodial settings which function as prisons.

The PICO method was used to develop specific research questions from these review objectives

<table>
<thead>
<tr>
<th>1</th>
<th>Active case finding for selected communicable diseases at entrance and during prison stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Adult individuals (≥18 years) in prison settings (i.e. those detained and those who work in prison settings (“going through the gate”))</td>
</tr>
<tr>
<td>I</td>
<td>Active case finding for communicable diseases at entrance and during prison stay</td>
</tr>
</tbody>
</table>
| C | - Comparison with no intervention;  
- Comparison with alternative intervention;  
- No comparison;  
- Comparison between populations in prison settings (e.g. between different prison types, risk groups, etc.)  
- Comparison with community setting |
| O | **Qualitative outcomes:**  
Accessibility  
Feasibility and acceptability of active case finding at entrance and during prison stay  
Qualitative description of interventions/modes of service delivery  
**Quantitative outcomes:**  
Uptake (number of persons screened)  
Positivity rate  
Measures of effectiveness (e.g. change in communicable disease incidence or prevalence)  
Cost-effectiveness |
| S | Prisons, jails and other custodial settings with a function as prison (excluding migrant centres and police detention rooms) |

<table>
<thead>
<tr>
<th>2</th>
<th>Vaccination interventions, including vaccination at entrance and in outbreak situations</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Adult individuals (≥18 years) in prison settings (i.e. those detained and those who work in prison settings (“going through the gate”))</td>
</tr>
<tr>
<td>I</td>
<td>Vaccination against communicable diseases at entrance and during prison stay (including outbreak situations)</td>
</tr>
</tbody>
</table>
| C | - Comparison with no intervention;  
- Comparison with alternative intervention;  
- No comparison;  
- Comparison between populations in prison settings (e.g. between different prison types, risk groups, etc.)  
- Comparison with community setting |
| O | **Qualitative outcomes:**  
Accessibility  
Feasibility and acceptability of vaccination at entrance and during prison stay  
Qualitative description of interventions/modes of service delivery  
**Quantitative outcomes:** |
<table>
<thead>
<tr>
<th>Acceptance/uptake (number of persons vaccinated)</th>
<th>Measures of effectiveness (e.g. change in communicable disease incidence or prevalence)</th>
<th>Cost-effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Prisons, jails and other custodial settings with a function as prison (excluding migrant centres and police detention rooms)</td>
<td>Prevention, diagnosis, treatment and care of TB</td>
<td>3</td>
</tr>
<tr>
<td>P Adult individuals (≥18 years) in prison settings (i.e. those detained and those who work in prison settings (“going through the gate”))</td>
<td>Diagnosis, treatment, care and prevention of TB</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>- Comparison with no intervention; - Comparison with alternative intervention; - No comparison; - Comparison between populations in prison settings (e.g. between different prison types, risk groups, etc.) - Comparison with community setting</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>Qualitative outcomes: Accessibility Quality of interventions/modes of service delivery Quantitative outcomes: Uptake (number of persons using a certain intervention or number of persons reached by a certain intervention) Measures of effectiveness (e.g. change in TB incidence or prevalence, number of people who have completed treatment, number of people who are linked to care – including community care after release) Cost-effectiveness</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Prisons, jails and other custodial settings with a function as prison (excluding migrant centres and police detention rooms)</td>
<td></td>
</tr>
</tbody>
</table>

For each of these macro areas specific review questions were defined and formulated:

**Macro area 1: Active case finding**
- What are the communicable diseases that should be covered by active case finding?
- Which types of active case finding methods are effective?
- Which service models of active case finding are effective?
- Which types of active case finding methods are cost-effective?
- Which service models of active case finding are cost-effective?
- What is the uptake of active case finding?
- How to improve the uptake of active case finding testing?
- Who should be targeted for active case finding, when and how often?

**Macro area 2: Vaccination**
- What are the communicable diseases that should be covered by vaccination?
- Which vaccination interventions are effective?
- Which service models of vaccination are effective?
- Which vaccination interventions are cost-effective?
- Which service models of vaccination are cost-effective?
- What is the acceptance/uptake of vaccination?
- How to improve the acceptance/uptake of vaccination?
- Who should be targeted for vaccination?

**Macro area 3: TB prevention and care**
- Which prevention interventions for TB are effective?
- Which care and/or treatment interventions aimed at control of TB are effective?
- Which service models for prevention, diagnosis, care and/or treatment of TB are effective?
- Which prevention interventions for TB are cost-effective?
- Which diagnosis, care and/or treatment interventions aimed at control of TB are cost-effective?
- Which service models for prevention, diagnosis, care and/or treatment of TB are cost-effective?
- What is the uptake of prevention, diagnosis, care and/or treatment of TB?
- How to improve the uptake of prevention, diagnosis, care and/or treatment of TB?
- Who should be targeted for prevention, diagnosis, care and/or treatment of TB?
Peer reviewed literature search

The search strategy was developed building on the scoping phase by ECDC with respect to using PubMed and Embase (Embase.com) as peer-reviewed data sources. Additionally, the Cochrane Library database was searched for systematic reviews and economic evaluations.

Search strings

In order to find relevant articles for the macro areas in PubMed and Embase.com, search strings were developed for each of the following concepts:

- Prisons, jails and other custodial settings
- Active case finding
- Vaccination
- TB prevention and care

It was decided not to add a search string on outcomes, to prevent missing relevant articles. In PubMed and Embase.com search string #1 was combined using "AND" with each of the macro area specific search strings (i.e. #1 AND (#2 OR #3 OR #4)).

For Cochrane Library one generic search using the terms for prisons was used to search for all relevant systematic reviews and economic evaluations.

**PUBMED**

#1 Prisons and other custodial settings


#2 Active case finding


#3 Vaccination


#4 TB prevention and care


**EMBASE.COM**

#1 Prisons and other custodial settings

'prison'/exp OR 'prisoner'/exp OR prisons*:ti,ab OR penal*:ti,ab OR jail*:ti,ab OR reformator*:ti,ab OR custodial*:ti,ab OR custody*:ti,ab OR gaol*:ti,ab OR remand*:ti,ab OR penitentiary*:ti,ab OR detention*:ti,ab OR correctional*:ti,ab OR detainee*:ti,ab OR inmate*:ti,ab OR imprison*:ti,ab OR confinement*:ti,ab OR incarcerat*:ti,ab OR cellmate*:ti,ab

#2 Active case finding

'mass screening'/exp OR 'screening test'/exp OR 'screening'/de OR 'mandatory testing'/exp OR screen*:ti,ab OR 'case finding'/exp OR "case finding":ti,ab OR "case-finding":ti,ab OR casefinding*:ti,ab OR "cases finding":ti,ab OR "cases identification":ti,ab OR "cases identification":ti,ab OR testing*:ti,ab OR rapid test*:ti,ab OR rapid tests*:ti,ab OR early diagnosis/exp OR early diagnosis*:ti,ab OR early detect*:ti,ab OR early test*:ti,ab OR "clinical evaluation":ti,ab OR "clinical evaluation":ti,ab
#3 Vaccination
'vaccine'/exp OR vaccin*:ti,ab OR jab:ti,ab OR 'immunization'/exp OR immuniz*:ti,ab OR immunis*:ti,ab OR immune:ti,ab OR immunity:ti,ab OR inocul*:ti,ab OR inoculat*:ti,ab OR active immunotherapy*:ti,ab OR "active immunotherapies":ti,ab

#4 TB prevention and care
'tuberculosis'/exp OR 'Mycobacterium tuberculosis'/exp OR 'Mycobacterium avium'/exp OR 'Mycobacterium bovis'/exp OR tuberc*:ti,ab OR "Koch Disease":ti,ab OR "Koch Disease":ti,ab OR TB:ti,ab OR LTBI:ti,ab OR DRTB:ti,ab OR "DR-TB":ti,ab OR "XDR-TB":ti,ab OR "MDR-TB":ti,ab OR "M. bovis":ti,ab OR "Mycobacterium avium":ti,ab OR "M. avium":ti,ab

COCHRANE LIBRARY
#1 Prisons and other custodial settings
MeSH descriptor: [prisons] explode all trees OR MeSH descriptor: [prisoners] explode all trees OR prison*:ti,ab,kw OR penal:ti,ab,kw OR jail*:ti,ab,kw OR reformator*:ti,ab,kw OR custodial:ti,ab,kw OR custody:ti,ab,kw OR gaol*:ti,ab,kw OR remand*:ti,ab,kw OR penitentiary*:ti,ab,kw OR detention*:ti,ab,kw OR correctional:ti,ab,kw OR detainee*:ti,ab,kw OR inmate*:ti,ab,kw OR imprison*:ti,ab,kw OR confinement:ti,ab,kw OR confinement:ti,ab,kw OR incarcerat*:ti,ab,kw OR cellmate*:ti,ab,kw

Search limits
The only search limit that was applied for this systematic review is a time limit: literature was searched in PubMed and Embase.com from 1990 onwards for macro area I (active case finding) and III (TB prevention and care), and from 1980 for macro area II (vaccination). In Cochrane Library, systematic reviews and economic evaluations were searched from 1980 onwards for all three macro areas.

Language limits were not applied. Additionally, age and geographical limits were not applied in the search phase. Rather, during title and abstract screening phase, articles focusing only on those <18 years were not included. Moreover, only articles that were performed in EU/EEA (candidate) countries or in the United States of America (USA), Canada, Australia or New Zealand were included (see section 2.4.6). Articles from these non-EU/EEA high-income countries were included to broaden the evidence base.

Running the literature search
The final searches in PubMed, Embase.com and Cochrane Library were run on the 4th of February 2016. Due to overlap between the three macro areas, the search strings were combined in a single search. The relevant full text publications were subdivided into the three separate macro areas during the screening of full article phase.

PubMed, Embase.com, and Cochrane Library output, including all indexed fields per hit (e.g. title, authors, abstract), were exported to Endnote version X7.4 and saved in separate folders per database. Duplicate articles were removed through automatic and manual duplicate removal.

Hand search
Reference lists of good quality systematic review articles were checked for further potentially relevant articles.

Peer reviewed literature selection
From the articles retrieved from PubMed, Embase.com, and Cochrane Library the relevant references were selected by a three-phase selection procedure, based on:

- Screening of title and abstract (first selection phase): in this phase, titles of publications were screened based on the inclusion and exclusion criteria (see section 2.4.7). If the title was inconclusive, the abstract was read. Articles with titles and abstracts that suggest that they did not contain information relevant to the review objectives were not selected for full text assessment (no reason for exclusion documented per article). In case of doubt, the article was checked full-text in the second selection step. Articles that were excluded during screening of title and abstract were stored in an indexed folder in Endnote.

- Screening of full article (second selection phase): the articles selected during the first phase were assessed in full text. PDF-files of the original articles were downloaded and stored. Articles were included if the reported information was relevant (based on the inclusion and exclusion criteria, see section 2.4.7) and of sufficient quality (see section 2.4.8). The reasons for exclusion of full text papers were documented per article and summarised in an exclusion table.

- Screening during data-extraction phase: further scrutiny of the article during the data-extraction phase could have led to exclusion. For example, when articles make use of the same dataset and present identical outcome measures, the most recent or the most extensive article was included.
The process of selection and inclusion and exclusion of articles was registered in an Excel file and an Endnote library.

**Inclusion and exclusion criteria**

The inclusion and exclusion criteria are listed in Table 1 below.

### Table 1. Inclusion and exclusion criteria peer-reviewed literature

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design/type</td>
<td>Study duration (no minimum)</td>
</tr>
<tr>
<td>• Meta-analysis or systematic review(^1)</td>
<td>• Narrative review</td>
</tr>
<tr>
<td>• Randomised controlled trials (RCTs)</td>
<td>• Case reports</td>
</tr>
<tr>
<td>• Non-randomised, prospective comparative studies</td>
<td>• Non-pertinent publication types (e.g. expert opinions, letters to the editor, editorials, comments, conference abstract/poster, news, consensus document, chapter)</td>
</tr>
<tr>
<td>• Prospective observational studies (e.g. cohort studies)</td>
<td>• Animal studies</td>
</tr>
<tr>
<td>• Retrospective observational studies (e.g. case-control studies)</td>
<td>• Genetic studies, biochemistry or molecular studies</td>
</tr>
<tr>
<td>• Cross-sectional studies</td>
<td>• Modelling studies (i.e. this did not apply to economic evaluation studies)</td>
</tr>
<tr>
<td>Study population</td>
<td>• Outbreak studies (except when data on contact tracing for TB or vaccination were reported)</td>
</tr>
<tr>
<td>• Adults in prisons, jails and other custodial settings that function as a prison</td>
<td>• Insufficient methodological quality (both inherent methodology as well as insufficient description of inherent methodology provided; based on quality checklists)</td>
</tr>
<tr>
<td>• Detained persons, including persons in remand</td>
<td>• Persons in police custody</td>
</tr>
<tr>
<td>• Persons “going through the gate” (e.g. prison guards, healthcare workers, etc.)</td>
<td>• Persons in migrant detention centres</td>
</tr>
<tr>
<td>Geographical area</td>
<td>Study comparison</td>
</tr>
<tr>
<td>• EU/EEA + candidate countries, EFTA and other high-income countries (i.e. USA, Canada, Australia, New Zealand)</td>
<td>• Clinical studies on efficacy or effectiveness of vaccination with other comparisons than no vaccination as control (e.g. vaccines for other diseases)</td>
</tr>
<tr>
<td>Study comparison</td>
<td>Specific outcomes of interest</td>
</tr>
<tr>
<td>• Stumparison appropriate for a specific outcome</td>
<td>• Quantitative outcomes</td>
</tr>
<tr>
<td>• Clinical studies on efficacy or effectiveness of vaccination with no vaccination as control</td>
<td>• Qualitative outcomes</td>
</tr>
<tr>
<td>Specific outcomes of interest</td>
<td>No exclusion based on outcomes</td>
</tr>
</tbody>
</table>

\(^1\) High-quality meta-analyses or systematic reviews were included in case they matched the review objectives. If not, the relevant individual articles from these meta-analyses/systematic reviews were checked. If an individual article reported new and relevant data and the study was of sufficient quality, it was included.

**Grey literature search**

A grey literature search with a focus on EU/EEA countries was performed to complement the evidence from the peer-reviewed literature. Reports and documents focusing on prisons and people in prisons were searched for.

The following types of documents were searched for:

- Articles, abstracts, research reports
- Guidelines and protocols
- Case studies, service models

This grey literature search comprised the following sources:

- A pre-defined list of websites
- Call for papers/experts input

**Search on pre-defined websites**

**Websites of conference abstracts**

In order to capture studies not published yet in peer-reviewed literature, conference abstracts published in the last five years (i.e. from 2010 onwards) were searched for on all the following websites of relevant congresses:
• International Union for Tuberculosis and Lung Disease (http://www.theunion.org/)
• European Respiratory Society (http://www.ersnet.org/)
• American Respiratory Society (https://www.thoracic.org/)
• International Corrections and Prisons Association (ICPA, http://icpa.ca/)
• American Correctional Association (http://www.aca.org/aca_prod_imis/aca_member)
• Experiencing Prison 7th Global Conference (http://www.inter-disciplinary.net/probing-the-boundaries/persons/experiencing-prison/)
• National Conference on Correctional Health Care (http://www.ncchc.org/national-conference)

Other websites
The following sources were searched for other grey literature documents published in the last ten years (i.e. from 2005 onwards):

• Guidelines:
  – Guidelines International Network (http://www.g-i-n.net/)
  – NICE guidelines (https://www.evidence.nhs.uk/)
• Organisations and institutes:
  – WHO – Health in prisons programme (HIPP) (http://www.euro.who.int/prisons)
  – WHO – EU (http://www.euro.who.int/en/home)
  – WHO – IRIS (http://apps.who.int/iris/)
  – Council of Europe/POMPIDOU Group (http://www.coe.int/T/DG3/Pompidou/AboutUs/default_en.asp), and other Council of Europe documents
  – UNODC (http://www.unodc.org/)
  – European Monitoring Centre for Drugs and Drug Addition (EMCDDA) (http://www.emcdda.europa.eu/)
• Bibliographies
  – Campbell Collaboration (http://www.campbellcollaboration.org/)
  – Bibliography on HIV/AIDS and Hepatitis C in prisons (http://www.aidslaw.ca/)
  – IDEAS (https://ideas.repec.org/)
  – Open grey (http://www.opengrey.eu)

Conduct of the main search on pre-defined websites and corresponding search terms
The main search for grey literature on the pre-defined websites was performed by two senior researchers. The main search was performed in English. On each website, a more general search was conducted at first using only terms for prisons (i.e. prison, jail, correctional, incarcerated). If this resulted in many hits, a more specific search was performed by combining the prison terms with ‘infectious diseases’, ‘screening’/’case finding’, ‘vaccination’ and ‘tuberculosis’. In case a website was only focused on prison populations, only this latter search was performed.

Expert input
In addition to the search on pre-defined websites, expert input was used in the form of:

• A search for documents conducted by field researchers of the HWBs Federation Network
• A “call for paper” issued to experts contacted via the HWBs Federation Network and members of the ECDC expert panel

Search field researchers
Main documents describing information relevant to the objectives (based on the inclusion and exclusion criteria, section 2.5.4); written in English or in other EU/EEA languages were searched. Five national field researchers and infectious diseases specialists were identified within the HwBs network, one for each of the EU/EEA countries represented in the Federation, namely France, Germany, Italy, the Netherlands and Spain. The field researchers conducted a search for national guidelines, protocols (clinical/intervention), and unpublished research reports. This was done by searching the national websites of HwBs member organisations:

• SIMSPe-Onlus: Italian Society for Prison Health and Medicine (http://www.sanitapenitenziaria.org/)
• APSEP: Association des Professionnels de Santé Exercant en Prison (http://www.sante-prison.com/fr/)
• NAPDUK: National Association of Prison Dentistry UK (http://www.napduk.org/)
• SESP: Sociedad Española de Sanidad Penitenciaria (http://www.sesp.es/)
• DJI: Netherlands National Agency for Correctional Institutions (https://www.dji.nl/)
**Call for paper**

A "call for paper" was issued to stakeholders in the field by the selected national field researchers, via e-mail. The grey literature search officially started on 18 April 2016, with an official letter and call to the researchers sent by HWBs’ Secretariat. After two weeks from the start, an e-mail reminder was sent out. If clarifications or additional details were needed, the respective national contact point was contacted. The call was also shared with the ECDC expert panel members.

The initial deadline was set on 2 May 2016. However, due to the low number of contributions received in particular on MA 2, the replacement of some field researchers and the possibility to collect further documents by the panel members, the definitive deadline for the collection of documents was extended to 30 June 2016.

The call targeted stakeholders, service providers or technical experts working in the field to submit additional documents including abstracts, national guidelines, protocols, unpublished research reports and/or intervention case studies/service models regarding the three macro areas. For the latter, a short pre-defined format was provided to collect clearly described accounts of their intervention/service model related to the relevant macro areas.

**Grey literature selection**

All retrieved documents were reviewed by two researchers. Documents were included if the reported information was relevant and of sufficient quality (see inclusion and exclusion criteria below). A record was kept of the reasons for exclusion of documents screened in full text.

**Inclusion and exclusion criteria**

Table 2. Inclusion and exclusion criteria grey literature

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Period of publication</strong></td>
<td></td>
</tr>
<tr>
<td>Conference abstracts: from 2005 onwards</td>
<td>Published article</td>
</tr>
<tr>
<td>Other documents: from 2010 onwards</td>
<td></td>
</tr>
<tr>
<td><strong>Type of document</strong></td>
<td></td>
</tr>
<tr>
<td>• Guidelines</td>
<td></td>
</tr>
<tr>
<td>• Intervention or clinical protocols</td>
<td></td>
</tr>
<tr>
<td>• Unpublished research results</td>
<td></td>
</tr>
<tr>
<td>• Case studies/service models, including</td>
<td></td>
</tr>
<tr>
<td>measures of effectiveness</td>
<td></td>
</tr>
<tr>
<td><strong>Document quality</strong></td>
<td></td>
</tr>
<tr>
<td>Only grey literature documents with a methods section or an overview of sources.</td>
<td>Document without a clear source/reference for the relevant information</td>
</tr>
<tr>
<td><strong>Document population</strong></td>
<td></td>
</tr>
<tr>
<td>Adults in prisons, jails and other custodial settings that function as a prison</td>
<td>Children (&lt;18 years)</td>
</tr>
<tr>
<td>• Detained persons, including persons in remand</td>
<td>Persons in police custody</td>
</tr>
<tr>
<td>• Persons &quot;going through the gate&quot; (e.g. prison guards, healthcare workers, etc.)</td>
<td>Persons in migrant centres</td>
</tr>
<tr>
<td><strong>Subject of the document</strong></td>
<td></td>
</tr>
<tr>
<td>• Active case finding for communicable diseases at entrance and during prison stay</td>
<td></td>
</tr>
<tr>
<td>• Vaccination against relevant communicable diseases at entrance and during prison stay (including outbreak situations)</td>
<td></td>
</tr>
<tr>
<td>• Prevention, diagnosis, treatment and care of TB</td>
<td></td>
</tr>
<tr>
<td><strong>Geographical area</strong></td>
<td></td>
</tr>
<tr>
<td>• EU/EEA</td>
<td></td>
</tr>
<tr>
<td><strong>Specific outcomes of interest</strong></td>
<td></td>
</tr>
<tr>
<td>• Quantitative outcomes</td>
<td>No exclusion based on outcomes</td>
</tr>
<tr>
<td>• Qualitative outcomes</td>
<td></td>
</tr>
</tbody>
</table>

**Guidelines selection**

Guidelines were selected in a three-step approach. First, only prison-focused guidelines were searched for relevant information. However, when there was not sufficient information on certain review objectives coming from these prison-focused guidelines, guidelines that have a relevant section on people in prison were searched for relevant information. To include such guidelines, multiple transparent sources should have been stated for the prisoner group and a recommendation for this specific group should have been made. In case there was still a lack of information on a certain topic, general population guidelines were reviewed for relevant information.
Appendix 2. Quality appraisal checklists other than NICE

<table>
<thead>
<tr>
<th>Cross-sectional study</th>
<th>Code as - - / - / + - / + / ++ or NA if not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Countries</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Internal validity</strong></td>
<td></td>
</tr>
<tr>
<td>The study addresses an appropriate and clearly focused question</td>
<td></td>
</tr>
<tr>
<td>The study population is clearly described</td>
<td></td>
</tr>
<tr>
<td>The population is a representative sample of the source population</td>
<td></td>
</tr>
<tr>
<td>The outcome measures are described</td>
<td></td>
</tr>
<tr>
<td>The assessment of outcome is made blind to exposure status</td>
<td></td>
</tr>
<tr>
<td>Where blinding was not possible, there is some recognition that knowledge of exposure status could have influenced the outcome assessment</td>
<td></td>
</tr>
<tr>
<td>Exposure status is measured in a standard, valid and reliable way</td>
<td></td>
</tr>
<tr>
<td>The measurement of outcome is clearly described (e.g., written questionnaire, face-to-face interview, internet survey)</td>
<td></td>
</tr>
<tr>
<td>The main potential confounders are identified and taken into account in the design and analysis</td>
<td></td>
</tr>
<tr>
<td>Comparison is made between participants and non-participants to establish their similarities/ differences</td>
<td></td>
</tr>
<tr>
<td>Confidence intervals are provided</td>
<td></td>
</tr>
<tr>
<td>If study is carried out at more than one site, results are comparable for all site</td>
<td></td>
</tr>
<tr>
<td><strong>Overall assessment of the study</strong></td>
<td></td>
</tr>
<tr>
<td>How well was study done to minimize confounding/ bias, and to establish a causal relationship?</td>
<td></td>
</tr>
<tr>
<td>If coded + or -, what is the likely direction in which bias might affect the study results?</td>
<td></td>
</tr>
<tr>
<td>Was the likelihood of bias due to measuring exposure and outcome at the same moment, taken into account by the authors?</td>
<td></td>
</tr>
<tr>
<td>Are you certain that the overall effect is due to the exposure being investigated?</td>
<td></td>
</tr>
<tr>
<td>Are the results of the study applicable to the patient group targeted in the search question?</td>
<td></td>
</tr>
<tr>
<td><strong>Comments</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Include or exclude</strong></td>
<td></td>
</tr>
<tr>
<td>If exclusion, give reason</td>
<td></td>
</tr>
</tbody>
</table>


### Surveillance study

<table>
<thead>
<tr>
<th>Author</th>
<th>Countries</th>
<th>Internal validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The study addresses an appropriate and clearly focused question</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The population being studied is selected from a data source that is representative for the overall population of interest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The outcomes are clearly defined</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The main potential confounders are identified and taken into account in the design and analysis</td>
</tr>
</tbody>
</table>

**Additional questions**

- Are epidemiological outcomes described that can be used in this review, e.g. incidences or rates per 100,000 or proportion of cases?
- Is the study population large enough to be a representative sample of the source population?
- Is the disease of interest the main subject of the paper?
- Are the outcomes of the study based on observed cases (and not on assumptions or models)?
- The surveillance period is long enough to detect new cases and to accurately calculate prevalence/ incidence rates

**Overall assessment of the study**

- Are the results valid?
- Are the results applicable to the population targeted in the search question?

**Comments**

- Include or exclude
- If exclusion, give reason

### Other research (applied to outbreak studies)

<table>
<thead>
<tr>
<th>Author</th>
<th>Countries</th>
<th>Internal validity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The study addresses an appropriate and clearly focused question</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The study population is clearly described</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The population is representative of the source population</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exposure status is measured in a standard, valid and reliable way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The outcomes are clearly defined</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Variation (e.g. range, SD) in outcome of interest is provided</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The diagnosis of interest the main subject of the paper</td>
</tr>
</tbody>
</table>

**Overall assessment of the study**

- Are the results valid?
- Are the results applicable to the population targeted in the search question?

**Comments**

- Include or exclude
- If exclusion, give reason
### Appendix 3. Expert panel members and ECDC/EMCDDA staff

#### Expert panel members

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbara Janíková</td>
<td>Government of Czech Republic</td>
<td>Czech Republic</td>
</tr>
<tr>
<td>Kristel Kivimets</td>
<td>Ministry of Justice</td>
<td>Estonia</td>
</tr>
<tr>
<td>Fadi Meroueh</td>
<td>Association des Professionnels de Santé Exerçant en Prison</td>
<td>France</td>
</tr>
<tr>
<td>Heino Stöver</td>
<td>HA-REACT</td>
<td>Germany</td>
</tr>
<tr>
<td>Peter Wiessner</td>
<td>Action Against AIDS and EATG</td>
<td>Germany</td>
</tr>
<tr>
<td>Ruth Zimmerman</td>
<td>Robert Koch Institute</td>
<td>Germany</td>
</tr>
<tr>
<td>Roberto Ranieri</td>
<td>Società Italianana di Medicina e Sanità Penitenziaria</td>
<td>Italy</td>
</tr>
<tr>
<td>Lucia Mihailescu</td>
<td>Formerly with Romanian National Administration of Penitentiaries</td>
<td>Romania</td>
</tr>
<tr>
<td>Jose-Manuel Royo</td>
<td>General Secretariat of Penitentiary Institutions</td>
<td>Spain</td>
</tr>
<tr>
<td>Stefan Enggist</td>
<td>Federal Office of Public Health</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Eamonn O’Moore</td>
<td>Public Health England</td>
<td>UK</td>
</tr>
<tr>
<td>Alison Hannah</td>
<td>Penal Reform International</td>
<td>International</td>
</tr>
<tr>
<td>Jan Malinowski</td>
<td>Council of Europe</td>
<td>International</td>
</tr>
<tr>
<td>Lars Møller</td>
<td>WHO</td>
<td>International</td>
</tr>
<tr>
<td>Ehab Salah</td>
<td>United Nations on Drugs and Crime</td>
<td>International</td>
</tr>
</tbody>
</table>

#### ECDC and EMCDDA staff who attended expert panel meetings

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dagmar Hedrich</td>
<td>EMCDDA</td>
</tr>
<tr>
<td>Andrew Amato</td>
<td>ECDC</td>
</tr>
<tr>
<td>Netta Beer</td>
<td>ECDC</td>
</tr>
<tr>
<td>Helena Carvalho Gomes</td>
<td>ECDC</td>
</tr>
<tr>
<td>Ida Czumbel</td>
<td>ECDC</td>
</tr>
<tr>
<td>Erika Duffell</td>
<td>ECDC</td>
</tr>
<tr>
<td>Teymur Noori</td>
<td>ECDC</td>
</tr>
<tr>
<td>Kate Olsson</td>
<td>ECDC</td>
</tr>
<tr>
<td>Anastasia Pharris</td>
<td>ECDC</td>
</tr>
<tr>
<td>Pasi Penttinen</td>
<td>ECDC</td>
</tr>
<tr>
<td>Jan Semenza</td>
<td>ECDC</td>
</tr>
<tr>
<td>Ettore Severi</td>
<td>ECDC</td>
</tr>
<tr>
<td>Gianfranco Spiteri</td>
<td>ECDC</td>
</tr>
<tr>
<td>Judit Takas</td>
<td>ECDC</td>
</tr>
<tr>
<td>Lara Tavoschi</td>
<td>ECDC</td>
</tr>
<tr>
<td>Marieke van der Werf</td>
<td>ECDC</td>
</tr>
</tbody>
</table>
Appendix 4. Exclusion table peer-reviewed literature and corresponding reference list

Exclusion table second selection step

<table>
<thead>
<tr>
<th>Exclusion reason (number of articles)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data on objectives (n=137)</td>
<td>[1-137]</td>
</tr>
<tr>
<td>Non-pertinent publication types (n=81)</td>
<td>[138-218]</td>
</tr>
<tr>
<td>Narrative reviews (n=74)</td>
<td>[219-292]</td>
</tr>
<tr>
<td>Prevalence/incidence studies (n=35)</td>
<td>[293-327]</td>
</tr>
<tr>
<td>Insufficient (description of) methodology (n=35)</td>
<td>[328-362]</td>
</tr>
<tr>
<td>Duplicate articles (n=18)</td>
<td>[363-380]</td>
</tr>
<tr>
<td>Already included in review Rumble et al. (n=15) (to avoid duplicate data)</td>
<td>[381-395]</td>
</tr>
<tr>
<td>Incorrect setting (n=15) (e.g. police detention centre, or juvenile detention centre)</td>
<td>[396-410]</td>
</tr>
<tr>
<td>Not country of interest (n=7)</td>
<td>[411-417]</td>
</tr>
<tr>
<td>Modelling studies (n=2)</td>
<td>[418, 419]</td>
</tr>
<tr>
<td>Children (n=1)</td>
<td>[420]</td>
</tr>
<tr>
<td>More recent data available (n=1)</td>
<td>[421]</td>
</tr>
</tbody>
</table>

Reference list of excluded articles during second selection step


142. Improving TB control in prisons may lead to better national programmes. BMJ (Clinical research ed). 2000;320(7232):G.


146. Prevention and control of tuberculosis in correctional and detention facilities: recommendations from CDC. Endorsed by the Advisory Council for the Elimination of Tuberculosis, the National Commission on Correctional Health Care, and the American Correctional Association. MMWR Recommendations and reports : Morbidity and mortality weekly report Recommendations and reports / Centers for Disease Control. 2006;55(Rr-9):1-44.


190. Linas BP, Wong AY, Freedberg KA, Horsburgh CR. The cost effectiveness of tuberculin skin test and interferon gamma release assay screening for latent tuberculosis infection in the U.S. American Journal of Respiratory and Critical Care Medicine. 2011;183(1).


211. Strike C, Watson TM, Gohil H, Miskovic M, Robinson S, Arkell C, et al. Best practice recommendations for Canadian harm reduction programs that provide service to people who use drugs and are at risk for HIV, HCV, and other harms-part 2: Service models, referrals for services, and emerging areas of practice. Canadian Journal of Infectious Diseases and Medical Microbiology. 2015;26:928.


220. [The role of institutions for the prevention of tuberculosis: organization, relation with the DDASS (Regional Public Health System), and physicians]. Medecine et maladies infectieuses. 2004;34(8-9):354-7.


Systematic review on active case finding of communicable diseases in prison settings


Appendix 5. Peer-reviewed literature references that could not be retrieved in full text


Appendix 6. Report on field researchers for grey literature

Field researchers

A field researcher was appointed through Health Without Barriers in each of the following countries where the federation is active, namely UK, Germany, Spain, France and Italy. Several attempts have been made to find a field researcher for The Netherlands, through an e-mail exchange with Dr. Michel Westra (member of HWBs) and Dr. Kim van Rooy.

It was up to the field researcher whether to work in team with any other expert they wished to involve, or to perform the research on their own. The European field researchers appointed as responsible for each Country were:

- Ruth Gray – UK
- Sofia Victoria Casado Hoces – Spain
- Leon Weichert – Germany
- Deborah Iwanikow – France
- Giordano Madeddu - Italy

Materials

The grey literature research officially started on 18th April 2016, with an official letter and call to the researchers sent by HWBs’ Secretariat. The definitive deadline for the collection of materials regarding the first three macro areas (active case finding, vaccination and TB) was settled on 30th June 2016.

The following are the results concerning the first three selected Macro areas:

1. UK

The batch of documents has been received on 10th May 2016. A total of 37 documents have been sent to HWBs.

2. Spain

The batch of documents has been received on 28th April 2016. A total of 93 documents have been sent to HWBs.

3. Germany

The batch of documents has been received on 24th May 2016. A total of 18 documents have been sent to HWBs. The fact that the prison healthcare system in Germany is not managed by central headquarters, instead is handled by the single Länder, has affected negatively the research.

4. France

The first batch of documents has been received on 6th June 2016. A total of five documents have been sent to HWBs.

5. Italy

The first batch of documents has been received on 6th June 2016. A total of five documents have been sent to HWBs.
Appendix 7. Exclusion table grey literature and corresponding reference list

Exclusion table second selection step

<table>
<thead>
<tr>
<th>Exclusion reason (number of articles)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside date range (n=35)</td>
<td>[1-35]</td>
</tr>
<tr>
<td>No data on objectives (n=24)</td>
<td>[36-59]</td>
</tr>
<tr>
<td>Prevalence/incidence studies (n=14)</td>
<td>[60-73]</td>
</tr>
<tr>
<td>More recent data available (n=2)</td>
<td>[74, 75]</td>
</tr>
<tr>
<td>No country of interest (n=4)</td>
<td>[76-79]</td>
</tr>
<tr>
<td>Insufficient description methodology (n=1)</td>
<td>[80]</td>
</tr>
</tbody>
</table>

Reference list of excluded articles during second selection step

Systematic review on active case finding of communicable diseases in prison settings

40. Libro bianco malattie infettive. 2015.
42. Babudieri S. Studi in ambito penitenziario: ultime acquisizioni. 2009. Presented at X Congresso Nazionale S.I.M.S.Pe.
55. Saiz de la Hoya P. Situación clínica de los pacientes HBs Ag+ estudiados en Fontcalent en el periodo 2005-2014. Revista española de sanidad penitenciaria. 2014;S16:117. Presented at X Congresso Nazionale e XVIII Jornadas de la SESP.
68. Gabutti A. Misure per la terapia dell’ infezione cronica HBV. Collegamento con i SerT, Comunità terapeutiche. Attivazione assistenza domiciliare per i pazienti a gli arresti domiciliari. 2015.
Appendix 8. Summary tables and guideline summaries – hepatitis

Hepatitis A

Peer-reviewed literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of hepatitis A active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document ("Annex 2. Evidence tables systematic review active case finding in prison settings").

Uptake, positivity rate, effectiveness and treatment initiation

Mandatory

EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieck, 2011 [32] USA Cross-sectional study</td>
<td>A male prison housing minimum, medium, close, and maximum security inmates n=916</td>
<td>Blood test, not further specified</td>
<td>Mandatory</td>
<td>NA</td>
<td>0.0%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

NA=not applicable, NR=not reported, STD=sexually transmitted disease, USA=United States of America

Opt-in

No studies were found that reported on opt-in HAV testing in correctional facilities.

Opt-out

No studies were found that reported on opt-out HAV testing in correctional facilities.

COST-EFFECTIVENESS

No studies were found that reported on the cost-effectiveness of HAV active case finding in correctional facilities.

Grey literature

No documents on hepatitis A active case finding have been found.
**Hepatitis B**

**Peer-reviewed literature**

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of hepatitis B active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document ("Annex 2. Evidence tables systematic review active case finding in prison settings").

**Uptake, positivity rate, effectiveness and treatment initiation**

**Mandatory**

EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At release</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sieck, 2011 [32] USA Cross-sectional study</td>
<td>A male prison housing minimum, medium, close, and maximum security inmates n=916</td>
<td>Blood test, not further specified Mandatory</td>
<td>All inmates scheduled for release</td>
<td>NA</td>
<td>0.5%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Jacomet, 2016 [33] France Cross-sectional study</td>
<td>Two prisons n=702</td>
<td>ELISA Opt-in</td>
<td>Adult inmates At entry (timing NR) Posters, personalised information letters</td>
<td>91.3%</td>
<td>0.6%</td>
<td>0.3%</td>
<td>newly diagnosed</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Sagnelli, 2012 [34] Italy Cross-sectional study</td>
<td>Six penitentiaries n=3 468</td>
<td>Analogous commercial immune enzymatic assay Opt-in</td>
<td>All inmates During imprisonment Presentation on advantages of screening by peer-educators, pamphlets on importance of screening</td>
<td>65.3%</td>
<td>4.4%</td>
<td>Higher uptake than in the nine correctional facilities evaluated in this study before peer education (10.0%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

NA=not applicable, NR=not reported, STD=sexually transmitted disease, USA=United States of America

**Opt-in**

EU/EEA countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sagnelli, 2012 [34] Italy Cross-sectional study</td>
<td>Six penitentiaries n=3 468</td>
<td>Analogous commercial immune enzymatic assay Opt-in</td>
<td>All inmates During imprisonment Presentation on advantages of screening by peer-educators, pamphlets on importance of screening</td>
<td>65.3%</td>
<td>4.4%</td>
<td>Higher uptake than in the nine correctional facilities evaluated in this study before peer education (10.0%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

ELISA=enzyme-linked immunosorbent assay, NR=not reported
### Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watkins, 2009 (included in review Rumble, 2015 [2]), Australia Descriptive study Western Australian prisons (not further specified)</td>
<td>n=946</td>
<td>Standard routine BBV testing with venous blood sampling: HIV, HBV, HCV</td>
<td>Male and female inmates</td>
<td>At entry (within 28 days)</td>
<td>NR</td>
<td>4.5% (95% CI 1.2-2.1%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low2</td>
</tr>
</tbody>
</table>

BBV = blood-borne virus, HBV = hepatitis B virus, HCV = hepatitis C virus, HIV = human immunodeficiency virus, NR = not reported, USA = United States of America

1. As reported in Rumble et al., 2015 (and in the original article). Positivity rate is not included in the 95% CI.
2. This article was included in the review of Rumble et al., 2015, which has a very low level of evidence.

### Opt-out

No studies were found that reported on opt-out HBV testing in correctional facilities.

### COST-EFFECTIVENESS

No studies were found that reported on the cost-effectiveness of HBV active case finding in correctional facilities.

### Grey literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of hepatitis B active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document ("Annex 2. Evidence tables systematic review active case finding in prison settings").

### Uptake, positivity rate, effectiveness and treatment initiation

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Bedoya A 2014 [37], Spain Retrospective study</td>
<td>Single prison in Barcelona (Spain)</td>
<td>HBV serology Opt-in</td>
<td>All people in prison from 1987 to 2013 During imprisonment</td>
<td>NR</td>
<td>13.2%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Babudieri S 2015 [36], Italy Cross-sectional study</td>
<td>4 prisons in Italy</td>
<td>HBV serology Opt-in</td>
<td>All people in prison During imprisonment</td>
<td>83.8%</td>
<td>104/2233 (4.7%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Babudieri S 2012 [35], Italy Series of cross-sectional studies</td>
<td>20 Italian prisons</td>
<td>HBV serology Opt-in</td>
<td>All people in prison During imprisonment Peer educators, leaflets, posters and staff training</td>
<td>56.3%</td>
<td>5.3%</td>
<td>From 10.0% to 42.9%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
</tbody>
</table>

| **At entry**                     |                        |                       |                      |         |                 |                               |                           |       |                     | Conference abstract |

As reported in Rumble et al., 2015 (and in the original article). Positivity rate is not included in the 95% CI.
### Effectiveness of hepatitis C active case finding

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabbuti A 2015 [38] Italy</td>
<td>Regional prison, Florence (Italy)</td>
<td>HBV serology Opt-in</td>
<td>All people in prison at entry NR</td>
<td>&gt;95%</td>
<td>-16.5% in 2009, -15.7% in 2010, -11.7% in 2011, -8.0% in 2012, -6.9% in 2013, -8.1% in 2014</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Unpublished research</td>
</tr>
<tr>
<td>Foschi A 2015 [39] Italy Cross-sectional study</td>
<td>Single prison in Italy (Opera prison, Milan)</td>
<td>HBV serology Opt-in</td>
<td>All people in prison at entry NR</td>
<td>91.5%</td>
<td>31/468 (6.6%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
</tbody>
</table>

CI = confidence interval, HBV = hepatitis B virus, NR = not reported, RR = relative risk

### COST-EFFECTIVENESS

No studies on cost-effectiveness have been found from the grey literature search.

### Hepatitis C

#### Peer-reviewed literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of hepatitis C active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document ("Annex 2. Evidence tables systematic review active case finding in prison settings").

#### Uptake, positivity rate, effectiveness and treatment initiation

**Mandatory**

EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieck, 2011 [32] USA Cross-sectional study</td>
<td>A male prison housing minimum, medium, high, and maximum security inmates n=916</td>
<td>Blood test, not further specified</td>
<td>Mandatory</td>
<td>NA</td>
<td>1.7%</td>
<td>NR</td>
<td>NA</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

NA = not applicable, NR = not reported, STD = sexually transmitted disease, USA = United States of America
### Opt-in

#### EU/EEA countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacomet, 2016 [33], France Cross-sectional study</td>
<td>Two prisons n=702</td>
<td>ELISA Opt-in</td>
<td>Adult inmates At entry (timing NR) Posters, personalised information letters</td>
<td>89.9%</td>
<td>4.7% 2.0% newly diagnosed</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Horne, 2004 (included in review Rumble, 2015 [2]), UK Descriptive study</td>
<td>Dartmoor Prison, UK n=3,034</td>
<td>Standard routine BBV testing with venous blood sampling: HCV (HCV antibody testing and confirmatory PCR)</td>
<td>Male inmates At entry (timing NR) NR</td>
<td>12%</td>
<td>12.0%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Skipper, 2003 (included in review Rumble, 2015 [2]), UK Descriptive study</td>
<td>Isle of Wight (not further specified) n=1,618</td>
<td>Standard routine BBV testing with venous blood sampling: HIV, HBV, HCV (HCV antibody testing and confirmatory PCR)</td>
<td>Inmates At entry (timing NR) NR</td>
<td>9%</td>
<td>29.9%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

#### During imprisonment

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sagnelli, 2012 [34], Italy Cross-sectional study</td>
<td>Six penitentiaries n=3,468</td>
<td>Analogous commercial immune enzymatic assay Opt-in</td>
<td>All inmates During imprisonment Presentation on advantages of screening by peer-educators, pamphlets on importance of screening</td>
<td>64.6%</td>
<td>22.8%</td>
<td>Higher acceptance than in the nine correctional facilities evaluated in this study before peer-education (20.5%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

**BBV=blood-borne virus, ELISA=enzyme-linked immunosorbent assay, HBV=hepatitis B virus, HCV=hepatitis C virus, HIV=human immunodeficiency virus, NR=not reported**

<sup>2</sup> This article was included in the review of Rumble et al., 2015, which has a very low level of evidence
### Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Effectiveness</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim, 2013 [44] USA Before-after study</td>
<td>Two facilities of the correctional institute (one for male and one for female inmates)</td>
<td>Opt-in</td>
<td>Risk-based: High-risk inmates (risk assessment based on dynamic model of virological parameters) At entry (risk assessment within 7 days of admission, timing test NR) Staff educational seminar on benefits identifying acute HCV</td>
<td>Uptake: 80.7% of high risk inmates had laboratory testing(^4) Postivity rate: 25.4% of high risk inmates with laboratory testing had positive test result</td>
<td>Change in number or % tested: NR</td>
<td>Change prevalence/incidence: NR</td>
<td>Acute cases identified through active case finding twice as likely to be symptomatic (48.6%) compared with historical control period (33.3%, RR 2.0; (p=0.09))</td>
</tr>
<tr>
<td>Cocoros, 2014 [46] USA Cross-sectional study</td>
<td>A county facility, for those awaiting trial and those sentenced &lt;2.5 years</td>
<td>Immunoassay testing Opt-in</td>
<td>Historical control: All inmates When having hepatitis symptoms or significant ALT elevations Staff educational seminars on acute HCV</td>
<td>Uptake: NR Postivity rate: NR Prevalence: NR</td>
<td>Change in number or % tested: NR</td>
<td>Change in incidence: NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Watkins, 2009 (included in review Rumble, 2015 [2]) Australia</td>
<td>Western Australian prisons (not further specified)</td>
<td>Opt-in</td>
<td>All inmates At entry (within few days) &amp; during imprisonment when not tested at entry (during regular “sick call”) Mandatory education session on hepatitis before choice to be tested, referral upon release if HCV positive</td>
<td>Uptake: 21.9% Postivity rate: 20.5% Prevalence: NR</td>
<td>Change in number or % tested: NR</td>
<td>Change in incidence: NR</td>
<td>Very low(^1)</td>
</tr>
</tbody>
</table>
ALT=alanine aminotransferase, BBV=blood-borne virus, ELISA=enzyme-linked immunosorbent assay, HBV=hepatitis B virus, HCV=hepatitis C virus, HIV=human immunodeficiency virus, NR=not reported, RNA=ribonucleic acid, RR=relative risk, USA=United States of America

1 This article was included in the review of Rumble et al., 2015, which has a very low level of evidence

*28.2% of admitted inmates were screened for risk factors, 4.9% were high risk inmates

**Opt-out**

No studies were found that reported on opt-out HCV testing in correctional facilities.

**Not specified**

EU/EEA countries

### Effectiveness

#### Bedwith, 2015 [45]

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum security facility, women’s facility and the intake service centre</td>
<td>957 inmates</td>
<td>OraQuick HCV Rapid Antibody Test (blood specimen); confirmation with HCV RNA plasma viral load testing</td>
<td>Opt-in</td>
<td>26% reactive rapid HCV test</td>
<td>10% reactive HCV test</td>
<td>6% confirmed hepatitis C</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>26.7% of confirmed HCV inmates were linked to care after release</td>
</tr>
</tbody>
</table>

#### Craine, 2015 [42]

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five prisons; 1 female closed local prison, 2 male local adult remand prisons; 1 male convicted prison (adults &amp; youth); 1 male open prison</td>
<td>3,600 inmates</td>
<td>Intervention: DBST, detection of HCV antibodies</td>
<td>All eligible inmates</td>
<td>NR</td>
<td>NR</td>
<td>At entry (timing NR)</td>
<td>Pre- and post-test counselling</td>
<td>At entry versus client-initiated</td>
<td>HCV testing rates during intervention months</td>
<td>Insufficient evidence of effect of the intervention: - ITT: OR=0.84; 95% CI: 0.68-1.03; p=0.088 - Actual intervention time: OR=0.86; 95% CI: 0.71 - 1.06; p=0.153</td>
</tr>
</tbody>
</table>

#### Hickman, 2008 [43]

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 prisons throughout England and Wales</td>
<td>Inmates, not further specified</td>
<td>Intervention: DBST</td>
<td>NR</td>
<td>NR</td>
<td>Mean % HCV tested after 6 months follow-up</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Positivity rate</td>
<td>Change in number or % tested</td>
<td>Change prevalence/incidence</td>
<td>Other</td>
<td>Treatment initiation</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------</td>
<td>---------------------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Cluster RCT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control: NR (regular practice)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client-initiated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50% increase in one prison pair, 10% increase in other two prison pairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not specified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Khaw, 2007 [40]</td>
<td>3 prisons in England n=30</td>
<td>NR</td>
<td>Innates, not further specified</td>
<td>On request or at selected times each week NR</td>
<td>63.3%</td>
<td>36.8% HCV+</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>UK Cross-sectional and qualitative study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuncio, 2015 [47]</td>
<td>6 jails and special detention sites (awaiting trial or serving sentences ≤2 years) n=51 562</td>
<td>NR</td>
<td>High-risk inmates (HIV-infected or self-reported IDU, identified during medical examination) At entry (timing NR)</td>
<td>NR</td>
<td>57% of high-risk inmates* (serosurvey among all entrants during an 8-day period: 11.9%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Risk-based active case finding failed to capture 4 877, or 76% of the predicted HCV positive inmates incarcerated in 2011-2012</td>
<td>Very low</td>
</tr>
<tr>
<td>USA Cross-sectional study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CI=confidence interval, DBST=dried blood spot testing, HCV=hepatitis C virus, ITT=intention to treat, NR=not reported, OR=odds ratio, RCT=randomised controlled trial

**Other countries**

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuncio, 2015 [47]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HIV=human immunodeficiency virus, IDU=injecting drug user, NR=not reported, USA=United States of America

*5.3% of admitted inmates were high risk inmates

**COST-EFFECTIVENESS**

**EU/EEA countries**

Four cost-effectiveness studies examined the cost-effectiveness of HCV active case finding in correctional facilities in the UK from a healthcare provider perspective (Castelnuevo 2006 [48], Sutton 2008 [49], and Martin 2013 [50], all moderate level of evidence; Sutton 2006 [51], low level of evidence).

One study compared three different opt-in HCV case finding scenarios using ELISA and PCR among former injecting drug users in prison: 1) at entry after a general lecture, 2) at entry after a lecture with special focus on injecting drug use, and 3) symptom-based HCV case finding [48]. The exact timing of testing at entry was not further specified. The authors concluded that case-finding at entry compared to symptom-based case finding is likely cost-effective, with the scenario using an injecting drug use-focused lecture being the most cost-effective. However, another study, which evaluated similar opt-in scenarios, found that HCV case finding at entry after a lecture for current/former injecting drug users (timing not further specified) is likely not cost-effective compared to symptom-based HCV case finding [49]. Martin et al. compared opt-in HCV case finding among inmates who inject drugs using DBST with venepuncture, concluding that DBST is likely not cost-effective under commonly used willingness-to-pay thresholds [50]. The time of testing was not reported in this article.
An additional study compared no active case finding with four opt-in active case finding scenarios at entry (timing not further specified) after a health awareness lecture: 1) verbally screening for past positive HCV test and ever having injected illicit drugs, 2) verbally screening for past positive HCV test only, 3) verbally screening for ever having injected illicit drugs only, and 4) no verbal screening (lecture only) [51]. The incremental cost-effectiveness analysis revealed that verbally screening for past positive HCV test and ever having injected illicit drugs prior to opt-in HCV testing at entry is the most cost-effective option.

Other countries

One USA study (He 2016 [52], moderate level of evidence) compared five HCV case finding scenarios: 1) no active case finding, 2) one-time risk-based active case finding of active/former currently incarcerated injecting drug users and active/former injecting drug users at entry for up to 1 year (testing policy NR), 3) one-time universal active case finding of all currently incarcerated persons and all entrants for up to 1 year (opt-out), 4) one-time universal active case finding of all currently incarcerated persons and all entrants for up to 5 years (opt-out), and 5) one-time universal active case finding of all currently incarcerated persons and all entrants for up to 10 years (opt-out). The timing of testing at entry was not specified. The authors concluded that universal opt-out active case finding of inmates for HCV is highly cost-effective for at least 10 years.

Grey literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of hepatitis C active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

Uptake, positivity rate, effectiveness and treatment initiation

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Effectiveness</th>
<th>Change in number or % tested</th>
<th>Change prevalence /incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babudieri S 2015 [36]</td>
<td>4 prisons in Italy N=2,233</td>
<td>HCV serology Opt-in</td>
<td>All people in prison During imprisonment NR</td>
<td>83.8%</td>
<td>17.6%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Italy Cross-sectional study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Babudieri S 2012 [35]</td>
<td>20 Italian prisons N=4,072</td>
<td>HCV serology Opt-in</td>
<td>All people in prison During imprisonment Testing promotion based on peer educators, leaflets, posters and staff training</td>
<td>56.3%</td>
<td>32.8%</td>
<td>From 20.5% to 42.0%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Italy Series of cross-sectional studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gabbuti A 2015 [41]</td>
<td>Regional prison, Florence (Italy) N=2,376 in 2010 N=2,198 in 2011 N=2,015 in 2012 N=1,843 in 2013</td>
<td>HCV serology + HCV RNA in those HCV ab positive Opt-in</td>
<td>All people in prison At entry NR</td>
<td>- 395/1667 (23.7%) in 2010 - 419/1617 (25.9%) in 2011 - 905/1472 (61.4%) in 2012 - 960/1166 (82.3%) in 2013</td>
<td>- 281/395 (71.1%) in 2010 with 228 (81.1%) HCV RNA+ - 308/419 (73.5%) in 2011 with 257 (83.4%) HCV RNA+ - 393/905 (43.4%) in 2012 with 329 (83.7%) HCV RNA+ - 274/970 (28.2%) in 2013 with 219</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Unpublished research</td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Effectiveness</td>
<td>Change in number or % tested</td>
<td>Change in prevalence/incidence</td>
<td>Other</td>
<td>Treatment initiation</td>
<td>Type of document</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>---------------</td>
<td>----------------------------</td>
<td>-------------------------------</td>
<td>-------</td>
<td>---------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Foschi A 2015 [39]</td>
<td>Single prison in Italy (Opera prison, Milan) N=711</td>
<td>HCV serology + HCV-RNA in those HCV ab positive Opt-in</td>
<td>All people in prison At entry NR</td>
<td>91.5%</td>
<td>(79.9%) HCV-RNA+</td>
<td>46/468 (9.8%) HCV RNA positive: 38/46 (83%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
</tbody>
</table>

HCV=hepatitis C virus, NR=not reported, RNA=ribonucleic acid

**COST-EFFECTIVENESS**

No studies on cost-effectiveness have been found from the grey literature search.

**Guidelines**

No guidelines were found reporting on hepatitis A.

Both supranational and national guidelines on how to actively find cases of viral hepatitis B and C exist. World Health Organization (WHO) guidelines do not specify which strategy is more useful but just link the screening of HIV infection with testing for HBV, HCV, and tuberculosis (TB). The United Nations Office on Drugs and Crime (UNODC) propose a passive case finding in a client-initiated strategy.

**Guidelines specific to prison setting - supranational guidelines**

**WHO. Prison and Health. 2014.**

"Testing for HIV or hepatitis is both an information (prevention) measure and a diagnostic measure. Thus whatever the context in which a test is conducted, it should be accompanied by pre- and post-counselling for both positive and negative test results. Testing for HIV and hepatitis, as with any other medical intervention, cannot be mandatory."

"The assessment [of newly diagnosed HIV cases] should include testing for hepatitis B and C and screening for TB."

"Hepatitis B surface antigen (HBsAg) testing is the primary tool for screening and diagnosis. A second test a few weeks later is needed to confirm a first positive test."

"The diagnosis of HCV infection is based on detection of anti-HCV antibodies by enzyme immunoassay. A positive test must be confirmed with an HCV RNA qualitative assay or, ideally, with a real-time polymerase chain reaction assay."

*Source: WHO. Prison and Health. 2014 (Type of guideline: practice-based; level of evidence: ++, +, 0) [7]*

---

2 Relevant guidelines were critically appraised with a selection of criteria derived from the AGREE instrument (1. The overall objective/objectives of the guideline is/are specifically described; 2. Systematic/clear methods were used to search for evidence for compiling the data and/or clear data sources/references; 3. The recommendations are specific and unambiguous). The criteria were qualitatively scored using - , –, 0, +, ++; no total quality score of summed + and – was calculated.

---

41
Guidelines specific to the prison setting - national guidelines

**United Kingdom. Opt-out BBV test algorithm. 2014**
Opt-out testing for blood-borne viruses (BBVs) was identified as a joint developmental priority in the National Partnership Agreement between Public Health England (PHE), NHS England and National Offender Management Service (NOMS) in October 2013. Several documents have been developed to guide and monitor the implementation of the opt-out strategy in UK prisons.

*"Opt-out blood-borne virus test algorithm guidance notes*
During induction provide basic information about:

- **BBV risks, transmission and treatment**
- **HBV vaccination**
- **HBV/HCV/HIV testing and treatment services**
- **policy on access to condoms and disinfectant tablets**

Recommend all eligible patients a test for HIV, hepatitis B and hepatitis C (HCV antibody, HBsAg and HIV Ab and Ag P24 test) within 72 hours of arrival using dry blood spot testing (DBST) or venous sampling. People in prison who refuse a test should be re-offered throughout their stay at regular intervals. Testing should be a ‘continuous offer’ and be re-offered at all available opportunities, for example at hepatitis B vaccination appointments and treatment reviews with the substance misuse service to look at both clinical and psychosocial support requirements.”

Source: Public Health England. Opt-out BBV test algorithm, May 2014 (Type of guideline: practice-based; level of evidence: --, --, +) [56]

**United Kingdom. Tackling BBVs in prisons. 2011**
In 2011 the UK Department of Health and the National AIDS Trust have developed a document for best practice on BBV in the prison setting. “The prisoner pathway” includes different approaches to BBV testing, prevention and treatment according to custody period. For those with custody period <one week only information about BBV transmission and healthcare services should be provided whereas for those staying more than one week BBV testing should be offered.

Source: Department of Health, National AIDS Trust. Tackling BBVs in prisons. May 2011 (Type of guideline: practice-based; level of evidence: ++, --, +) [55]

**United Kingdom. Physical health of people in prison. 2016**
According to the NICE, people in prison should receive the same standard of healthcare as those in the community. The draft guidelines on “Physical health of people in prison” to be officially released in November 2016, refer to hepatitis testing based on NICE. PH43 Hepatitis B and C testing: people at risk of infection. 2012 document:

Prison healthcare services (coordinated with, and supported by, the NHS lead for hepatitis) should ensure that:

- All people in prison are offered access to confidential testing for hepatitis B and C when entering prison and during their detention.
- People in prison who test for hepatitis B or C receive the results of the test, regardless of their location when the test results become available.
- Results from hepatitis B and C testing are provided to the prisoner’s community-based GP, if consent is given.

Source: NICE. Physical health of people in prison, draft document 2016. (Type of guideline: evidence-based; level of evidence: ++, ++, +++) [57], available at: https://www.nice.org.uk/guidance/indevelopment/gid-cqwave0729/documents
Appendix 9. Summary tables and guideline summaries – HIV

Peer-reviewed literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of HIV active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

Uptake, positivity rate, effectiveness and treatment initiation

These articles are summarised in tables below, organised by testing policy (mandatory, opt-in, opt-in and client-/clinician-initiated, opt-out, or not specified).

**Mandatory**

EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At release</strong></td>
<td>Sieck, 2011 [32] USA Cross-sectional study</td>
<td>A male prison housing minimum, medium, close, and maximum security inmates n=916</td>
<td>Blood test, not further specified Mandatory</td>
<td>All inmates scheduled for release At release (4-6 weeks before scheduled release day) Letter describing STD testing process</td>
<td>NA</td>
<td>0.1%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

NA=not applicable, NR=not reported, STD=sexually transmitted disease, USA=United States of America

**Opt-in**

EU/EEA countries

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry and on release</strong></td>
<td>Jacomet, 2016 [33] France Cross-sectional study</td>
<td>Two prisons n=702 - At entry: ELISA - On release: rapid POC test Opt-in</td>
<td>Adult inmates At entry and on release (timing NR) Posters, personalised information letters</td>
<td>At entry: 91.3% On release: 4.2%</td>
<td>At entry: 0.3% (0% newly diagnosed) On release: 0%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
<td></td>
</tr>
</tbody>
</table>

**At entry and during imprisonment**

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kivimets, 2014 [38] Estonia Cross-sectional study</td>
<td>All four prisons in Estonia n=3 289 Fourth generation HIV tests, Western blot confirmatory test</td>
<td>All inmates At entry (timing NR) &amp; during imprisonment when negative</td>
<td>At entry: 97.3% During imprisonment: 96% of inmates &gt;1 year in prison</td>
<td>11.8% At entry only: 1.8% new HIV cases Of those &gt;1 year in prison</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Effectiveness

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sagnelli, 2012 [34] Italy</td>
<td>Six penitentiaries n=3 468</td>
<td>Analogous commercial immune enzymatic assay, Western blot confirmatory test</td>
<td>Opt-in</td>
<td>All inmates</td>
<td>During imprisonment</td>
<td>67.4%</td>
<td>3.8%</td>
<td>Higher acceptance than in the nine correctional facilities evaluated in this study before peer-education (14.1%)</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Bauserman, 2001 [76] USA</td>
<td>Ten local detention and juvenile justice facilities in one state n=1314</td>
<td>Demonstration project: Blood or oral HIV testing Opt-in</td>
<td>Inmates in facilities for adults or youths At entry (timing NR) for adults; during imprisonment for youth Pre-test HIV counselling</td>
<td>NR</td>
<td>NR</td>
<td>Demonstration project compared to same time period year earlier: +63%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Cocoros, 2014 [46] USA</td>
<td>A county facility, for those awaiting trial and those sentenced &lt;2.5 years n=2 716</td>
<td>Third-generation assay Opt-in</td>
<td>All inmates</td>
<td>At entry (within few days) &amp; during imprisonment when not tested at entry (during regular “sick call”) Mandatory HIV education session before choice to test</td>
<td>24.6%</td>
<td>0.8%</td>
<td>49%</td>
<td>Very low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arriola, 2001 [71] USA</td>
<td>Three adult county jails n=NR</td>
<td>Confirmatory testing using a HIV antibody or a CD4 cell count test Opt-in</td>
<td>Inmates</td>
<td>In all jails at intake (one jail 3 days after)</td>
<td>17% (7% newly diagnosed)</td>
<td>At all three facilities, the number of inmates HIV tested rose compared to</td>
<td>NR</td>
<td>NR</td>
<td>49%</td>
<td>Very low</td>
</tr>
</tbody>
</table>

ELISA=enzyme-linked immunosorbent assay, HIV=human immunodeficiency virus, NR=not reported, POC=point of care

### Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauuserman, 2001 [76] USA</td>
<td>Ten local detention and juvenile justice facilities in one state n=1314</td>
<td>Demonstration project: Blood or oral HIV testing Opt-in</td>
<td>Inmates in facilities for adults or youths At entry (timing NR) for adults; during imprisonment for youth Pre-test HIV counselling</td>
<td>NR</td>
<td>NR</td>
<td>Demonstration project compared to same time period year earlier: +63%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Cocoros, 2014 [46] USA</td>
<td>A county facility, for those awaiting trial and those sentenced &lt;2.5 years n=2 716</td>
<td>Third-generation assay Opt-in</td>
<td>All inmates</td>
<td>At entry (within few days) &amp; during imprisonment when not tested at entry (during regular “sick call”) Mandatory HIV education session before choice to test</td>
<td>24.6%</td>
<td>0.8%</td>
<td>49%</td>
<td>Very low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arriola, 2001 [71] USA</td>
<td>Three adult county jails n=NR</td>
<td>Confirmatory testing using a HIV antibody or a CD4 cell count test Opt-in</td>
<td>Inmates</td>
<td>In all jails at intake (one jail 3 days after)</td>
<td>17% (7% newly diagnosed)</td>
<td>At all three facilities, the number of inmates HIV tested rose compared to</td>
<td>NR</td>
<td>NR</td>
<td>49%</td>
<td>Very low</td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Positivity rate</td>
<td>Change in number or % tested</td>
<td>Change prevalence/incidence</td>
<td>Other</td>
<td>Treatment initiation</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------</td>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Cross-sectional study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>previous testing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spaulding, 2015 [65] USA</td>
<td>One county jail</td>
<td>Rapid HIV test (oral), Western blot confirmatory test (venous blood) Opt-in</td>
<td>Adult newly incarcerated inmates, except HIV positive and mentally incompetent inmates At entry (immediately after booking, timing NR) Pre- and post-test counselling</td>
<td>38.4%</td>
<td>1.1% preliminary positive 0.3% confirmed new HIV cases</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Tartaro, 2013 [70] USA</td>
<td>One county jail</td>
<td>Free rapid fingerprick HIV test, confirmatory blood test not specified Opt-in</td>
<td>Newly incarcerated inmates At entry (give consent within 24-72 hours, test mostly 1-3 days after consent) Group-based HIV education while waiting for test results, post-test counselling</td>
<td>50% consent 56% tested of those giving consent*</td>
<td>0.3% HIV positive 0.1% newly HIV diagnosed</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Begier, 2010 [73] USA</td>
<td>Eleven New York City jails n=9 405 new admissions with available medical intake data</td>
<td>Bio-Rad HIV-1/HIV-2 EIA plus &quot;O&quot;, Western Blot confirmatory test Opt-in</td>
<td>Newly incarcerated inmates At entry (timing NR)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Based on a blinded serosurvey, n=743 (95% CI 552-934) of the n= 820 (95% CI 619-1021) annual entrants with undiagnosed HIV remain undiagnosed</td>
<td>NR</td>
</tr>
<tr>
<td>MacGowan, 2009 [66] USA</td>
<td>Jails in four states n=550 000</td>
<td>Rapid HIV tests, confirmatory testing using EIA followed by Western blot or immunofluorescent assay (blood/ oral) Opt-in</td>
<td>Newly incarcerated inmates At entry (after 24 hours, in one jail after 72 hours, maximum timing NR)</td>
<td>6% rapid test 96% confirmatory test of positive rapid testers</td>
<td>1.3% positive rapid test 1.2% confirmed HIV positive 0.8% new HIV cases</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>99.9% received test result</td>
<td>Very low</td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Positivity rate</td>
<td>Change in number or % tested</td>
<td>Change prevalence/incidence</td>
<td>Other</td>
<td>Treatment initiation</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------</td>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Shrestha, 2009 [67] USA</td>
<td></td>
<td>OraQuick rapid HIV test</td>
<td>Jail inmates</td>
<td>At entry (timing NR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Very low</td>
</tr>
<tr>
<td>USA</td>
<td>Cross-sectional study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strick, 2011 (included in review Rumble, 2015 [2]) USA</td>
<td>Washington State Department of Corrections - Opt-in: n=16 908 - Opt-out: n=5 168</td>
<td>Standard routine BBV testing with venous blood sampling: HIV, HBV, HCV</td>
<td>Male inmates</td>
<td>At entry (within 14 days)</td>
<td>Range four jails: 0.3-2.4% preliminary HIV positive 0.2-1.3% newly confirmed HIV cases</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watkins, 2009 (included in review Rumble, 2015 [2]) Australia</td>
<td>Australian prisons (not further specified) n=946</td>
<td>Standard routine BBV testing with venous blood sampling: HIV, HBV, HCV</td>
<td>Male and female inmates</td>
<td>At entry (within 28 days)</td>
<td></td>
<td>0.6% (95% CI 0.2-1.5%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beckwith, 2007 (included in review Rumble, 2015 [2]) USA</td>
<td>Rhode Island Department of Corrections n=100</td>
<td>Rapid routine BBV testing with dried blood spot test: HIV</td>
<td>Male inmates</td>
<td>At entry (timing NR)</td>
<td>95%²</td>
<td>0.0%</td>
<td>NR</td>
<td>NR</td>
<td>100% of HIV-positive inmates received test result, NR for HIV-negative inmates</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liddicoat, 2006 (included in review Rumble, 2015 [2]) USA</td>
<td>County jail Boston, MA n=2 886</td>
<td>Standard routine BBV testing with venous blood sampling: HIV</td>
<td>Male and female inmates</td>
<td>At entry (timing NR)</td>
<td>73%</td>
<td>0.3%</td>
<td>Increase from 18% to 73% compared to historical period when testing was on request</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotten-Oldenberg, 1999 (included in review Rumble, 2015 [2]) USA</td>
<td>North Carolina Correctional Institution for Women n=680</td>
<td>Standard routine BBV testing with venous blood sampling: HIV</td>
<td>Female inmates</td>
<td>At entry (timing NR)</td>
<td>71%</td>
<td>2.5%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⁰: Advertising of rapid HIV tests, pretest counselling, active follow-up and referral for positive tests
²: Increase from 5% (testing on request) to 72% (opt-in) to 90% acceptance (opt-out)
³: 100% of HIV-positive inmates received test result, NR for HIV-negative inmates
⁴: Increase from 18% to 73% compared to historical period when testing was on request
⁵: Very low
⁶: Very low
⁷: Very low
⁸: Very low
<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Effectiveness</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-sectional study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behrendt, 1994 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Cross-sectional study</td>
<td>Maryland prison n=2 791 (serosurvey: n=2 842)</td>
<td>Standard routine BBV testing with venous blood sampling: HIV Opt-in</td>
<td>Male and female inmates At entry (timing NR) NR</td>
<td>47%</td>
<td>5.4% (serosurvey: 7.2%)</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Hoxie, 1990 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Cross-sectional study</td>
<td>Wisconsin (not further specified) 1987: n=1 783 1988: n=1 675</td>
<td>Standard routine BBV testing with venous blood sampling: HIV Opt-in</td>
<td>Male inmates At entry (timing NR) NR</td>
<td>1987: 40% 1988: 71%</td>
<td>1987: 0.8% (95% CI 0.17-1.53%) 1988: 0.5% (95% CI 0.15-1.03%)</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Andrus, 1989 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Cross-sectional study</td>
<td>Oregon corrections system n=977</td>
<td>Standard BBV testing with venous blood sampling: HIV, HBV (HBcAb was used only as surrogate marker for a history of risk behaviour for HIV infection) Opt-in</td>
<td>Male and female inmates At entry (timing NR) NR</td>
<td>65%</td>
<td>0.9%</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Simonsen, 2015 [72]</td>
<td>USA</td>
<td>Cross-sectional study</td>
<td>One jail facility n=507</td>
<td>OraQuick rapid HIV test, confirmatory test not specified Opt-in</td>
<td>Jail inmates At release (during discharge proceedings) Educational materials, pre- and post-test counselling, active referral of positive testers to community-based care</td>
<td>60%</td>
<td>0.3%</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

BBV=blood-borne virus, CI=confidence interval, EIA=enzyme immunoassay, ELISA=enzyme-linked immunosorbent assay, HBV=hepatitis B virus, HCV=hepatitis C virus, HIV=human immunodeficiency virus, NR=not reported, USA=United States of America

*Please note that the denominators for these acceptance rates are different from the other studies

1 Period of HIV testing provided only on request, if clinically indicated, or by court order (data not included in this table; positivity rate of 0.5%)  
2 The rate was calculated with the number of consenting participants as the baseline and therefore will overestimate the true acceptance rate  
3 This article was included in the review of Rumble et al., 2015, which has a very low level of evidence

**Opt-in and client-/clinician-initiated**  
EU/EEA countries  
No data
### Effectiveness

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry and during imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosen, 2009 [68]</td>
<td>USA</td>
<td>Cross-sectional study</td>
<td>Eight intake prisons n=54 664</td>
<td>Conventional ELISA, Western blot confirmatory test</td>
<td>Newly incarcerated adult inmates</td>
<td>At entry: 34%</td>
<td>During imprisonment: 6% of those not tested at entry</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Kassira, 2001 [69]</td>
<td>USA</td>
<td>Surveillance study</td>
<td>27 correctional facilities in one state n=22 338</td>
<td>Opt-in &amp; client-clinician-initiated</td>
<td>All inmates</td>
<td>At entry: 39%</td>
<td>At entry: 3.3%</td>
<td>Client-initiated: 12%</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Spaulding, 2013 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Descriptive study</td>
<td>Fulton County Jail, Georgia n=39 073</td>
<td>Rapid routine BBV testing with oral testing: HIV Opt-out</td>
<td>Male and female inmates</td>
<td>At entry (timing NR)</td>
<td>64%</td>
<td>0.4% (new)</td>
<td>Increase from 43% acceptance during opt-in testing to 64% under opt-out</td>
<td>NR</td>
</tr>
<tr>
<td>Beckwith, 2012 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Descriptive study</td>
<td>Baltimore (Ba), Philadelphia (Ph), District of Colombia (DC) n=129 084: - Ba: n=72 000 - Ph: n=39 181 - DC: n=17 903</td>
<td>Rapid routine BBV testing with venous blood sampling (Ba) and oral testing (Ph, DC): HIV Opt-out</td>
<td>Inmates</td>
<td>At entry (details varied between sites)</td>
<td>NR</td>
<td>Ba: 22% Ph: 69% DC: 79%</td>
<td>Ba: 2.0 % Ph: 0.6% DC: 0.8%</td>
<td>NR</td>
</tr>
</tbody>
</table>

**BBD=blood borne disease, ELISA=enzyme immunosorbent assay, NR=not reported, USA=United States of America**

### Opt-out

**EU/EEA countries**

No data

### Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaulding, 2013 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Descriptive study</td>
<td>Fulton County Jail, Georgia n=39 073</td>
<td>Rapid routine BBV testing with oral testing: HIV Opt-out</td>
<td>Male and female inmates</td>
<td>At entry (timing NR)</td>
<td>64%</td>
<td>0.4% (new)</td>
<td>Increase from 43% acceptance during opt-in testing to 64% under opt-out</td>
<td>NR</td>
</tr>
<tr>
<td>Beckwith, 2012 (included in review Rumble, 2015 [2])</td>
<td>USA</td>
<td>Descriptive study</td>
<td>Baltimore (Ba), Philadelphia (Ph), District of Colombia (DC) n=129 084: - Ba: n=72 000 - Ph: n=39 181 - DC: n=17 903</td>
<td>Rapid routine BBV testing with venous blood sampling (Ba) and oral testing (Ph, DC): HIV Opt-out</td>
<td>Inmates</td>
<td>At entry (details varied between sites)</td>
<td>NR</td>
<td>Ba: 22% Ph: 69% DC: 79%</td>
<td>Ba: 2.0 % Ph: 0.6% DC: 0.8%</td>
<td>NR</td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Positivity rate</td>
<td>Change in number or % tested</td>
<td>Change prevalence/incidence</td>
<td>Other</td>
<td>Treatment initiation</td>
<td>Level of evidence</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>--------------------------</td>
<td>-------</td>
<td>-------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Beckwith, 2011 (included in review Rumble, 2015 [2])</td>
<td>Rhode Island Department of Corrections</td>
<td>Rapid routine BBV testing with oral testing: HIV</td>
<td>Male inmates</td>
<td>98%</td>
<td>0.1% (new)</td>
<td>NR</td>
<td>NR</td>
<td>100% of HIV-positive inmates received test result, 0% of HIV-negative inmates</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Strick, 2011 (included in review Rumble, 2015 [2])</td>
<td>Washington State Department of Corrections</td>
<td>Standard routine BBV testing with venous blood sampling: HIV</td>
<td>Male inmates</td>
<td>Opt-out: 96%</td>
<td>Opt-out: 0.1% (new)</td>
<td>Increase from 5% (testing on request) to 72% (opt-in) to 90% acceptance (opt-out)</td>
<td>NR</td>
<td>100% of HIV-positive inmates received test result, NR for HIV-negative inmates</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Beckwith, 2010 (included in review Rumble, 2015 [2])</td>
<td>Rhode Island Department of Corrections</td>
<td>Standard routine BBV testing with venous blood sampling: HIV</td>
<td>Male and female inmates</td>
<td>NR</td>
<td>0.2% (new)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
<td></td>
</tr>
<tr>
<td>Kavasery, 2009a (included in review Rumble, 2015 [2])</td>
<td>York Correctional Institution, Connecticut</td>
<td>Rapid routine BBV testing with oral testing: HIV</td>
<td>Female inmates</td>
<td>Immediate: 63% Early: 91%</td>
<td>Delayed: 81%</td>
<td>NR</td>
<td>NR</td>
<td>100% of HIV-positive inmates received test result, 99% of HIV-negative inmates</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Kavasery, 2009b (included in review Rumble, 2015 [2])</td>
<td>New Haven Correctional Centre, Connecticut</td>
<td>Rapid routine BBV testing with oral testing: HIV</td>
<td>Male inmates</td>
<td>Immediate: 47% Early: 70%</td>
<td>Delayed: 65%</td>
<td>0.8% (new)</td>
<td>NR</td>
<td>100% of HIV-positive inmates received test result, NR for HIV-negative inmates</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

Ba=Baltimore, BBV=Blood-borne virus, DC=District of Colombia, HBcAb=hepatitis B core antibody, HBV=hepatitis B virus, HCV=hepatitis C virus, HIV=human immunodeficiency virus, NR=not reported, Ph=Philadelphia, USA=United States of America

1 Period of HIV testing provided only on request, if clinically indicated, or by court order (data not included in this table; positivity rate of 0.5%) 2 Immediate (during initial medical screen on night of admission); early (during a physical examination the following evening); delayed (7 days after arrival) This article was included in the review of Rumble et al. 2015, which has a very low level of evidence
3 Denominator is not the total number of inmates as in other studies, but inmates that were offered testing

Not specified

EU/EEA countries
### Effectiveness

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson, 2014 [74] USA</td>
<td>Two pairs of correctional facilities (no maximum security) n=3 300</td>
<td>NR NR</td>
<td>Admitted inmates NR</td>
<td>NR</td>
<td>Intervention Modified NIATx process improvement model* (staff receive HIV service training and are coached in the model)</td>
<td>Facility pair 1: 48% Facility pair 2: 53%</td>
<td>NR</td>
<td>Combined log OR acceptance rate: 0.16 (95% CI -0.24-0.57)</td>
<td>NR NR NR</td>
<td>Moderate</td>
</tr>
<tr>
<td>Ross, 2006 [75] USA</td>
<td>Five randomly selected Project Wall Talk participating units vs. 5 matched non-participating units in one state n=590 peer educators and 2,506 student inmates (n=NR for non-participating units)</td>
<td>NR NR</td>
<td>Project Wall Talk: Peer educator inmates and student inmates NR</td>
<td>Peer-education programme (intensive training for peer educators, ongoing HIV education sessions given by peer educators to inmates)</td>
<td>Control: Prison unit inmates NR</td>
<td>NR</td>
<td>At 12-month follow-up: p=0.000; OR: 2.76, 95% CI 2.21-3.44**</td>
<td>NR</td>
<td>At 18-month follow-up: p=0.000; OR: 1.78, 95% CI 1.40-2.25**</td>
<td>NR NR NR</td>
</tr>
</tbody>
</table>

CI=confidence interval, HIV=human immunodeficiency virus, NIATx=Network for the Improvement of Addiction Treatment, NR=not reported, OR=odds ratio, USA=United States of America

*NIATx approach: begins with walking through the service delivery to see it from the service recipient’s point of view and to detect difficulties. Next, the teams use rapid plan-do-study-act cycles: identify specific problems and generate solutions (plan), try out new processes (do), measure and assess the outcomes (study), and implement the solution or make additional changes (act). Local change teams repeat the cycle for any other problems discovered.

**Number of HIV tests/daily census at 12 months: project = 2.08%, control = 0.77%, at 18 months: project = 1.36%, control = 0.69%. As the denominator is the daily census, rates are not comparable to other studies, and therefore not added to the acceptance column of the table above.
COST-EFFECTIVENESS

EU/EEA countries

No data

Other countries

Four studies examined the cost-effectiveness of HIV active case finding in correctional facilities in the USA (Resch 2005 [79], moderate level of evidence; Varghese 2001 [80], low level of evidence; Spaulding 2015 [65] and Shrestha 2009 [67], very low level of evidence).

The first modelling study compared five HIV testing scenarios using ELISA and Western blot in one state’s correctional facility for women from a state government perspective: 1) mandatory newborn active case finding directly after birth, 2) opt-in prenatal active case finding among pregnant inmates, 3) scenario 1 and 2 combined, 4) opt-out prenatal active case finding among pregnant inmates, and 5) scenario 1 and 4 combined. The results showed that mandatory newborn active case finding is cost-saving, and that this scenario combined with opt-out prenatal active case finding among pregnant inmates is cost-effective compared to the other three remaining scenarios.

In the second modelling study HIV counselling and opt-in testing at or near time of release was compared to a scenario where this was not offered. From a societal perspective, offering counselling and testing resulted in 4 fewer HIV cases and saved $563,834 compared to not offering counselling and HIV testing at or near time of prison release.

The last two studies were cross-sectional studies that estimated the cost per new HIV diagnosis of opt-in HIV testing offered at entry (timing not further specified). In the first of the two studies, HIV testing including pre- and post-test counselling resulted in an average cost per newly diagnosed HIV infection of $6 688, while this was estimated to be $2 451–$5 288 for the four project areas in the latter study (counselling included, but not further specified). The test method used was a rapid HIV test followed by Western blot confirmatory testing in the first study, and a rapid HIV test only in the latter study.

Grey literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of HIV active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

### Uptake, positivity rate, effectiveness and treatment initiation

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Effectiveness</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prestileo T 2006 [64] Italy</td>
<td>Sicily prisons</td>
<td>NR</td>
<td>IDU inmates</td>
<td>NR</td>
<td>51/144 (35.4%)</td>
<td>-30 (20.8%) HIV infected</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>18/51 (35.2%)</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Marco A 2014 [62] Spain</td>
<td>Barcelona</td>
<td>NR</td>
<td>All inmates</td>
<td>NR</td>
<td>68/6.691 (0.97%)</td>
<td>-mean age 34</td>
<td></td>
<td></td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Positivity rate</td>
<td>Change in number or % tested</td>
<td>Change prevalence/incidence</td>
<td>Other</td>
<td>Treatment initiation</td>
<td>Type of document</td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>----------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-------</td>
<td>------------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>Lugo RG 2012 [61] Spain Cross-sectional study</td>
<td>3 penitentiary institutions in Catalonia N=1,410</td>
<td>NR NR</td>
<td>All inmates At entry and during stay NR</td>
<td>NR</td>
<td>10.9 % overall -10.3% among males (majority between 25 and 39 years old) 17% among females (majority between 35 and 39 years old)</td>
<td>NR NR NR NR</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Babudieri S 2015 [36] Italy Cross-sectional study</td>
<td>4 Italian prisons N=2,233</td>
<td>NR Opt-in</td>
<td>All inmates At entry and during stay NR</td>
<td>83.8%</td>
<td>87/2233 (3.9%)</td>
<td>NR NR NR NR</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Babudieri S 2012 [35] Italy Cross-sectional study</td>
<td>20 Italian prisons N=4,072</td>
<td>NR Opt-in</td>
<td>All inmates At entry and during stay Peed educators and ID specialists</td>
<td>56.3%</td>
<td>5.6%</td>
<td>From 14.1% to 56.3%</td>
<td>NR NR NR NR</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Babudieri S 2008 [59] Germany, Italy, Scotland, Spain, Ukraine Cross-sectional study</td>
<td>28 European prisons N=19,772</td>
<td>NR NR</td>
<td>All inmates At entry and during stay NR</td>
<td>12,560/19,772 (63.5%) 1,351/12,560 (10.8%) overall - 22.7% in IDU - 4.0% in foreigners -10.7% in men -11.1% in women</td>
<td>NR NR NR NR</td>
<td>845/1,430 (59.1%)</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foschi A 2015 [39] Italy Cross-sectional study</td>
<td>Single prison in Italy N=711</td>
<td>Serology Opt-in</td>
<td>All detainees At entry NR</td>
<td>91.5%</td>
<td>15/468 (3.2%)</td>
<td>NR NR NR NR</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gallego C 2010 [60] Spain Cross-sectional study</td>
<td>Prisons in Catalonia N=10,857</td>
<td>NR NR</td>
<td>All inmates NR NR</td>
<td>82.5%</td>
<td>769 (9.9%)</td>
<td>NR NR NR NR</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monarca R 2002 [63] Italy Cross-sectional study</td>
<td>Single prison in Italy N=320</td>
<td>NR Opt-in</td>
<td>All inmates NR NR</td>
<td>NR</td>
<td>85/320 (26.56%)</td>
<td>NR NR NR NR</td>
<td>Conference abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HBV= hepatitis B virus, HCV= hepatitis C virus, HIV= human immunodeficiency virus, ID= infectious diseases; IDU= injecting drug user; NR= not reported

COST-EFFECTIVENESS
No studies on cost-effectiveness have been found from the grey literature search.

Guidelines

Guidelines specific to the prison setting – supranational guidelines

WHO. Prison and health. 2014

"Healthcare providers should offer confidential HIV testing and counselling to all detainees during medical examinations, especially when people in prison ask for it and if the previous test was more than 12 months earlier. The test should be recommended to all people in prison with symptom markers of HIV infection, those with TB, and female people in prison who are pregnant."

Source: WHO. Prison and Health. 2014 (Type of guideline: practice-based; level of evidence: ++,-,0) [7]

UNODC, UNAIDS, WHO. HIV testing and counselling in prisons and other closed settings. 2009

"Efforts to scale up access to HIV testing and counselling in prisons should not be undertaken in isolation, but as part of a comprehensive HIV programme aimed at improving healthcare and at achieving universal access to HIV prevention"

"Prison systems should review and, if necessary, change prison policies and practices that discriminate against HIV-positive people in prison, recognizing that increasing access to HIV testing and counselling must go hand in hand with greater protection from HIV-related discrimination and abuse."

"WHO and UNODC do not support mandatory or compulsory HIV testing of people in prison on public health grounds. Therefore, countries should review and, if necessary, change their laws, regulations, policies and practices to prohibit mandatory or compulsory HIV testing of people in prison."

"Prison systems should ensure that all people in prison have easy access to client-initiated testing and counselling programmes on request and at any time during their imprisonment. People in prison should be informed about the availability of the service, both at the time of their admission and regularly thereafter."

"In order to ensure that people in prison can give informed consent, prison systems should adopt policies according to which people in prison will be offered or recommended HIV testing and counselling, but will not be tested unless they specifically state that they want the test."

"Prison systems should ensure that personnel performing HIV testing and counselling receive training, particularly on obtaining informed consent, confidentiality, counselling and how to offer or recommend the test."

"Prison systems, working with the national country-level monitoring and evaluation system, should carefully monitor and evaluate provision of testing and counselling in prison."

Source: United Nations Office on Drugs and Crime (UNODC), UNAIDS, WHO. HIV testing and counselling in prisons and other closed settings. 2009. (Type of guideline: evidence-based; level of evidence: ++,-,0) [83]

Guidelines specific to the prison setting - national guidelines


According to the NICE, people in prison should receive the same standard of healthcare as those in the community. The draft guidelines on "Physical health of people in prison" to be officially released in November 2016, refer to HIV testing:

"Primary care providers should ensure annual HIV testing is part of the integrated healthcare offered to men who are known to have sex with men; Provide information on HIV testing and discuss why it is recommended (including to those who indicate that they may wish to decline the test); Conduct post-test discussions, including giving positive test results and delivering post-test and general health promotion interventions; Recognise illnesses that may signify primary HIV infection and clinical indicator diseases that often coexist with HIV."

2 Relevant guidelines were critically appraised with a selection of criteria derived from the AGREE instrument (1. The overall objective/objectives of the guideline is/are specifically described; 2. Systematic/clear methods were used to search for evidence for compiling the data and/or clear data sources/references; 3. The recommendations are specific and unambiguous). The criteria were qualitatively scored using - - or -, 0, + or ++; no total quality score of summed + and – was calculated

Opt-out testing for blood-borne viruses (BBVs) was identified as a joint developmental priority in the National Partnership Agreement between Public Health England (PHE), NHS England and National Offender Management Service (NOMS) in October 2013. Several documents have been developed to guide and monitor the implementation of the opt-out strategy in UK prisons.

"Opt-out blood-borne virus test algorithm guidance notes

During induction provide basic information about:

- BBV risks, transmission and treatment
- HBV vaccination
- HBV/HCV/HIV testing and treatment services
- policy on access to condoms and disinfectant tablets

Recommend all eligible patients a test for HIV, hepatitis B and hepatitis C (HCV antibody, HBsAg and HIV Ab and Ag P24 test) within 72 hours of arrival using dry blood spot testing (DBST) or venous sampling. People in prison who refuse a test should be re-offered throughout their stay at regular intervals. Testing should be a ‘continuous offer’ and be re-offered at all available opportunities, for example at hepatitis B vaccination appointments and treatment reviews with the substance misuse service to look at both clinical and psychosocial support requirements.

Source: Public Health England. Opt-out BBV test algorithm, May 2014 (Type of guideline: practice-based; level of evidence: --, ++, , ) [56]

United Kingdom. Tackling BBVs in prisons. 2011

In 2011 the UK Department of Health and the National AIDS Trust have developed a document for best practice on BBV prevention and care in the prison setting. “The prisoner pathway” includes different approaches to BBV testing, prevention and treatment according to custody period. For those with custody period < one week only information about BBV transmission and healthcare services should be provided whereas for those staying more than one week BBV testing should be offered.

Source: UK Department of Health, National AIDS Trust. Tackling BBVs in prisons. 2011 (Type of guideline practice-based; level of evidence +, --, ,) [55]

Other guidelines – supranational guidelines

WHO. Consolidated guidelines on HIV testing services. 2015

“In prisons and other closed settings, offering voluntary HIV testing as part of a package of care is a critical approach. HIV testing using RDTs [rapid diagnostic tests] could improve uptake of HTS and increase the speed with which clients receive test results and learn their HIV status. Particular attention should go to providing accurate information, obtaining informed consent and maintaining confidentiality. Also, there are often major challenges to continuity of care within closed settings and between prisons and the community; these need to be addressed. Retesting at least annually is recommended for all people from key populations. More frequent voluntary retesting may be beneficial, depending on risk behaviours.”


WHO. Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. 2014

“HIV testing services should be routinely offered to all key populations in the community, in closed settings such as prisons and in facility-based settings.”

Appendix 10. Summary tables and guideline summaries – STI

Chlamydia and gonorrhoea

Peer-reviewed literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of chlamydia and gonorrhoea active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

Uptake, positivity rate, effectiveness and treatment initiation

These articles are summarised in tables below, organised by testing policy (opt-in versus opt-out, opt-in, opt-out, or not specified).

**Opt-in versus opt-out**

EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence /incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaikh, 2015 [94] USA Cross-sectional study</td>
<td>One jail facility n=261 new inmates within 1 week and all inmates residing in housing units (n=NR)</td>
<td>DNA amplification probe protocol (urine) Opt-in</td>
<td>All inmates Weekly/bi-weekly education, followed by testing opportunity Education on STIs</td>
<td>NR</td>
<td>Chlamydia: 5.6% Gonorrhoea: 0.9%</td>
<td>Opt-in vs. opt-out: - Chlamydia: p=0.006 - Gonorrhoea: p=ns</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Low</td>
</tr>
<tr>
<td>DNA = deoxyribonucleic acid, NR = not reported, ns = not significant, STI = sexually transmitted infection, USA = United States of America</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Opt-in**

EU/EEA countries

No data

Other countries
<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franklin, 2012 [88] USA Cross-sectional study</td>
<td>Jail system with 11 facilities (pre-trial and &lt;1 year sentence) n=2,417</td>
<td>At entry: NAAT combination assay (urine) Opt-in</td>
<td>All newly incarcerated males who completed medical intake At entry (within 24 hours) STI clinic brochures, instruction to follow-up at clinic, letter of aftercare mailed to residential address</td>
<td>100%</td>
<td>6.4% chlamydia 0.9% gonorrhea</td>
<td>NR</td>
<td>NR</td>
<td>Sensitivity, specificity, and positive predictive value for positivity: - Urethral symptoms: 2.5% (95% CI 0.8-6.7), 98.4% (95% CI 97.7-98.8), and 10.3% (95% CI 3.3-25.1), respectively - LET: 10.5% (95% CI 6.4-16.5), 97.5% (95% CI 96.7-98.1), and 23.0% (95% CI 14.3-34.5), respectively</td>
<td>63% prior to jail release</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad, 2009 [92] USA Before-after study</td>
<td>One county jail (pre-detention) n=NR</td>
<td>NAAT (urethral/cervical swab) Opt-in</td>
<td>Universal program: All inmates All: at intake (timing NR) NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Change reported cases after discontinuation of the universal program: Chlamydia:</td>
<td>County jail 1: 61% County jail 2: 85% Detention centre: 76.8%</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mertz, 2002 [89] USA Cross-sectional study</td>
<td>2 county jails, 1 city jail, 1 detention centre n=NR (recruited inmates: County jail 1 n= 205 and county jail 2 &amp; city jail n= 1 819; inmates gave</td>
<td>LCx assay (urine) Opt-in</td>
<td>Women entering one of four jails At intake (county jail 1 within 8 hours, county jail 2 and city jail at median 2 days after intake, detention centre at median 11 days after booking)</td>
<td>County jail 1: 90.7% County jail 2 and city jail: 85.1% Detention centre: 100%</td>
<td>Only stratified by age and ethnicity, see evidence tables</td>
<td>NR</td>
<td>NR</td>
<td></td>
<td>County jail 1: 61% County jail 2 &amp; city jail: 85% Detention centre: 76.8%</td>
<td>Very low</td>
</tr>
</tbody>
</table>
Systematic review on active case finding of communicable diseases in prison settings

**DNA** = deoxyribonucleic acid, **LCx** = ligase chain reaction, **LET** = leukocyte esterase test, **NAAT** = nucleic acid amplification technology, **NR** = not reported, **PCR** = polymerase chain reaction, **STD** = sexually transmitted disease, **STI** = sexually transmitted infection, **USA** = United States of America

*An opt-in physical examination for herpes simplex virus and human papillomavirus was also offered; 44.7% of inmates accepted the physical exam, 2.2% were found to be infected with human papillomavirus, none with herpes simplex virus.

### Opt-out

**EU/EEA countries**

No data

**Other countries**

<table>
<thead>
<tr>
<th>Consent: detention centre n=1931</th>
<th>Active referral for treatment when released before knowing results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arriola, 2001 [71] USA</strong></td>
<td>Cross-sectional study Two adult county jails n=NR</td>
</tr>
<tr>
<td></td>
<td>NR Opt-in All inmates At intake (timing NR) Disease education, post-test counselling</td>
</tr>
<tr>
<td></td>
<td>NR Chlamydia: 6.5% Gonorrhoea: 3.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Opt-in during imprisonment</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brown, 2014 [90] USA</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Opt-in at release</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Newman, 2003 [98] USA</strong> Survey study One main federal prison n=800</td>
</tr>
<tr>
<td>Urine vs. vaginal swab specimens Opt-in All incarcerated women At a &quot;call out&quot; (routinely used system to gather inmates in groups of 30)</td>
</tr>
<tr>
<td>- 82.1%, of which: - 97% both specimens - 1.5% swab only - 1.9% urine only</td>
</tr>
<tr>
<td>NR</td>
</tr>
</tbody>
</table>

| **Sieck, 2011 [32] USA** Cross-sectional study A male prison housing minimum, medium, close, and maximum security inmates n=916 |
| Genital swab test, not further specified* Opt-in All inmates scheduled for release At release (4-6 weeks before the scheduled release day) Letter describing STD testing process |
| 37.6%* Chlamydia: 0.6% Gonorrhoea: 0.0%* | NR | NR | NR | NR | Very low |
## Effectiveness

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opt-out at entry versus client-initiated</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cole, 2014 [91] USA Before-after study</td>
<td>One county jail n=17 065</td>
<td>NAAT (urine) Opt-out</td>
<td>All female inmates At entry (timing NR)</td>
<td>NR</td>
<td>78.1% 28.3% opted out in 1st year, 16.8% in 2nd year</td>
<td>Gonorrhea: 2.5% Chlamydia: 7.6%</td>
<td>Mean tests per month: 155 client-initiated vs. 455 opt-out (similar jail census during both periods, p not given)</td>
<td>Acceptance 68% during first and 45% during last 3 months of year 2 (p&lt;0.001)</td>
<td>69.5% (treatment rates remained constant during opt-in period)</td>
<td>Low</td>
</tr>
<tr>
<td>NAAT (urine) Client-initiated</td>
<td>All female inmates When inmates request it, or when reported symptoms/risk factors</td>
<td>NR</td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NAAT = nucleic acid amplification technology, NR = not reported, USA = United States of America

## Not specified

EU/EEA countries

No data

Other countries

## Effectiveness

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry versus client-initiated</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathela, 2009 [93] USA Before-after study</td>
<td>Six adult jails n=NR</td>
<td>Active case finding program: Dual NAAT (urine)</td>
<td>All incarcerated men aged ≤35 years At entry (within 72 hours)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>In jails: - Chlamydia: +1636% - Gonorrhea: +885% City-wide: - Chlamydia: +47% (p&lt;0.001) - Gonorrhea: +4%</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Before program: Diagnostic testing, not further specified</td>
<td>Client-initiated</td>
<td>All incarcerated men When reporting complaints</td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NAAT = nucleic acid amplification technology, NR = not reported, USA = United States of America

**COST-EFFECTIVENESS**

EU/EEA countries

No data

Other countries

Three cost-effectiveness studies examined the cost-effectiveness of active case finding for chlamydia and gonorrhoea in correctional facilities in the USA (Gift 2006 [95], Gopalappa 2013 [96], Kraut-Becher 2004 [97], all low level of evidence).
The first (Gift 2006) compared four different active case finding scenarios (testing policy NR) among male inmates in a medium-security correctional facility: 1) screening all inmates at intake (day of incarceration), 2) screening all inmates <25 years at intake (day of incarceration), client-initiated testing for those ≥25 years, 3) screening all inmates <30 years at intake (day of incarceration), client-initiated testing for those ≥30 years, and 4) client-initiated only. An LCR assay was used for chlamydia testing, and a DNA probe test (urethral swab) for gonorrhoea testing. The results indicated that an age-based active case finding program for men restricted to those <30 years of age is nearly as effective as universal active case finding and is substantially less costly than universal active case finding, from both the healthcare and the prison perspective.

In the second modelling study (Gopalappa 2013) five active case finding scenarios (testing policy NR) are investigated among 100,000 males entering a county jail each year: 1) client-initiated, 2) screening all inmates 8-14 days after entry, 3) screening inmates ≤35 years between 8-14 days after entry, 4) screening all inmates 2-3 days after entry, 5) screening inmates ≤35 years between 2-3 days after entry, all scenarios using a urine-based combination assay. The authors concluded that active case finding among male inmates ≤35 years on days 2-3 of entry to jail has the least cost per infection averted compared with symptom-based testing, from the perspective of correctional health services and the county department of public health.

The last cost-effectiveness study (Kraut-Becher 2004) compared among 10,000 jail inmates universal active case finding at intake (timing NR) for chlamydia and gonorrhoea, universal active case finding at intake for chlamydia only, and no active case finding. NAAT was used a testing method for both STIs, the cost-effectiveness was investigated from the healthcare perspective. The authors concluded that universal active case finding for chlamydia only is cost-saving for female detainees, while for males this is less clear.

Grey literature
The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of chlamydia and gonorrhoea active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

### Uptake, positivity rate, effectiveness and treatment initiation

<table>
<thead>
<tr>
<th>Effective design</th>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>During imprisonment</td>
<td>Lopez-Corbeto E 2012 [87] Spain Cross-sectional study</td>
<td>3 prisons in Barcelona N=430 young inmates</td>
<td>Urine sample for Chlamydia trachomatis (CT)</td>
<td>All inmates during imprisonment NR</td>
<td>NR</td>
<td>-39/430 (11%)</td>
<td>37% Spanish -32 foreigners</td>
<td>NR</td>
<td>NR</td>
<td>-No use of condom in 70% of cases</td>
<td>Conference abstract</td>
</tr>
<tr>
<td></td>
<td>Torrez E 2010 [86] Spain Cross-sectional study</td>
<td>1 youth prison in Barcelona N=430</td>
<td>Urine sample for Chlamydia trachomatis (CT) and Neisseria gonorrhoea (NG) by PCR</td>
<td>Young (&lt;25 years old) inmates during imprisonment NR</td>
<td>418/425 (98.4%)</td>
<td>CT = 20(6%) NG= 1 (0.2%)</td>
<td>NR</td>
<td>NR</td>
<td>All CT cases were asymptomatic</td>
<td>Conference abstract</td>
<td></td>
</tr>
</tbody>
</table>

CI=confidence interval, CT= Chlamydia trachomatis, NG= Neisseria gonorrhoea, NR=not reported, OR=odds ratio
*The following grey literature sources can be identified (by order of quality – highest first): 1) conference abstracts and unpublished research, 2) guidelines, 3) case studies/service models

**COST-EFFECTIVENESS**
No studies on cost-effectiveness have been found from the grey literature search.
Systematic review on active case finding of communicable diseases in prison settings

Syphilis

Peer-reviewed literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of syphilis active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

Uptake, positivity rate, effectiveness and treatment initiation

These articles are summarised in tables below, organised by testing policy (mandatory, opt-in, opt-out, or not specified).

**Mandatory**

EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence /incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At release</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>Sieck, 2011 [32]</td>
<td>A male prison housing minimum, medium, close, and maximum security inmates n=916</td>
<td>Blood test, not further specified</td>
<td>Mandatory</td>
<td>All inmates scheduled for release At release (4-6 weeks before the scheduled release day) Letter describing STD testing process</td>
<td>NA</td>
<td>0.1%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

**Opt-in**

EU/EEA countries

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence /incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Sagnelli, 2012 [34]</td>
<td>Six penitentiaries n=3 468</td>
<td>TPHA, confirmed with FTA-ABS or VDRL tests Opt-in</td>
<td>All inmates During imprisonment Presentation on advantages of screening by peer-educators, pamphlets on importance of screening</td>
<td>55.7%</td>
<td>2.1%</td>
<td>Higher acceptance than in the nine correctional facilities evaluated in this study before peer-education (10.0%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

NA=not applicable, NR=not reported, STD=sexually transmitted disease, USA=United States of America

**FTA-ABS**=fluorescent treponemal antibody absorbed, **TPHA**=Treponema pallidum hemagglutination assay, **VDRL**=Venereal Disease Research Laboratory

Other countries
<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kahn, 2002 [99] USA Cross-sectional study</td>
<td>One jail (awaiting trial or sentence &lt;1 year) n=50,941</td>
<td>RPR (blood), MHA-TP confirmatory test</td>
<td>All inmates entering jail at entry (within 24 hours)</td>
<td>NR</td>
<td>76%</td>
<td>6% confirmed syphilis</td>
<td>1.3% diagnosed untreated syphilis</td>
<td>NR</td>
<td>From start to 4 years later: Untreated syphilis in jail: -64% Early syphilis in jail: -68% Early syphilis in community: -79%</td>
<td>NR</td>
</tr>
<tr>
<td>Arriola, 2001 [71] USA Cross-sectional study</td>
<td>One adult county jail n=NR</td>
<td>Opt-in</td>
<td>Inmates at intake (3 days after admission) Disease education, post-test counselling</td>
<td>NR</td>
<td>2.0%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>100%</td>
<td>Very low</td>
</tr>
<tr>
<td>Silberstein, 2000 [100] USA Cross-sectional study</td>
<td>One jail (awaiting trial or sentence &lt;1 year) n=26,829</td>
<td>RPR (blood), MHA-TP confirmatory test</td>
<td>All inmates entering jail at entry (within 24 hours)</td>
<td>NR</td>
<td>69%</td>
<td>1.4% confirmed syphilis</td>
<td>NR</td>
<td>Prevalence syphilis from year 1 to 2: -35%</td>
<td>Estimated 6.42 total case-equivalents of congenital and 43.74 total case-equivalents of late/ neurosyphilis were prevented</td>
<td>NR</td>
</tr>
<tr>
<td>Heimberger, 1993 [101] USA Cross-sectional study</td>
<td>One jail (awaiting trial or sentence &lt;1 year) n=12,685</td>
<td>ART (blood), FTA-ABS confirmatory test</td>
<td>All inmates entering jail at entry (within 24 hours)</td>
<td>NR</td>
<td>77%</td>
<td>2.6% confirmed syphilis</td>
<td>1.6% newly diagnosed syphilis</td>
<td>NR</td>
<td>NR</td>
<td>83.5%</td>
</tr>
</tbody>
</table>

**MHA-TP**=microhemagglutination for *Treponema pallidum*, **NR**=not reported, **RPR**=rapid plasma reagin, **USA**=United States of America

**Opt-out**
No studies were found that reported on opt-out syphilis testing in correctional facilities.

**Not specified**
EU/EEA countries

No data

Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silberstein, 2000 [100] USA Cross-sectional study</td>
<td>One jail (awaiting trial or sentence &lt;1 year) n=26,829</td>
<td>RPR (blood), MHA-TP confirmatory test</td>
<td>All inmates entering jail at entry (within 24 hours)</td>
<td>NR</td>
<td>69%</td>
<td>1.4% confirmed syphilis</td>
<td>NR</td>
<td>Prevalence syphilis from year 1 to 2: -35%</td>
<td>Estimated 6.42 total case-equivalents of congenital and 43.74 total case-equivalents of late/ neurosyphilis were prevented</td>
<td>NR</td>
</tr>
<tr>
<td>Heimberger, 1993 [101] USA Cross-sectional study</td>
<td>One jail (awaiting trial or sentence &lt;1 year) n=12,685</td>
<td>ART (blood), FTA-ABS confirmatory test</td>
<td>All inmates entering jail at entry (within 24 hours)</td>
<td>NR</td>
<td>77%</td>
<td>2.6% confirmed syphilis</td>
<td>1.6% newly diagnosed syphilis</td>
<td>NR</td>
<td>NR</td>
<td>83.5%</td>
</tr>
</tbody>
</table>

**ART**=automated reagin test, **FTA-ABS**=fluorescent treponemal antibody absorbed, **MHA-TP**=microhemagglutination for *Treponema pallidum*, **NR**=not reported, **RPR**=rapid plasma reagin, **USA**=United States of America

**COST-EFFECTIVENESS**
EU/EEA countries

No data

Other countries

One cross-sectional study (Silberstein 2000 [100], very low level of evidence) from the USA reported the cost-effectiveness of syphilis active case finding at entry within 24 hours (test offer NR), using rapid plasma reagin (blood) and the FTA-ABS confirmatory test. The authors concluded that the active case finding is cost-effective, with a net benefit of $1,473,084 and a cost-benefit ratio of 9.14:1.

**Grey literature**

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of syphilis active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

### Uptake, positivity rate, effectiveness and treatment initiation

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Reference, country, study design</th>
<th>Prison setting sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change in prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>During imprisonment</td>
<td>Babudieri S 2012 [35] Italy Cross-sectional study</td>
<td>20 Italian prisons N=4 072</td>
<td>Test for syphilis (ELISA)-TPHA and VDRL offered to positive patients at screening NR</td>
<td>All people in prison During imprisonment NR</td>
<td>56.3%</td>
<td>- 2.3% ELISA Of ELISA screening positive cases: TPHA+, FTA-abs positive (85.7%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td></td>
<td>Foschi A 2015 [39] Italy Cross-sectional study</td>
<td>Single prison in Italy (Opera prison, Milan) N=711</td>
<td>Syphilis Serology Opt-in</td>
<td>All newly incarcerated people in prison At entry Pre-emptive counselling</td>
<td>511/711 (71.8%) reached for screening 468/511 (91.5%) accepted to be screened</td>
<td>17/468 (3.6%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
</tbody>
</table>

CI=confidence interval, ELISA=enzyme-linked immunosorbent assay, NR=not reported, OR=odds ratio, TPHA=Treponema pallidum hemagglutination assay, VDRL=Venereal Disease Research Laboratory

**COST-EFFECTIVENESS**

No studies on cost-effectiveness have been found from the grey literature search.

### Trichomoniasis

**Peer-reviewed literature**

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of trichomoniasis active case finding is summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

### Uptake, positivity rate, effectiveness and treatment initiation

**Opt-in**

EU/EEA countries

No data
Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roth, 2011 [102] USA Before-after study</td>
<td>One privately operating minimum security facility Universal: n=471 Client-initiated: n=362</td>
<td>Universal: PCR Opt-in</td>
<td>All incarcerated women At entry (timing NR) NR</td>
<td>NR</td>
<td>44%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sieck, 2011 [32] USA Cross-sectional study</td>
<td>A male prison housing minimum, medium, close, and maximum security inmates n=916</td>
<td>Genital swab test, not further specified Opt-in</td>
<td>All inmates scheduled for release At release (4-6 weeks before the scheduled release day) Letter describing STD testing process</td>
<td>37.6%</td>
<td>5.5%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
</tbody>
</table>

NR=not reported, PCR=polymerase chain reaction, STD=sexually transmitted disease, USA=United States of America

Opt-out

No studies were found that reported on opt-out trichomoniasis testing in correctional facilities.

COST-EFFECTIVENESS

No studies were found that reported on the cost-effectiveness of trichomoniasis active case finding in correctional facilities.

Grey literature

No grey literature documents on trichomoniasis have been collected.

Guidelines² all STIs

No guidelines were found specifically on trichomoniasis.

Guidelines specific to prison setting - supranational guidelines

**WHO. Prison and Health. 2014.**

"Apart from screening for HIV, HBV and HCV, voluntary screening for other STIs (chlamydia, gonorrhoea, syphilis) should be offered to all people in prison with risky behaviour."

Source: WHO. Prison and Health. 2014 (Type of guideline: practice-based; level of evidence: ++, 0) [7]

Other guidelines - supranational guidelines

Where retrieved prison specific guidelines were scarce or none, and in agreement with the Expert panel, guidelines addressing the general population were considered. Among those, supranational guidelines were preferred.

---

² Relevant guidelines were critically appraised with a selection of criteria derived from the AGREE instrument (1. The overall objective/objectives of the guideline is/are specifically described; 2. Systematic/clear methods were used to search for evidence for compiling the data and/or clear data sources/references; 3. The recommendations are specific and unambiguous). The criteria were qualitatively scored using − , − , 0, + or ++; no total quality score of summed + and − was calculated.
European guideline on the management of Chlamydia trachomatis infections. 2015
"Indications for laboratory testing (Level of evidence IV; Grade C recommendation)

- Risk factor(s) for C. trachomatis infection and/or other STI (age<25 years, new sexual contact in the last year, more than one partner in the last year);
- Symptoms or signs of urethritis in men;
- Cervical or vaginal discharge with risk factor for STI;
- Acute epididymo-orchitis in a male aged <40 years or with risk factors for STI;
- Acute pelvic pain and/or symptoms or signs of PID;
- Proctitis/protocolitis according to risk;
- Purulent conjunctivitis in a neonate or adult;
- Atypical neonatal pneumonia;
- Persons diagnosed with other STI;
- Sexual contact of persons with an STI or PID;
- Termination of pregnancy;
- Any intrauterine interventions or manipulations."


European Guideline on the Diagnosis and Treatment of Gonorrhoea in Adults. 2012
"Indications for testing (Level of evidence IV; Grade C recommendation)

- Symptoms or signs of urethral discharge in men;
- Vaginal discharge with risk factor for STI (age <30 years, new sexual partner);
- Mucopurulent cervicitis;
- Persons diagnosed with any other STI;
- Sexual partner of persons with an STI or PID;
- Acute epididymo-orchitis in a male aged <40 years;
- Acute pelvic inflammatory disease;
- When screening young adults (<25 years of age) for sexually transmitted infection;
- When screening individuals with new or multiple recent sexual partners;
- Purulent conjunctivitis in a neonate or adult;
- Mother of a newborn with ophthalmia neonatorum.

Source: Bignell C, Unemo M. European Guideline on the Diagnosis and Treatment of Gonorrhoea in Adults. 2012 (Type of guideline: evidence-based; level of evidence: 0,+,+)

European guideline on the management of syphilis. 2014
European guidelines for the general population, regarding case finding of syphilis, recommend:

“Routine tests for syphilis should be taken in all pregnant women, people donating blood, blood products or solid organs and the following groups at higher risk of syphilis: all patients who are newly diagnosed with STI; persons with HIV; patients with hepatitis B; patients with hepatitis C; patients suspected of early neurosyphilis (i.e. unexplained sudden visual loss, unexplained sudden deafness or meningitis); patients who engage in sexual behaviour that puts them at higher risk (e.g. men who have sex with men (MSM), sex workers and all those individuals at higher risk of acquiring STIs). Screening tests should also be offered to all attendees at dermatovenereology/genitourinary medicine (GUM)/STI clinics.”

Source: Unemo M, Janier M. The 2014 European guideline on the management of syphilis has now been published. Euro Surveill. 2014 Nov 13;19(45):20957 (Type of guideline: evidence-based; level of evidence: 0,+,++)

United States. STD Treatment Guidelines. 2015
“Women ≤35 and men <30 years in correctional facilities should be screened for chlamydia and gonorrhea. Chlamydia and gonorrhea screening should be conducted at intake”.

“Universal screening for syphilis should be conducted on the basis of the local area and institutional prevalence of early (primary, secondary, and early latent) infectious syphilis. Correctional facilities should stay apprised of syphilis prevalence as it changes over time”.

Source: CDC. STD Treatment Guidelines. 2015 (Type of guideline: evidence-based; level of evidence: +,+,+)
Active TB

Peer-reviewed literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of active TB active case finding are summarised below. Some articles reporting data for both active TB and LTBI are captured under both sections. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

Uptake, positivity rate, effectiveness and treatment initiation

### EU/EEA countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Effectiveness</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry and during imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martin, 2001 [106] Spain Longitudinal study</td>
<td>One prison n=3 081</td>
<td>TST, followed by CXR and sputum examination NR</td>
<td>Inmates entering prison</td>
<td>At entry and during imprisonment: 82.5% TST</td>
<td>NR</td>
<td></td>
<td>Very low</td>
</tr>
<tr>
<td>Ritter, 2012 [110] Switzerland Cross-sectional study</td>
<td>Largest remand prison n=4 890</td>
<td>TST, followed by CXR and culture test Opt-in</td>
<td>Inmates entering prison</td>
<td>At entry: 67.1% TST</td>
<td>NR</td>
<td></td>
<td>Very low</td>
</tr>
<tr>
<td>Saunders, 2001 [113] USA Surveillance study</td>
<td>One federal detention centre n=NR</td>
<td>January-May 1998 TST, and routine screening of symptoms, followed by radiography and culture test NR</td>
<td>Inmates entering detention centre</td>
<td>At entry (TST within 48 hours of admission)</td>
<td>NR</td>
<td>Time to isolation of suspected TB cases decreased in June-December 1998 compared to January-May 1998 (from 8 to ≤24)</td>
<td>Very low</td>
</tr>
</tbody>
</table>

CI=confidence interval, CXR=chest x-ray, LTBI=latent tuberculosis infection, NR=not reported, RR=relative risk, TB=tuberculosis, TST=tuberculin skin test

### Other countries

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Effectiveness</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference, country, study design</td>
<td>Prison setting, sample</td>
<td>Testing method, offer</td>
<td>Who, when, promotion</td>
<td>Uptake</td>
<td>Effectiveness</td>
<td>Change in number or % tested</td>
<td>Change prevalence/incidence</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>--------</td>
<td>--------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Kiter, 2003 [111] Turkey Longitudinal study</td>
<td>One district prison n=NR</td>
<td>March 1992-February 1994 Miniature CXR, followed by standard CXR and culture test Opt-in</td>
<td>Prison inmates Yearly during imprisonment Informed about TB and its control, reluctant people in prison are encouraged by other inmates/staff</td>
<td>99.8%</td>
<td>3.2% abnormal miniature CXR and/or symptoms 0.4% confirmed TB (of which 72.7% newly diagnosed)</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Miller, 2006 [112] USA Cross-sectional study</td>
<td>County jail facilities n=22 920</td>
<td>TST, followed by additional evaluation (not further specified) Mandatory</td>
<td>Jail inmates NR NR</td>
<td>NA</td>
<td>1.3% TST-positive 0.03% confirmed TB</td>
<td>NR</td>
<td>NR</td>
</tr>
</tbody>
</table>

**ACF=acid-fast bacilli, CXR=chest x-ray, NA=not applicable, NR=not reported, TB=tuberculosis, TST=tuberculin skin test**

**COST-EFFECTIVENESS**

**EU/EEA countries**

One study was found that reported on the cost-effectiveness of TB active case finding in correctional facilities. This study (Winetsky 2012 [115], moderate level of evidence) was conducted in Latvia. From the perspective of the healthcare system, eight scenarios were compared: 1) no active case finding, 2) mass miniature radiography (MMR) screening, 3) symptom screening, 4) sputum PCR screening, 5) combined MMR and symptom screening, 6) combined MMR screening and sputum PCR screening (the latter for rapid MDR-TB detection), 7) combined symptom screening and sputum PCR screening (the latter for rapid MDR-TB detection), 8) combined MMR screening, symptom screening, and PCR screening (the latter for rapid MDR-TB detection). The authors concluded that annual screening of the general inmate population with sputum PCR was the most cost-effective. Adding sputum PCR to the currently used strategy of annual MMR screening was cost-saving compared to MMR screening.
alone, but resulted only in minor reductions in (MDR-)TB prevalence. Symptom-based strategies were less effective and more expensive than MMR-based strategies.

Other countries

Two studies from the USA reported on the cost-effectiveness of TB active case finding in correctional facilities. The first study (Jones 2001 [116], low level of evidence) was a cost-effectiveness study comparing three active case finding scenarios on admission to jail: 1) routine miniature chest radiography, 2) TST, and 3) symptom-based. Screening for active TB with miniature chest radiography seemed to be more sensitive and more cost-effective than screening with either TST or based on symptoms. The second study (Miller 2006 [112], very low level of evidence) was a cross-sectional study reporting on a state-law mandated TB screening program in jail that also economically evaluated this program. The cost per TB case prevented was $34,761, and per TB and LTBI case diagnosed it was $35,035 and $1,163, respectively.

Grey literature

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of active TB active case finding are summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document ("Annex 2. Evidence tables systematic review active case finding in prison settings").

### Uptake, positivity rate, effectiveness and treatment initiation

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer when</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry and during imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andreev V, 2011 [107] Bulgaria Prospectve study</td>
<td>One prison n=600</td>
<td>Symptom questionnaire, bacteriology and chest radiography NR</td>
<td>Inmates, not further specified</td>
<td>At entry and during imprisonment NR</td>
<td>NR</td>
<td>2/600 (0.3%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>100% Conference abstract</td>
</tr>
<tr>
<td>Bös L, 2011 [108] Germany Retrospective study</td>
<td>Prison Hospital in Berlin All people in prison (n=NR)</td>
<td>Chest X-ray Opt-in</td>
<td>Inmates, not further specified</td>
<td>At entry NR</td>
<td>100%</td>
<td>62 cases of active TB</td>
<td>NR</td>
<td>NR</td>
<td>The affected people in prison were mainly male (93.6%) and were of a foreign nationality in the majority of cases (61.3%). 22.6% of the affected people in prison were asymptomatic at entry into the prison, 25% reported only dry or productive cough</td>
<td>87.1% Unpublished research</td>
</tr>
</tbody>
</table>

NR=not reported

**COST-EFFECTIVENESS**

No studies on cost-effectiveness have been found from the grey literature search.
**LTBI**

**Peer-reviewed literature**

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of LTBI active case finding are summarised below. Some articles reporting data for both active TB and LTBI are captured under both sections. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (*Annex 2. Evidence tables systematic review active case finding in prison settings*).

**Uptake, positivity rate, effectiveness and treatment initiation**

**EU/EEA countries**

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martin, 2001 [106]</td>
<td>One prison n=3 081</td>
<td>TST, followed by CXR and sputum examination NR</td>
<td>Inmates entering prison</td>
<td>82.5% TST</td>
<td>41.3%¹</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>23.0%</td>
<td>Very low</td>
</tr>
<tr>
<td>Spain Longitudinal study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sagnelli, 2012 [34]</td>
<td>Six penitentiaries n=3 468</td>
<td>PPD test Opt-in</td>
<td>All inmates During imprisonment Presentation on advantages of screening by peer-educators, pamphlets on importance of screening</td>
<td>42.8%</td>
<td>17.2%</td>
<td>Higher acceptance than in the nine correctional facilities evaluated in this study before peer-education (11.3%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>Italy Cross-sectional study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**During imprisonment**

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bock, 2001 [127]</td>
<td>One county jail n=NR</td>
<td>TST, followed by CXR NR</td>
<td>All inmates admitted to jail At entry (timing NR) NR</td>
<td>75% TST</td>
<td>7.2% TST-positive</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Very low</td>
</tr>
<tr>
<td>USA Longitudinal study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CI=confidence interval, CXR=chest x-ray, NR=not reported, PPD=purified protein derivative, RR=relative risk, TST=tuberculin skin test

¹It might be that the 41.3% inmates infected with M. tuberculosis are 6 with active TB and 1,044 with LTBI, however this is not completely clear from the article as it seems that 397 of the 1,044 do not seem to be TST positive. Therefore it is unclear whether there are 1,044 or 647 (1,044-397) inmates with LTBI at entry

**Other countries**

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Positivity rate</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Timing not specified
<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Effectiveness</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miller, 2006 [112] USA Cross-sectional study</td>
<td>County jail facilities n=22 920</td>
<td>TST, followed by additional evaluation (not further specified) Mandatory</td>
<td>Jail inmates NR NR</td>
<td>NA</td>
<td>0.9% treatment for LTBI prescribed</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>57%</td>
<td>Very low</td>
</tr>
<tr>
<td>Bock, 1999 [128] USA Cross-sectional study</td>
<td>One pre-trial detention centre n=NR (1 863 screened)</td>
<td>TST, followed by CXR NR</td>
<td>Inmates NR NR</td>
<td>NR</td>
<td>18% TST-positive</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>58%</td>
<td>Very low</td>
</tr>
<tr>
<td>Foschi A 2015 [39] Italy Cross-sectional study</td>
<td>Single prison in Italy (Opera prison, Milan) N=711</td>
<td>TST, IGRA in TST positive Opt-in</td>
<td>All people in prison At entry Motivational counselling</td>
<td>81.4%</td>
<td>TST positivity rate=9.8% TST+IGRA positivity rate= 48.3%</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Ruiz Rodriguez 2010 [119] Spain Cross-sectional study</td>
<td>Spanish penitentiary system N=24,101</td>
<td>TST NR</td>
<td>All people in prison At entry NR</td>
<td>11.6% tested with TST</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
<td></td>
</tr>
<tr>
<td>Solè M 2010 [117] Spain Prospective study</td>
<td>Single prison in Catalonia N=134</td>
<td>TST NR</td>
<td>Foreign people in prison with unknown TB status At entry NR</td>
<td>100%</td>
<td>63 (49.3%)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>338 (0.53%)</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Garcia Guerrero J 2010 [118] Spain</td>
<td>18 prisons in Spain N= 378</td>
<td>TST NR</td>
<td>Randomly selected patients At entry</td>
<td>90.2%</td>
<td>50.4%</td>
<td>NR</td>
<td>NR</td>
<td>The logistic regression model showed the independent association</td>
<td>NR</td>
<td>Scientific paper (Rev Esp Sanid Penit 2010; 12: 79-85)</td>
</tr>
</tbody>
</table>

At entry

CXR=chest x-ray, LTBI=latent tuberculosis infection, NR=not reported, TST=tuberculin skin test

**COST-EFFECTIVENESS**

No studies were found that reported on the cost-effectiveness of LTBI active case finding in correctional facilities.

**Grey literature**

The uptake, positivity rate, effectiveness, treatment initiation and cost-effectiveness of LTBI active case finding are summarised below. For further details on the outcomes and study-specific background information (e.g. setting, study population), see the evidence tables in a separate document (“Annex 2. Evidence tables systematic review active case finding in prison settings”).

**Uptake, positivity rate, effectiveness and treatment initiation**
<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Effectiveness</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At entry</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-sectional study</td>
<td>One prison</td>
<td>TST: Mantoux - TST</td>
<td>People in prison</td>
<td>NR</td>
<td>Positivity rate at second TST: 11.7% (56/478)</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Scientific paper (Rev Esp Sanid Penit 2001; 3: 72-76)</td>
</tr>
<tr>
<td></td>
<td>478 people in prison</td>
<td>repeated after 7-10</td>
<td>without previous</td>
<td>NR</td>
<td>In the multivariate analysis, inmates older</td>
<td>100%</td>
<td>44.9%</td>
<td>NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with first negative</td>
<td>days to people in</td>
<td>active TB from</td>
<td>NR</td>
<td>than 34 (OR = 3.63, CI 1.9-6.8) and showing</td>
<td>At entry and during</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TST result</td>
<td>prison with negative</td>
<td>September 1995 to</td>
<td>NR</td>
<td>signs of induration in the first test</td>
<td>imprisonment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>result at first TST</td>
<td>June 1999</td>
<td></td>
<td>(OR = 8.9, CI 48-179) demonstrated higher</td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Voluntary</td>
<td>At prison entry</td>
<td></td>
<td>positivity rates in the second TST</td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>During imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vera-Remartinez 2014 [121]</td>
<td>Single prison</td>
<td>TST</td>
<td>Inmates, not further</td>
<td>100%</td>
<td>In new entries positivity rate was: 7.3%</td>
<td>14 (20.3%) converters</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Spain Cross-sectional study</td>
<td>(Centro Penitenciario</td>
<td>NR</td>
<td>specified</td>
<td></td>
<td>at 6 months 11.9% at 12 months 12.5% at 18</td>
<td>At entry and during</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Castellon 1)</td>
<td></td>
<td>At entry and</td>
<td></td>
<td>months In previous residents: 10.6% at 6</td>
<td>imprisonment (every 6 months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>during imprisonment</td>
<td></td>
<td>months 15.1% at 12 months 18% at 18 months</td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Risk increased in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>patients with &gt;49 years (RR = 3.61) No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>difference between Spaniards and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>foreigners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>During imprisonment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ruiz-Rodríguez 2010 [123]</td>
<td>Single prison</td>
<td>TST</td>
<td>People in prison</td>
<td>100%</td>
<td>Of TST positivity with: age &gt;40 years (OR:</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>NR</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Spain Cross-sectional study</td>
<td>(Centro Penitenciario</td>
<td>NR</td>
<td>with first negative</td>
<td></td>
<td>1.76; CI: 1.08-2.87; p=0.024) and length</td>
<td>At entry and during</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>de Albolote)</td>
<td></td>
<td>TST and TST</td>
<td></td>
<td>of prison stay &gt;5 years (OR: 2.50; CI: 1.41-</td>
<td>imprisonment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.43; p=0.002)</td>
<td>NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Systematic review on active case finding of communicable diseases in prison settings

<table>
<thead>
<tr>
<th>Reference, country, study design</th>
<th>Prison setting, sample</th>
<th>Testing method, offer</th>
<th>Who, when, promotion</th>
<th>Uptake</th>
<th>Effectiveness</th>
<th>Change in number or % tested</th>
<th>Change prevalence/incidence</th>
<th>Other</th>
<th>Treatment initiation</th>
<th>Type of document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain Retrospective, longitudinal cohort study</td>
<td>N= 197</td>
<td>repeated in the period considered During imprisonment NR</td>
<td>the period considered</td>
<td>became TST positive. HIV infection increased the risk of TST positivity (OR 3.82, CI 1.003-24.87)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vera 2010 [125] Spain Retrospective, longitudinal cohort study</td>
<td>18 prisons in Spain N= 378 people in prison</td>
<td>TST NR</td>
<td>21 people in prison for each prison During imprisonment NR</td>
<td>90.2% 50.4% NR NR Risk factors: -Age &gt; 40 years -Prison stay &gt; 5 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fernández-Prieto P 2010 [124] Spain Retrospective study</td>
<td>Single prison in Spain N= 2 871 people in prison</td>
<td>TST NR</td>
<td>All people in prison During imprisonment NR</td>
<td>92.6% 21.8% NR NR NR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gabbuti A 2010 [126] Italy Retrospective longitudinal study</td>
<td>Single prison in Italy (Sollicciano, Tuscany) N=7 500</td>
<td>TST Opt-in</td>
<td>All people in prison During imprisonment NR</td>
<td>15.4% TST &gt;5 mm: 482/1160 (41.6%) Percentage of TST conversion (2004-2009): 128/ 1160 (11.0%) NR NR NR 77 (60.0%) patients completed prophylaxis*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Babudieri S 2012 [35] Italy Cross-sectional study</td>
<td>20 Italian prisons N= 4 072 detainees</td>
<td>TST Opt-in</td>
<td>All people in prison During imprisonment Peer educators and ID specialist intervention to increase TB screening uptake</td>
<td>NR 21.8% Percentage of tested inmates increased from 11.3% (pre intervention) to 26.3% (post intervention)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CI=confidence interval, ID= infectious diseases; NR=not reported, OR=odds ratio, TST=tuberculin skin test

*51 (40%) did not complete due to: release in 25 (49%), drop out because of concomitant -methadone therapy in 10 (19.6%), cultural refuse in 12 (23.5%), religious refuse in 3 (5.9%)

**COST-EFFECTIVENESS**

No studies on cost-effectiveness have been found from the grey literature search.
Guidelines² active TB and LTBI

Guidelines specific to prison setting - supranational guidelines

**WHO. Prison and Health.**

"How screening activities should be implemented depends on many factors, including the type of facility, the prevalence of TB infection and disease in the facility, the prevalence of TB in the inmates' communities, the prevalence of other risk factors for TB (such as HIV) in the inmate population and the average length of stay of inmates in the facility. The type of screening recommended for a particular facility is determined by an assessment of the risk of TB transmission within that facility"

"Medical screening on entry into the prison system is essential, as many people in prison come from communities with a high prevalence of TB. People in prison should not enter the body of the prison population until it has been verified that they do not have infectious TB. When possible, newly arrived people in prison should not be housed with other inmates until they have been properly screened for TB. ... Entry screening should be documented on the screening register and must be followed up with standard procedures for diagnosis and treatment."

"In the prison system, two massive screening rounds a year are ideal. This strategy is very useful to find previously undetected cases missed by passive case-finding. Mass screening is not, however, recommended as the sole method of case-finding in prisons."

Advantages and disadvantages of passive and active case finding are reported in Table 4 on page 59 of the guideline.


**Tuberculosis Coalition for Technical Assistance, International Committee of the Red Cross, USAID. Guidelines for control of tuberculosis in prisons.**

"In prisons, passive and active case finding should be implemented simultaneously and systematically. A combination of these two approaches will increase case detection substantially."

Source: Guidelines for control of tuberculosis in prisons. Tuberculosis Coalition for Technical Assistance, International Committee of the Red Cross, USAID. 2009 (Type of guideline: practice-based; level of evidence: ++,−,0) [13]

Guidelines specific to prison setting - national guidelines

**United Kingdom. Tuberculosis in prisons or immigration removal centres.**

"Healthcare professionals in prisons and immigration removal centres should ensure people in prison and detainees are screened for TB within 48 hours of arrival."

"Prisons with Department of Health-funded static digital X-ray facilities for TB screening should X-ray all new people in prison and detainees (including those being transferred from other establishments) if they have not had a chest X-ray in the past 6 months. This should take place within 48 hours of arrival."

"In high-incidence areas and at prisons that receive people in prison from high-incidence areas, prison health services should offer an interferon-gamma release assay (IGRA) test for TB to inmates younger than 65 years who are in regular contact with substance misuse services or other support services. Prison health services should incorporate interferon-gamma release assay testing with screening for hepatitis B and C, and HIV testing."

Source: Tuberculosis in prisons or immigration removal centres. National Institute for Health and Care Excellence (NICE). 2016 (Type of guideline: evidence-based; level of evidence: ++,++,++) [130]

---

² Relevant guidelines were critically appraised with a selection of criteria derived from the AGREE instrument (1. The overall objective/objectives of the guideline is/are specifically described; 2. Systematic/clear methods were used to search for evidence for compiling the data and/or clear data sources/references; 3. The recommendations are specific and unambiguous). The criteria were qualitatively scored using − or −, 0, + or ++; no total quality score of summed + and − was calculated
**United Kingdom. Management of tuberculosis in prisons: Guidance for prison healthcare teams.**

"All new people in prison should be assessed for their TB risk by symptom screening (and, if facilities are available in the prison for this, digital chest x-ray) and appropriate action then taken:

A prison primary care nurse should assess any prisoner who presents with:

- A history of a cough lasting three weeks or longer
- Unexplained weight loss
- Any cough with other TB symptoms - weight loss, fever, night sweats, haemoptysis, anorexia

People in prison with these symptoms should be referred to the prison doctor for further assessment."

"The symptom screening process should be agreed locally and will depend on local prevalence. If available, the digital chest X ray pathway should be followed as agreed locally." Appendix 1 on page 14 of the guideline provides an example of a risk assessment tool.


**Italy. Protocollo operativo per la gestione della tubercolosi nel sistema penitenziario italiano**

"Tuberculosis screening should be performed in all new people in prison with a symptom questionnaire and, if positive, with chest X-ray at entry and in residents with risk factors or predisposing conditions during annual check-up visit.

Every prisoner with positive TB active case finding questionnaire or with a chest X-ray suggestive/compatible with TB should be considered a suspicious TB case".

"Prevention of development of active disease in cases with LTBI could be obtained with screening and treatment of LTBI in close contacts of active TB cases. Furthermore, if sufficient resources are available, screening of high risk subjects for TB reactivation and their treatment is recommended".

Source: Protocollo operativo per il controllo della tubercolosi nel sistema penitenziario italiano. Ministero della Giustizia, Dipartimento della amministrazione penitenziaria, Proveditorato regionale per la Puglia, Ufficio per il trattamento intramurale (Italy). 2008 (Type of guideline: practice-based; level of evidence: ++,−,+) [133]

**The Netherlands. Tuberculosis in detention**

People in prison that are born in the Netherlands do no longer meet the criteria for being a risk group, because the TB prevalence is too low (below 50 per 100,000). Therefore, active case finding for TB among people in prisons born in the Netherlands does no longer meet the legal demand of scientific virtue. However, half of active TB cases within this group belong to one of the following risk groups for which active case finding still applies: drug addicts, alcohol addicts, or homeless persons.

Based on the above, the following policy change is recommended:

- Discontinuation of active case finding for TB among people in prison born in the Netherlands
- Continuation of active case finding for TB among people in prison born in the Netherlands that belong to one of the risk groups for TB
- Continuation of active case finding for TB among people in prison born outside the Netherlands

The following procedures are advised:

- Triage on risk factors for TB at entry among those born in the Netherlands to check whether mobile chest X-ray screening is indicated
- Registration of the number of people in prison with risk factors
- Easy accessible chest X-ray screening of people in prison with symptoms during imprisonment
- Contact tracing when infectious TB cases are found
- Monitoring and evaluation of this new policy, especially with regards to screening of risk groups among those born in the Netherlands
- Additional follow-up for people in prison for which the chest X-ray implies further investigation is necessary, but who do not show up for further investigation

The most appropriate method for active case finding is the chest X-ray. The intake assessment at entry is a time period to check whether mobile chest X-ray screening is indicated among those born in the Netherlands.

Source: Dienst Justitiële Inrichtingen, Ministerie van Veiligheid en Justitie (2010). Tuberculose in Detentie. Richtlijn opsporing, behandeling en preventie van tuberculose voor justitiële inrichtingen (Type of guideline: practice-based; level of evidence: ++,−,−,0) [132]
Other guidelines - supranational guidelines

**WHO. Systematic screening for active tuberculosis: an operational guide.**

"Recommendation 2: People living with the human immunodeficiency virus (HIV) should be systematically screened for active TB at each visit to a health facility (Strong recommendation).

Recommendation 4: Systematic screening for active TB should be considered in prisons and other penitentiary institutions (Conditional recommendation)."

Source: WHO. Systematic screening for active tuberculosis: an operational guide. 2015 (Type of guideline: practice-based; level of evidence: ++,+,++) [136]

**WHO. Guidelines on the management of latent tuberculosis infection.**

The following are the key recommendations of the WHO Guidelines on the management of latent tuberculosis infection:

- Systematic testing and treatment of LTBI should be performed in people living with HIV, adult and child contacts of pulmonary TB cases, patients initiating anti-tumour necrosis factor (TNF) treatment, patients receiving dialysis, patients preparing for organ or haematologic transplantation, and patients with silicosis. Either interferon-gamma release assays (IGRA) or Mantoux tuberculin skin test (TST) should be used to test for LTBI. (Strong recommendation, low to very low quality of evidence)

- Systematic testing and treatment of LTBI should be considered for people in prison, health-care workers, immigrants from high TB burden countries, homeless persons and illicit drug users. Either IGRA or TST should be used to test for LTBI. (Conditional recommendation, low to very low quality of evidence)

- Individuals should be asked about symptoms of TB before being tested for LTBI. Chest radiography can be done if efforts are intended also for active TB case finding. Individuals with TB symptoms or any radiological abnormality should be investigated further for active TB and other conditions. (Strong recommendation, low quality of evidence)

- Either TST or IGRA can be used to test for LTBI in high-income and upper middle-income countries with estimated TB incidence less than 100 per 100 000 (Strong recommendation, low quality of evidence).

- IGRA should not replace TST in low-income and other middle-income countries. (Strong recommendation, very low quality of evidence)

Source: WHO. Guidelines on the management of latent tuberculosis infection. 2015 (Type of guideline: evidence-based; level of evidence: ++,++,++) [131]

**European Union Standards for Tuberculosis Care - Standard for TB diagnosis**

Standard 1: All persons presenting with signs, symptoms, history or risk factors compatible with TB should be evaluated for pulmonary and/or extrapulmonary TB