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Publication date:
2023

Document Version
Publisher's PDF, also known as Version of record

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DEVELOPMENT OF A BELRAI SCREENING INSTRUMENT FOR CORRECTIONAL FACILITIES

PREPARATORY PHASE FOR TESTING

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Leuven - Rekem
September 2023

Colofon

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Leuven – Rekem, September 2023

The authors thank dr. Johanna De Almeida Mello for leading the French-language expert panels.

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List of abbreviations

ADHD	Attention Deficit/Hyperactivity Disorder
ADL	Activities of Daily Living
ASD	Autism spectrum disorder
BelRAI	Belgian version of the interRAI suite in the three national languages
BJMHS	Brief Jail Mental Health Screen
BMHS	interRAI Brief Mental Health Screener
BMHS - CF	Brief Mental Health Screener for Correctional Facilities
CA	interRAI Contact Assessment
CAP	Collaborative Action Plans
CMHS-M	Correctional Mental Health Screen for Men
CMHS-W	Correctional Mental Health Screen for Women
CPTSD	Complex post-traumatic stress disorder
CVS	interRAI COVID-19 Vulnerability Screener
DDB	Directie Detentiebeheer
ED-CA	interRAI Emergency Department Contact Assessment
EMHS	England Mental Health Screen
FPS	Federal Public Service
GDPR	General Data Protection Regulation
IADL	Instrumental Activities of Daily Living
ID	Intellectual disability
interRAI	international Resident Assessment Instrument
interRAI ESP	interRAI Emergency Screener for Psychiatry
JSAT	Jail Screening Assessment Tool
KCE	Belgian Health Care Knowledge Centre
n.d.	No date
NPS	Novel psychoactive substances
PTSD	Post-traumatic stress disorder
QoL	Quality of life
RDS	Referral Decision Scale
RUG	Resource Utilization Groups System
SRH	Self-rated health
SSEC	Social and Societal Ethics Committee
STIs	Sexually transmitted infections
WHO	World Health Organisation

Introduction

The Belgian state is responsible for providing detainees with humane conditions. Among other things, detainees must have access to quality healthcare when their situation requires it even if they do not explicitly request it, and if necessary, also outside the prison walls (Eechaudt et al., 2017). In addition, the 2015 UN Standard Minimum Rules for the Treatment of Prisoners (also known as the 'Mandela Rules') stipulate that the quality of care must be good for all detainees. These 'Mandela Rules' consist of three main principles of care in prisons: (1) care equivalent to that in the community, (2) continuity of care, and (3) clinical independence of care providers (United Nations General Assembly, 2015). The World Health Organisation (WHO) also insists that care provided to prisoners should be equivalent to that offered to the general population (Mistiaen et al., 2017; WHO, 2003). However, the Belgian state has been censured on several occasions for failing to ensure adequate medical care for detainees in a psychiatric annex of a prison (Eechaudt et al., 2017).

As part of the federal coalition agreement (2020), the Federal Government has declared its intention to reform prison health care and to provide the necessary resources to ensure that detainees receive equivalent care, taking into account the often higher care needs of this target group. An important step that has already been taken is to solve the problem of insurability of detainees by including prison health care in the compulsory health insurance system. As a result, detainees will also be entitled to health insurance (Strada lex, 2022). On the basis of this declaration of intent in the coalition agreement, the Federal Government therefore wants to improve care in prisons and gain insight into the demand for prison health care. In its 2017 report, the KCE (Belgian Health Care Knowledge Centre) also advocates the importance of systematically conducting a comprehensive health intake when entering a correctional facility. This systematic health intake is necessary to identify any physical, psychological and social problems. It can be the starting point for drawing up an individual care plan, and for further follow-up and communication between care providers inside and outside prison, even after the detainee's release (Mistiaen et al., 2017).

The idea is to base this systematic health intake/screening on the interRAI assessment system that is already being used and implemented in Belgium. The goal is to develop a screening instrument that maps out the (care) needs of adults in a detention context, making use of interRAI items and interRAI systems as much as possible. Already in 2018, the federal government committed itself, in consultation with the regional states, to promote and use BelRAI (E-Health Action Plan 2019-2021). The aim of this exploratory feasibility study is therefore to develop a BelRAI screening instrument for the detention context which allows care providers to determine whether penitentiary care is needed. The Belgian government plans to pilot this BelRAI detention screening instrument in a few Belgian prisons over the next years, in order to test the psychometric properties, usability, feasibility and acceptability of the screening tool.

This report consists of five chapters. The first chapter situates the research. As BelRAI is still relatively unknown in the sector, the first chapter contains a description of BelRAI and of the existing BelRAI and interRAI instruments including the BelRAI and interRAI Screeners. Chapter 1 concludes with the research objectives and related research questions. In Chapter 2, we discuss the method of the study, consisting of a literature review, expert panels in the two phases of the study, and the development of the BelRAI detention screening tool. Chapter 3 presents the results of the

literature review and the expert panels of the first phase of the study. In Chapter 4, we first discuss the development process of the draft-version of the BelRAI detention screening instrument based on the results of the literature review and the expert panels in the first phase of the study. This draft-version was presented to the same expert panels in the second phase of the study. The results of those expert panels are also reported. Finally, the revision of the draft BelRAI detention screening tool - based on the last expert panels - into the two-stage BelRAI detention screening instrument is illustrated. To end, Chapter 5 gives an overview of the development process of the two-stage BelRAI detention screening instrument, named the BelRAI Detention *Screener* and the BelRAI Detention *Instrument*. Moreover, a protocol for a pilot study in three Belgian correctional facilities is presented, along with recommendations for policy makers involved in the Belgian correctional sector, to support them in the planning of the research and implementation process of the BelRAI Detention Screener and BelRAI Detention Instrument in the Belgian correctional sector.

Chapter 1
Background and Research objectives

In this chapter, we situate the research project by first briefly situating the population present within the Belgian detention context and the health profile of Belgian detainees. We then go on to explain more about BelRAI, the existing BelRAI and interRAI screeners and the lessons learned from their implementation in other national and international health contexts. More information about BelRAI and interRAI can also be found in the knowledge clip produced for this study. The chapter concludes with the research objectives and research questions for this exploratory feasibility study.

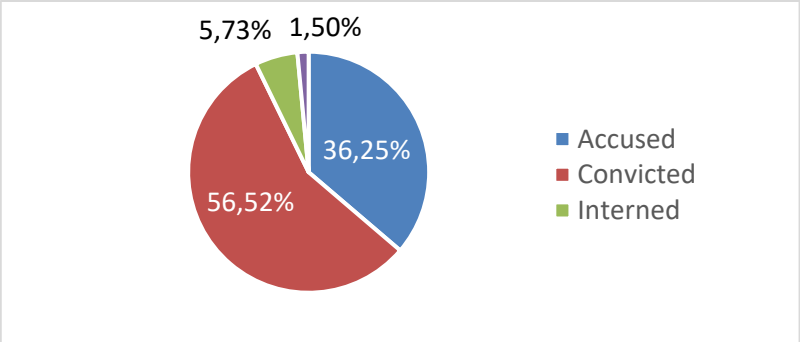
1 Detention context

1.1 Target group

This study focuses on the development of a screening tool for the Belgian detention context focused on general and mental health, including addiction and intellectual disability. The goal is to develop a screening instrument that maps out the (care) needs of persons in a detention context, making use of interRAI items and interRAI systems as much as possible. The BelRAI detention screening tool that is being developed should be usable in all Belgian penitentiary settings and for all detainees. Belgium has different types of penitentiary settings. Two major categories are distinguished: classic correctional facilities, and small-scale detention houses. Among classic correctional facilities, one distinguishes arrest houses, closed and open prisons, prison villages, and institutions for the protection of society specific for internees. Small-scale detention houses include houses of detention specifically targeting short-term detainees with a prison sentence of up to 3 years, and transitional houses for prisoners at the end of their sentence who are placed in a trajectory of social reintegration (FPS Justice, 2023; Conference "Zorgen achter tralies", June 26th, 2023).

Figure 1 shows the prison population by category (accused, convicted, interned and other) in 2020.

Figure 1 Prison population by category (accused, convicted, interned, other) in 2020 (FPS Justice, 2023)



In 2020, a total of 10 381 persons resided in Belgian prisons (FPS Justice, 2023). At the end of May 2023, the Belgian prison population consisted of 11 450 persons (Conference "Zorgen achter tralies", June 26th 2023).

Irrespective of the type of correctional setting or the legal status of the detainee, he or she should be examined by the prison doctor within 24 hours of his arrival. Within 4 days of arrival, the prisoner has a meeting with the psychosocial service about the possibilities of social, psychosocial, legal and family assistance. (FPS Justice, n.d.).

1.2 Health profile of Belgian detainees

Not only international research (Sturup-Toft et al., 2018; Tyler et al., 2019; Watson et al., 2004;), but also research that specifically focuses on the Belgian prison context (Bisback et al., 2018, KCE, 2017, Vyncke, 2015) indicate that detainees generally have poorer health and more unhealthy behaviours compared to the general population.

A possible explanation for the presence of this high level of health problems among detainees is the fact that a large group of detainees come from disadvantaged socio-economic groups and ethnic minorities (Condon, 2007; KCE, 2017; Vyncke et al., 2015;) and are already in poorer health when they arrive. In addition, certain living and working conditions specific to detention appear to have a negative impact on detainees' health. Examples are the lack of sufficiently meaningful activities, the disappearance of a social network and trusted figures, and the uncertainty associated with (possible) detention (Condon, 2007; Vyncke, 2015;).

The international literature identifies a number of physical conditions (infectious diseases and chronic conditions) as well as mental health problems (including substance abuse) as important health problems of persons in the detention context (Vyncke et al., 2015). The 2017 KCE study also found, on the basis of drug prescriptions in Belgian prisons (via the Epicure database), that the largest number of prescriptions could be linked to drugs for mental health problems, more specifically drugs that aim to reduce anxiety/sleep disorders, depression, psychosis and opioid dependence.

2 interRAI & BelRAI

2.1 What is interRAI & BelRAI?

BelRAI is the Belgian version of interRAI, a set of international and scientifically validated instruments developed to map care needs in various sectors of care and welfare. The interRAI instruments are currently used in more than 35 countries spread over the five continents, in daily practice and/or in research projects. When we talk about 'BelRAI', we mean the BelRAI instruments. The BelRAI instruments are the translations of the interRAI instruments into the three Belgian languages, taking into account the Flemish, Walloon and German-speaking care and welfare context. All inter/BelRAI instruments together constitute the inter/BelRAI assessment system (BelRAI, 2023; Declercq, 2019; De Almeida Mello, 2018; Hermans, 2017; Van Horebeek, et al., 2022; Van Regenmortel et al., 2018, 2020; Vermeulen, et al., 2015; Vanlinthout et al., 2022).

Four types of instruments can be distinguished within the interRAI assessment system (see Figure 2).

Figure 2 Overview of the types of interRAI instruments (interRAI.org)

1. Screeners and Contact Assessments	triage decision-making for defined target groups. A screener or contact assessment provides key clinical information needed at the onset of service provision.
2. Comprehensive assessment instruments	map the functioning and care needs in almost all the person's life domains. – identify key factors in the person's life, including daily functioning, (mental) health, social support, financial and employment situation, service use, mood, and behavior. Embedded in the comprehensive instruments are status and outcome scales, care planning and resource allocation tools, and quality indicators.
3. Supplements	question specific care needs that are addressed in a Screener or comprehensive assessment tool, in more detail.
4. Quality of life surveys	capture the person's day-to-day experience of issues, including their care, autonomy, privacy, participation in activities, comfort, and safety.

Over the years, researchers developed these four types of instruments based on the needs of care providers in different sectors. The first instruments date from late 1980s to improve the quality of care for elderly. Since then, interRAI has grown into an extensive assessment system with links to other sectors such as acute somatic care, home care, palliative care, mental health care, the rehabilitation sector and the correctional sector. However, the interRAI pilot instruments that have been developed for correctional facilities do not meet the Belgian needs for this sector.

The overall aim of the interRAI instruments is to support care providers in getting an overview of the relevant care needs of a client, and to facilitate them in following up on the client. More specifically, the results of the interRAI instruments provide input to care providers to discuss a high-quality and individual care plan with the client and his network. The aim is to complete BelRAI with the client and the different disciplines and (care and welfare) organizations that are involved in the care for the client, so that a shared care plan – shared with the client, his network and the professionals involved – can be developed (Vanlinthout & Declercq, 2021).

Most of the BelRAI and interRAI instruments are completed by (health) care providers based on information they have from the patient file or have received from the client, other (health)care professionals, and the relevant others of the client. Importantly, it is the (health)care provider who decides how he answers the items. It is his view on the care needs that is assessed in an

interRAI/BelRAI instrument. For example, in the case of people with reduced or no insight into their illness, the care provider gives his view on the care needs, even if the client does not agree. Thus, most of the BelRAI/interRAI items assess care needs that are identified by the (health)care provider.

However, there are two exceptions: self-reported items and self-report instruments. First, self-reported items are included in most interRAI/BelRAI instruments. These items are completed by the care provider, but have to be asked directly to the client, after which the assessor fills out the answer the client gave. These items are indicated in an instrument with "Ask…" (e.g., *Ask: "In the last 3 days, how often have you felt…"*). Second, there are self-report instruments that are completely filled out by the clients themselves. Sometimes the client needs some help from a caregiver or care provider, but only the answers of the client are filled out in the survey. The interRAI Quality of Life surveys are an example of these self-report instruments. They map the quality of life and care in nursing homes and in mental health and addiction care. These surveys also help to prepare a care plan (interRAI.org; Morris et al., 2016). Both interRAI surveys have been tested in Flanders. They are not part of the digital BelRAI platform of the federal government.

Figure 3 provides an overview of the BelRAI instruments for adults that have been tested in Belgium, and are part of the digital BelRAI platform of the Belgian federal government (https://www.belrai.org/nl/zorgverlener/de-demo-site-van-belrai). Further on in this chapter, they will be discussed.

Figure 3 BelRAI instruments on the digital BelRAI platform of the federal government (Van Horebeek, De Cuyper, Declercq & Van Audenhove, 2022; Vanlinthout et al. 2022)

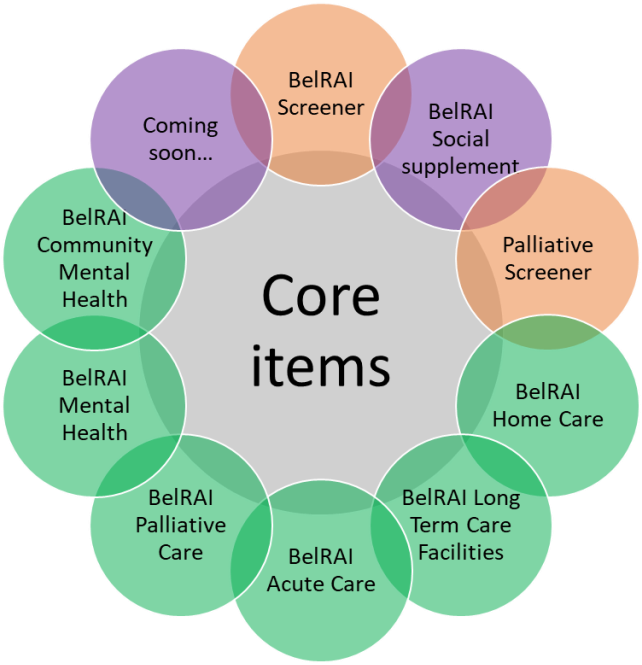


Figure 3 shows an important and specific characteristic of the interRAI and BelRAI assessment system, that makes it suitable to support integrated care delivered by professionals from different health and well-being sectors: the core items. The inter/BelRAI instruments have a common core: the same care needs are queried in the same way in the different instruments, and therefore in the different sectors in which a person might receive care. As a result, the evolution of the care needs can be monitored over time irrespective of the sector in which a person receives care. Next to the common set of items that are the same for all target groups or care settings, the interRAI and BelRAI

instruments include items that have been specifically developed for a target group or sector, making each instrument a unique assessment instrument tailored to a specific target group or sector.

A first type of the BelRAI instruments are the **Screeners**. The BelRAI Screener is depicted at the top of Figure 3 (in orange). The BelRAI Screener was developed and validated in Belgium to be used by primary care professionals to map the complexity of the care needs of persons in primary care. Below (see 2.3.1), we discuss the BelRAI Screener in more detail. The digital BelRAI platform of the federal government also includes a palliative screener. It consists of the items of the Palliative Care Indicator Tool (PICT); so it does not consist of BelRAI items. It is used to explore whether a person needs palliative care.

A second type of BelRAI instruments are the **comprehensive assessment instruments,** indicated in green in Figure 3. These are internationally validated instruments that map a person's functioning and care needs in just about all life domains in a standardized way. Using a comprehensive assessment instrument, (health)care provider gather information about a person's cognitive, physical, psychological and social functioning. The BelRAI comprehensive assessment instruments are at the moment:

- The BelRAI Home Care for home care,
- The BelRAI LongTerm Care Facilities for nursing homes,
- The BelRAI Acute Care for use in general hospitals for acute somatic care,
- The BelRAI Palliative Care for use in palliative care,
- The BelRAI Mental Health and Community Mental Health for use in mental health care.
- Furthermore, a BelRAI instrument aimed at people in long-term rehabilitation is currently in the testing phase. Therefore, it is not yet available on the digital BelRAI platform.

The results of a comprehensive assessment instrument – Collaborative Actions Plans[1] (CAP's) and Scales - provide support in developing and evaluating a care plan aimed at different life domains, in consultation with the client and/or his relatives. The Scales give an indication of the person's current clinical and functional status. The CAP's are complex algorithms that can be interpreted as a kind of 'alarm'. CAP's light up when the provision of additional counselling/treatment (1) increases the potential for improvement or for reaching full recovery within a particular life domain or (2) reduces the risk of function decline within a particular life domain. Therefore, CAP's do not indicate the degree of the care needs in a certain domain, as the Scales do. It is possible that a CAP does not light up, even though the functioning of the client in that domain is low, but based on the algorithm, no improvement in functioning or reduction of decline is possible anymore. CAP's and Scales provide evidence-based input for the treatment plan, as an addition to the know-how and expertise of the care providers and the care questions and expectations of the client and his network.

A third type of BelRAI instruments are the **BelRAI supplements**, depicted in purple in Figure 3. These supplements have been validated nationally or internationally, and have been developed to map in more detail specific care needs that are queried in a comprehensive assessment instrument or a

[1] In the nursing homes and home care sector, the common term used is Clinical Assessment Protocols instead of Collaborative Actions Plans. The term Collaborative Actions Plans was first invented by Lynn Martin for the sector of persons with a disability (Martin et al., 2013).

Screener – of course only if they are present in a client. This means that a supplement is always completed in combination with a comprehensive assessment instrument or a BelRAI Screener. In the next version of the web application of the federal government, the BelRAI Forensic supplement, Addictions supplement and Intellectual Disabilities supplement will also be added. These are supplements to the BelRAI (Community) Mental Health. For example, in forensic wards, the BelRAI Mental Health is meant to be combined with the Forensic Supplement. If the client also has an addiction problem, the Addictions supplement is added; and if the person also has an intellectual disability, the BelRAI MH is also combined with the Intellectual Disabilities supplement.

BelRAI assessments take time to complete. This is particularly the case for assessments that take place at the beginning of a person's care trajectory. Keeping a person's BelRAI assessment up to date afterwards takes less time. The time needed to complete a BelRAI instrument varies depending on (1) the complexity of the user's needs, (2) the complexity of the care involved, (3) the specific care setting, (4) the stage of the care support pathway, (5) the (health)care providers experience with BelRAI and (6) whether the same assessment has already been done at previous occasions (Vanlinthout et al., 2022). It is important to take into account that filling out a BelRAI assessment is a more time-consuming activity when (health)care providers are still in training. As a result, previous research shows that (health)care providers who are still in training find the time investment unbalanced with the (relevance of) output (Van Horebeek et al, 2021). However, the more BelRAI assessments a (health)care provider carries out, the shorter it will be until there is some stability in the time investment. By gaining experience with BelRAI, (health)care providers also learn to integrate and translate the possibilities of the BelRAI output into support and/or treatment plans much more quickly. In addition, as more sectors begin to use BelRAI, the time investment and output become more relevant. When BelRAI data is shared between sectors, it provides a view of the person's functioning history (collected by previous care professionals), which can inform the person's current treatment plan (Van Horebeek et al., 2021; Vanlinthout et al., 2022).

2.2 Why BelRAI?

In Belgium, we have a vast and high-quality care and well-being system. There are different forms of basic support and specialized care for each health or well-being problem. But this care and support is organized in a very fragmented way. This does not always make collaboration self-evident. We can improve continuity of care by improving the transfer of need-to-know information between the various teams, organizations, the care user and his relevant others. Identifying the same care needs in different sectors using the same assessment tool, is an important first step. In addition, when the organizations are connected to an assessment system that exchanges information with each other, healthcare providers can find each other more easily to properly coordinate care and support.

But in reality, within and between sectors, tools and questionnaires for assessing the care needs of the client differ. Consequently, often the same information is collected over and over again. The client has to tell his story repeatedly, which can be stressful. Information about the person is usually already available in another organization, but it remains unshared so that information gets lost. In addition, different professional disciplines are involved, who require the same information. Communication among them does not always go smoothly because each discipline has its own jargon.

BelRAI is an assessment system consisting of separate instruments for the different sectors. The instruments are connected with each other because the same care needs are questioned using the same items in the different instruments. The instruments therefore partly consist of the same items and partly of specific items aimed at the target group or sector on which the instrument focuses. We call this an *integrated* system of assessment instruments. Such an integrated assessment system aims to facilitate continuity of care (De Almeida Mello et al., 2015; Hermans et al., 2020; Van Horebeek et al., 2022; Vanlinthout et al., 2022; Vic et al., 2020). Because the instruments are linked to each other, they can generate a "chain of information" throughout a client's care path. This means that with such a system:

(1) We make an inventory of the same care needs in all sectors and for all target groups using the same items. Importantly, the interRAI and BelRAI instruments are never diagnostic tools. Their purpose is neither to diagnose, nor to explain why the care needs are present (Van Horebeek et al., 2022; Vanlinthout et al., 2022).

(2) The assessment tools generate results that provide input for care providers to create an individual care plan together with the client and his relevant others. Care providers from different sectors can be involved in this care plan (Vanlinthout & Declercq, 2021).

(3) The assessment system is included in a digital BelRAI platform. BelRAI assessments are completed on the BelRAI platform or are uploaded there. This ensures that we store all BelRAI information about a client in the same place. As a result, the information follows the person throughout his entire care path, the evolution of his care needs becomes visible, and the exchange of information between organizations and care providers is simpler and also more secure (BelRAI, 2023)

(4) Completing a BelRAI instrument requires input from various disciplines. Completing a BelRAI instrument therefore also stimulates cooperation between the care providers (interRAI 2021; Martin et al., 2007; Vanlinthout & Declercq, 2021; Van Regenmortel, et al., 2020; Vanlinthout et al., 2022).

(5) BelRAI uses a common language for all target groups and sectors to facilitate exchange between disciplines and sectors. This provides added value when healthcare providers from different organizations and sectors have to make decisions together. By using terms with the same meaning in all sectors, healthcare providers understand each other better which facilitates reaching a common view on how to handle a situation. This is important for the client and his relevant others (Strategische Adviesraad Welzijn, Gezondheid en Gezin, 2015; Vanlinthout et al., 2022).

(6) For some sectors, the interRAI assessment system contains a Quality of Life Survey by which the client provides input about the quality of his care and his life (Morris et al., 2016; Vanlinthout & Declercq, 2021; Vanlinthout et al., 2022). In Belgium, these instruments have been tested in Flanders. they are not part of the digital BelRAI platform of the federal government.

2.3 Relevant BelRAI and interRAI instruments for the development of a BelRAI detention screening instrument

In this section, we briefly highlight the most relevant BelRAI/interRAI instruments for adults that contributed to the development of a BelRAI detention screening instrument. First, we give an overview of the existing interRAI/BelRAI Screeners and Contact Assessments. Second, we briefly review other interRAI/BelRAI instruments developed specifically for the detention context.

InterRAI instruments are created in a scientifically based process and are validated step by step within the interRAI consortium (https://interrai.org/about-interrai/). InterRAI therefore makes a distinction between instruments that have already been validated in several countries and are published on the interRAI website, and instruments that are in the process of being validated. These are referred to in this report as pilot versions. These pilot versions have been developed based on scientific research but are not yet official interRAI instruments. They are therefore not yet available on the interRAI website.

2.3.1 Brief overview of interRAI and BelRAI Screeners and Contact Assessments

- *InterRAI Brief Mental Health Screener (BMHS)*

  The Brief Mental Health Screener (BMHS) helps frontline police and other front-line service providers to prioritise and respond to people with immediate mental health needs (Hoffman, Hirdes, Brown, Dubin & Barbaree, 2016).

- *InterRAI Contact Assessment (CA)*

  The contact assessment (CA) supports the home care intake process. It prioritises the need for comprehensive assessment, home care services and rehabilitation (Sinn, Hirdes, Poss, Boscart & Heckman, 2022). A CA is conducted by telephone and is designed for areas where it is not easy to reach everyone physically (e.g. due to long distances). The aim is twofold: (1) to identify who needs further assessment (usually home care) and (2) to check whether the need is urgent and therefore cannot wait for someone to come for an assessment to start help.

- *InterRAI COVID-19 Vulnerability Screener (CVS)*

  The interRAI COVID-19 Vulnerability Screener (CVS) is a Screener that can be used with older adults and adults with disabilities to identify the presence of COVID-19 symptoms, frailty, and major comorbidities that increase mortality risk related to COVID-19 (Hogeveen et al., 2023). Unlike other interRAI Screeners, this Screener is to be completed by the patient himself, because of the contact restrictions that were set during the acute COVID crisis period.

- *InterRAI Emergency Department Screener and interRAI Emergency Department Contact Assessment (ED-CA)*

  The Emergency Department Screener (ED) and Contact Assessment (ED-CA) quickly screen and assess older adults in emergency departments. These instruments assist in the prioritisation and assessment of vulnerable older adults to improve client safety and quality of care.

  The ED Screener is a short screening tool that provides a priority score for further assessment (Gretarsdottir et al., 2021; Mowbray et al., 2023). The ED contact assessment (ED-CA) is an

assessment tool that identifies common physical, cognitive and social and social issues that may require attention to support safe discharge or additional follow-up (Costa et al., 2014).

- *InterRAI Emergency Screener for Psychiatry (interRAI ESP)*

  The interRAI Emergency Screener for Psychiatry (ESP) is a brief screening tool for the emergency screening of acute mental health problems with an observation period of 24 hours (Cabral et al., 2021). The ESP is compatible with the MH and CMH instruments. It is suitable for use in hospitals, emergency departments and mobile crisis teams. This ESP has additional response categories focusing on the immediate presence of safety-related indicators relevant to risk assessment and care planning (e.g., harm to self, harm to others).

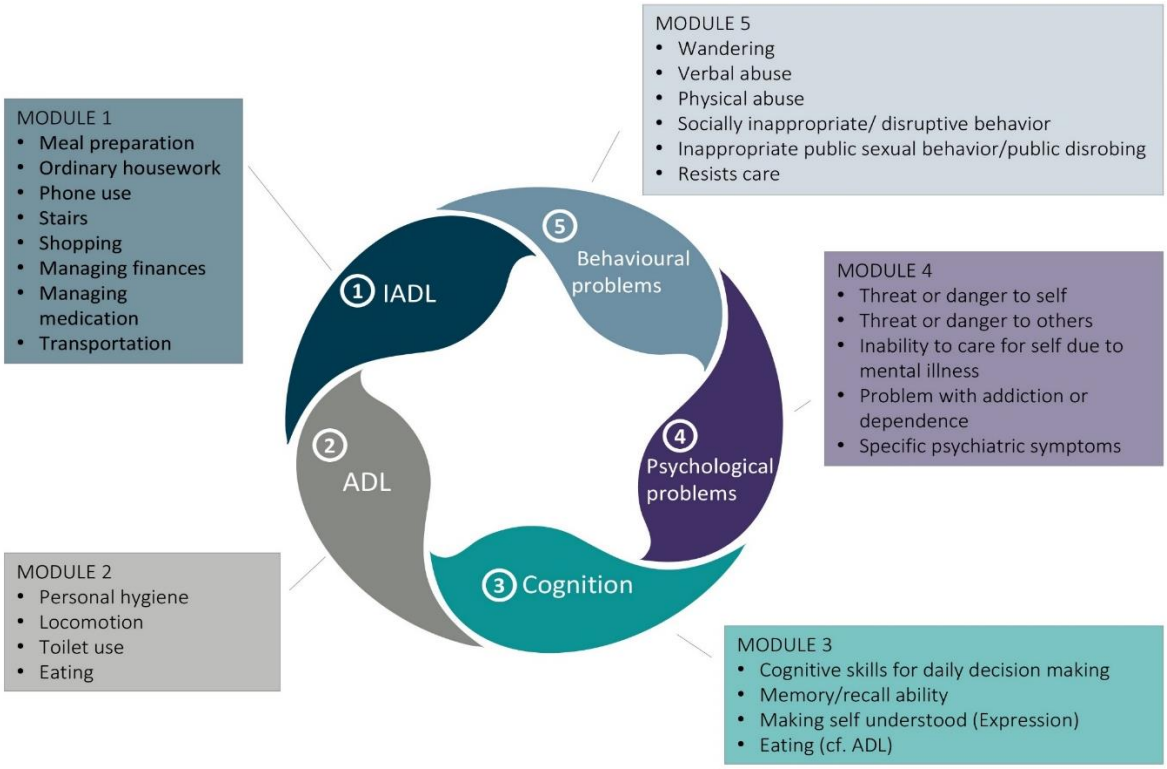
- *Brief Mental Health Screener for Correctional Facilities (BMHS - CF)*

  The Brief Mental Health Screener for Correctional Facilities is developed and piloted in correctional facilities in Ontario (CANADA) in 2011. It is not an officially validated interRAI screening instrument because no further validation studies were executed after 2011. This was the case because no further funding was found in Canada or elsewhere to test this tool successively on a large scale. It is a mental health screening instrument for admissions to correctional facilities. It allows for the identification of inmates who require specialised care outside the expertise of correctional staff, as well as inmates whose needs can be effectively managed in a correctional setting (Brown, 2011).

- *BelRAI Screener*

  The BelRAI Screener is a validated instrument unique to Belgium. The instrument was developed within LUCAS KU Leuven, in collaboration with Flemish stakeholders, to screen the care needs of adults in primary care. The BelRAI Screener is conducted in the person's home and is being developed because Belgium has a very accessible home care system and not everyone needs a comprehensive assessment immediately. The aim is therefore to identify needs and, if those needs are more complex, to move on to the BelRAI Home Care. The BelRAI Screener focuses on biopsychosocial aspects of functioning and problems with activities of daily living (Vermeulen & Declercq, 2016; Vermeulen et al., 2015; Moors & Declercq, 2019; Van Doren, Daems & Declercq, 2022).
  The BelRAI Screener care consists of five modules, as shown in Figure 4. The modules cover basic and complex activities of daily living (or Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL), cognition, and psychological and behavioural problems. Each module starts with the question whether the client is experiencing any problems related to the topic of that module. Only if the answer to this question is 'yes', the corresponding items will be presented (at least on a digital platform). If a person is not experiencing any problems related to the topic of the module, the corresponding items will automatically be scored as 0, indicating that the problem does not exist (Hirdes et al., 2008; Vermeulen et al., 2015; Moors & Declercq, 2019; Van Doren, Daems & Declercq, 2022).

Figure 4 Graphic illustration of the BelRAI Screener (Moors, Vermeulen, Declercq, 2017)



2.3.2 Brief overview of other interRAI/BelRAI instruments with a link to correctional settings

- *Corrections Contact Assessment for Geriatric Corrections*

  The Corrections Contact Assessment is also a pilot-instrument. It is not yet an officially validated interRAI instrument, but it is well on the way. It has been developed to identify the care needs of older prisoners (over 50 years old). It is a broad screening instrument, developed as a multi-domain assessment for Geriatric Corrections in Canada. As such, it mainly focuses on different domains of physical functioning of older adults, and also mental health indicators are assessed. This contact assessment is based on the Emergency Department Screener (Gretarsdottir et al., 2021; Mowbray et al., 2023) and has been further supplemented based on a rapid review on functional health needs of older persons in custody (Mofina et al., 2022). At the moment, it is being piloted in Canada.

- *InterRAI Forensic Supplement*

  The interRAI Forensic Supplement (Barberee et al., 2021) has been developed within the interRAI consortium as a complement to the interRAI MH in order to identify criminogenic needs in the forensic population. A BelRAI version already exists. For more information on a Flemish pilot study, see Van Horebeek et al. 2020.

3 Objectives of the study and research questions

On behalf of the Federal Public Service of Public Health, Food chain safety and Environment, the Federal Public Service of Justice and the Cabinets of Public Health and Justice, LUCAS KU Leuven and KeFor OPZC Rekem carried out a feasibility study in preparation for a pilot study on the usability of a BelRAI detention screening instrument. The aim of this feasibility study is twofold:

1. To develop a BelRAI screening instrument for adult detainees based on which the need for penitentiary care can be estimated by care providers for every prisoner that enters prison. More specifically, it should minimally screen for general and mental health needs (including suicide risk), addiction, and the presence of an intellectual disability.
2. To develop a protocol for the pilot study in Belgian prisons, and to identify the necessary condition to carry out this pilot study.

The research questions of this feasibility study are:

1. Which topics need to be assessed in a BelRAI detention screening instrument?
2. Which (adaptations of) BelRAI and interRAI items need to be included in the BelRAI detention screening instrument in order to assess these topics? Is it necessary to develop new items?
3. How can the usability, feasibility and acceptability of a pilot version of the BelRAI detention screening instrument be tested in a first pilot study in Belgian prisons?
4. Which necessary conditions need to be fulfilled to carry out this pilot study?

The methodology for investigating these research questions is reported in Chapter 2. Chapter 3 reports on the results of the first research question and Chapter 4 reports the results of the second research question. Chapter 5 summarizes the results of the first and second research question, and answers the third and fourth research question. At the end of this chapter, policy recommendations are formulated on the research and implementation process of the BelRAI screening instrument in the Belgian correctional sector.

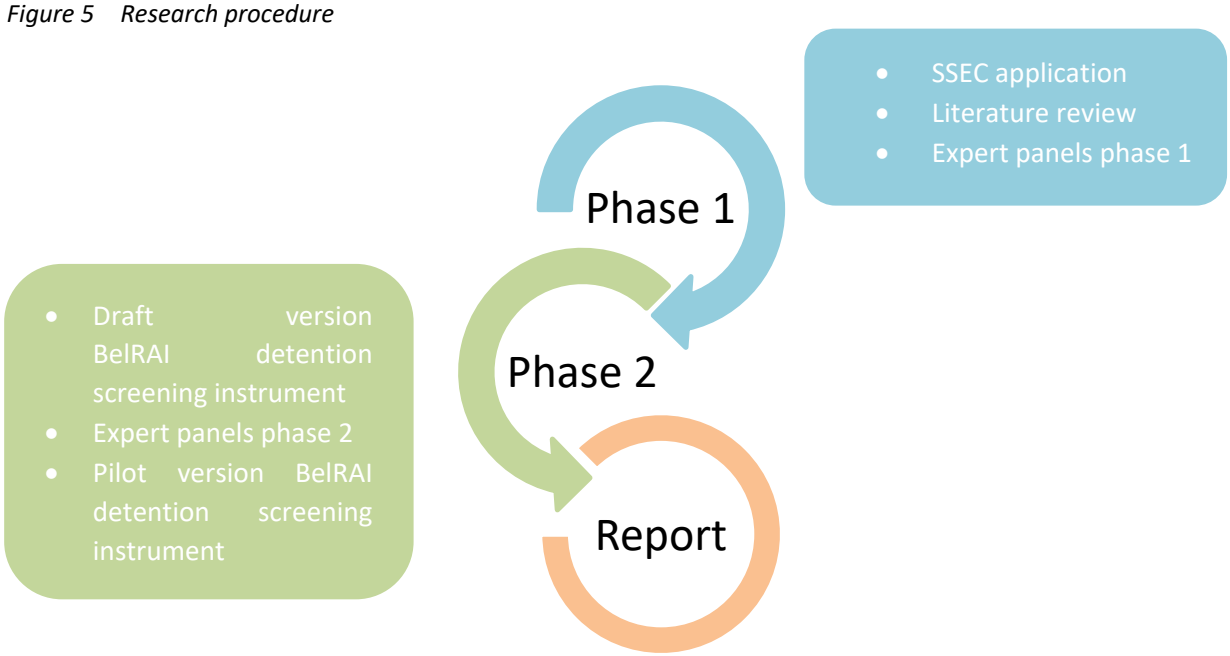
Chapter 2
Method

In order to answer the research questions mentioned above, information was gathered in a number of ways. This included a literature study and four expert panels. This chapter describes how the data were obtained and how they were analysed.

1 Research procedure

The study was conducted in two phases (see Figure 5). Research question 1 – the topics that need to be assessed in a BelRAI detention screening instrument - was the main topic of the first phase. A literature review was conducted to identify priority topics currently used in international screening tools for correctional facilities. In parallel with this literature review, expertise on the care needs that need to be screened when a person enters prison, was collected in Dutch and French speaking experts through a Dutch- and French-speaking expert panel. Subsequently, the results of phase 1 made out the starting point of phase 2 which was mainly focused on the other three research questions: the construction of the BelRAI detention screening instrument, the development of the protocol of the pilot study in Belgian prisons, and the identification of necessary conditions that need to be fulfilled to carry out the pilot study.

Figure 5 Research procedure



Phase 2 started with the examination of the interRAI Screeners, the BelRAI Screener, and other interRAI and BelRAI instruments with a link to the detention context (see paragraph 2.3 of Chapter 1), in order to determine whether interRAI/BelRAI items are available to assess the care needs that resulted from phase 1. If this was not the case, new BelRAI items were developed. Several interRAI/BelRAI items have been adapted to the prison context. Based on this examination of the

interRAI and BelRAI assessment systems, a first draft version of a BelRAI detention screening instrument was constructed. This version was presented to the same Dutch- and French-speaking experts as in phase 1, again in two expert panels. Based on their feedback, and also based on feedback from the commissioning Federal Public Services and Cabinets, we revised the draft version of the screening instrument in order to obtain a first pilot version of a BelRAI detention screening tool. During this revision process, also the results of phase 1 of the study were taken into account (for the second time).

During the expert panels of phase 2 of the study, we also asked to identify necessary conditions to carry out a pilot study in Belgian prisons. This feedback informed the development of a pilot study protocol.

An application to the Social and Societal Ethics Committee (SSEC) of KU Leuven was submitted at the start of research phase 1. The full research protocol was approved (G-2023-6301).

2 Literature review

For an overview of instruments used in international prison context, we relied on the systematic review of Martin et al. (2013). This review provides a comprehensive overview of the various instruments utilized for the purpose of identifying prisoners with mental health needs that necessitate further follow-up or assessment. We complemented the systematic review of Martin et al. (2013) with a scoping review. For the development of a BelRAI detention screening instrument, we drew – among others - upon information from the literature review regarding the use of these tools, their development and composition, scoring instructions and performance. An overview of this information can be consulted in Chapter 3.

The care needs of prisoners for which the Federal government wants to reform the prison health care system, covers a broad scope of issues including physical, psychological and social problems. In order to identify topics to include in the BelRAI screening instrument for the prison context, we looked into the existing international academic literature by means of a scoping review. A scoping review is a form of literature review that focuses on exploring a broad research area to identify the volume of available literature and key research topics. Unlike a systematic review, which focuses on answering a specific research question, the purpose of a scoping review is to provide a broad overview of the available literature (Arksey and O'Malley, 2005). With a scoping review we are able to identify recurring topics related to care needs of detainees. Additionally, it can reveal patterns, themes, and gaps in knowledge.

Our scoping review followed the steps proposed in the guidelines by Peters et al. (2015). The focus for this review was the selection of topics for the development of a screening instrument within the prison context. The subsequent step involved establishing the inclusion and exclusion criteria for our study. We specifically opted to include literature that pertains to the selection, development or review of screening or assessing the care needs for adult prisoners. This encompassed scientific papers identified through our search strategy in PubMed. Grey literature pertaining to the Belgian prison context was mainly sourced from fellow researchers or were reports published by the Federal government. These sources provided valuable insights and information specific to the Belgian context. In addition to the aforementioned criteria, we applied further exclusion criteria. Literature pertaining to criminal justice settings in the community, as well as literature specifically

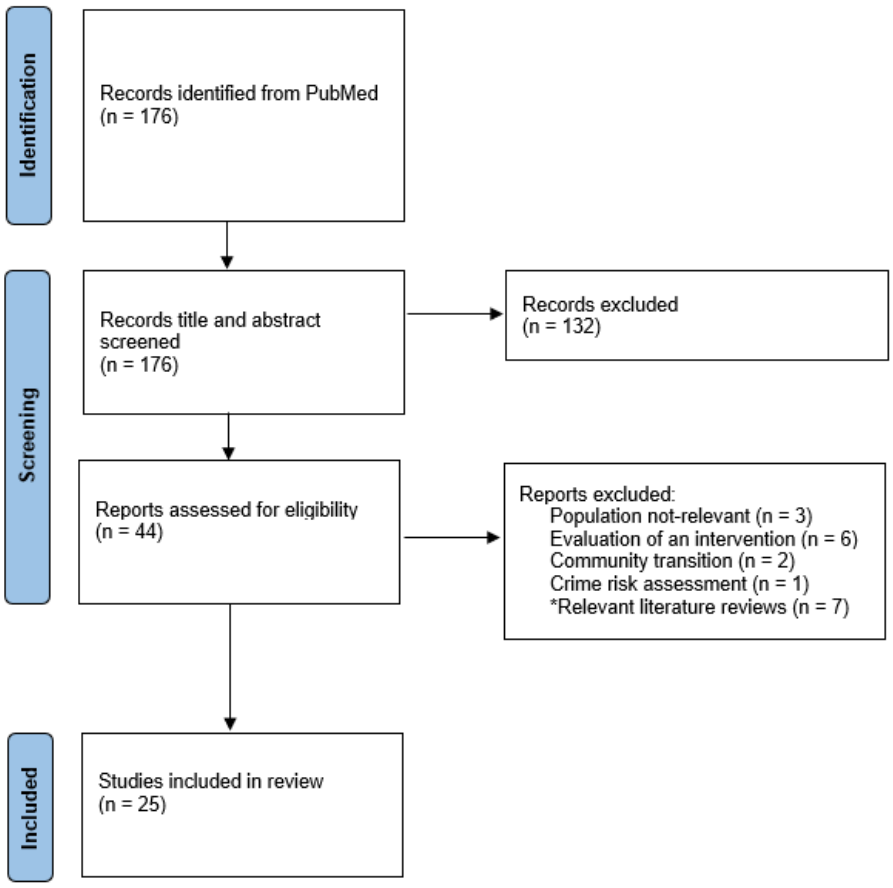
addressing the transition from prison to community healthcare settings, were excluded from our review. Also excluded were studies that focused on the evaluation of interventions without a clearly stipulated screening method. This decision was made to ensure that the included studies were specifically relevant to our research objective of identifying and evaluating screening methods for the selected needs. Moreover, we limited our selection to literature published in English, Dutch, or French. To ensure the inclusion of recent literature, a timeframe of the last ten years was applied in the selection of articles. This approach aimed to capture the most up-to-date information and insights. By focusing on articles published within this timeframe, the study sought to build upon the aforementioned systematic review conducted by Martin et al. in 2013. Identified studies that encompassed a literature review were deliberately excluded from the data charting to prevent double-counting. Nonetheless, reviews that were relevant to our research hypothesis were consulted to validate our findings and supplement our written report. The electronic database search was performed using the following search syntax:

(screen* OR assess* OR identif* OR tool OR instrument) AND ("mental health needs" OR "social care needs" OR "social needs" OR "social care") AND (jail OR prison* OR offender)

By explicitly specifying the needs in our search syntax (mental health needs, social needs, social care needs), we aimed to generate a more targeted and relevant set of articles for analysis. This strategy allowed us to filter out a multitude of articles that primarily focused on psychological interventions, which does not directly address the aim of this study. By narrowing the scope to these needs, we were able to streamline our search results which enhanced the feasibility and efficiency of our review process. Furthermore, we recognized the importance of including the term 'social care' in our search syntax alongside the other specified needs. This decision was based on the understanding that 'social care' encompasses a broader range of personal and practical care services provided to individuals in need of additional support for their well-being. By adopting this approach, we sought to strike a balance between generating a focused and relevant set of articles that directly addressed the identified needs, while also ensuring that we did not overlook the critical aspect of social care.

The electronic search returned 176 hits. A first selection was made based on title and abstract screening. This resulted in 41 articles that were assessed for eligibility. Of these 41 articles eventually 25 articles were included in the scoping review (see Figure 6).

Figure 6 Flow diagram of article selection for scoping review



*Relevant literature reviews that were excluded from the data charting to prevent double-counting, but were consulted to validate our findings and supplement our written report. An overview of these studies can be consulted in table 5.

We employed generic study features to extract and tabulate relevant data from the selected articles. These generic features were informed by the Joanna Briggs Institute Manual for Evidence Synthesis (Aromataris & Munn, 2020). The researchers are able to provide this overview upon request. During the full-text review of the selected articles, we engaged in a detailed reading process. We ensured that important insights, themes, and findings were appropriately documented and included in our data extraction process. Data items relating to the features of the study were extracted iteratively, such as publication year, population, instruments used and study aims. Assessments and screening factors were charted in order to identify the topics that constitute the care needs of prisoners. In addition, recommendations regarding implementation of a detention screening instrument were listed. A narrative report was generated to summarize the extracted data and topics. These results will be presented in the context of the overall study objective and will be supplemented with information from the relevant literature reviews that were identified by our search strategy (see Chapter 3).

3 Expert panels

Bearing in mind the research objectives and the short duration of the study (4 months), we opted to organise two expert panels in each of both phases of the study: one in Dutch and one in French. Questions differed between the two phases, but were the same in both languages. The expert panels took place in the buildings of the FPS Public Health on March 24 and May 5, 2023.

3.1 Knowledge clip on BelRAI

In preparation for the first expert panel, participants were asked to watch a knowledge clip with basic information about BelRAI, specifically developed for the occasion of this study: **Kennisclip: De basics van BelRAI/ Clip de connaissances: Les bases de BelRAI.** The knowledge clip of about 25 minutes answers the following questions:

- Why did the Belgian governments choose BelRAI to assess care needs in care and welfare organisations?
- What is BelRAI?
- What is the BelRAI Screener for primary care?

By means this knowledge clip, participants could get familiar with BelRAI in advance and the researchers could refer back to the information from the clip to discuss the topic of BelRAI during the expert panels. This knowledge clip recorded in Dutch has been provided with both French and Dutch subtitles.

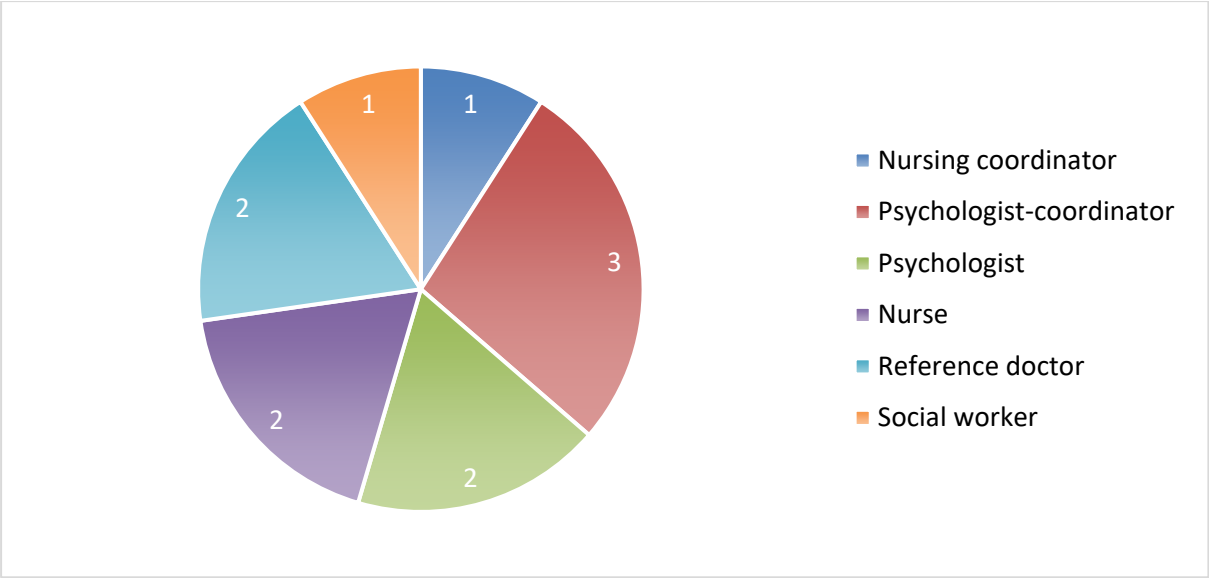
3.2 Participants

To participate in the expert panels, as diverse a group of experts as possible from different services and functions involved in the detention context, was invited by the commissioners of the study, FPS Public Health and FPS Justice. Knowledge of BelRAI was not a criterion for inclusion in the expert panels. The information letter (in Dutch and French) contained a brief introduction to the study and practical information, such as the time and date of each expert panel. The information letter can be found in Annex 1: Information letter. The information letter was sent out by e-mail by the government departments that commissioned the study.

In coordination with FPS Public Health and FPS Justice, the government agencies sent invitations to participate in the expert panels to care coordinators, psychologist coordinators of a care team, care provider from clinical observation centres, nurses working in prisons, care providers working in the addiction screening projects, psychiatrist(s) and general practitioners working in penitentiary care. The experts could register online via a registration link that was sent with the invitation and information letter. In this registration link, the experts could choose whether they participated in the Dutch-speaking or the French-speaking expert panel.

At the start of the research, expert panels of six to maximum 12 people were targeted to ensure optimal participation and involvement of participants (Vander Laenen, 2010). In total, a maximum of 24 experts could participate, 12 per expert panel. In total 11 experts participated in either one or both expert panels (French and Dutch). Figure 7 provides an overview of the functions these experts fulfil within their organization.

Figure 7 Overview of participants' functions



In phase 1, 5 experts registered for the French-speaking panel and 5 for the Dutch-speaking panel. In the end, 2 out of 5 experts did not participate in the Dutch panel. All registered French-speaking experts were present. In phase 2, again 5 experts registered for the French-speaking panel and 5 for the Dutch-speaking panel. Finally, all 5 experts registered for the Dutch-speaking panel took part. The French-speaking panel had 4 participants.

3.3 Data collection

Guideline questions were prepared for both expert panels in phase 1 and phase 2 of this study (see Annex 2: Guideline questions expert panels phase 1 and Annex 3: Guideline questions expert panels phase 2). This guideline questions were the same for both expert panels (FR and NL) in each research phase.

3.4 Data analysis

The audio files of the four expert panels were transcribed and then analysed thematically. The qualitative analyses in research phase 1 were carried out by KeFor researchers. In research phase 2, this was done by researchers from LUCAS KU Leuven.

The qualitative analysis was carried out in two steps in each research phase. The first step was to provide an overview of the themes that emerged in each expert panel. The interview guidelines prepared for each research phase provided a basis to identify the themes. Several researchers from each research group read the transcripts and agreed on the different themes. In a second step, for each theme, the researchers listed the corresponding statements made by the experts. Thirdly, the results of both expert panels (Dutch and French) were combined.

Chapter 3 reports the results summarising this analysis for research phase 1. The results of the expert panels in research phase 2 can be found in chapter 4.

Chapter 3
Identification of care needs that need to be assessed in a BelRAI detention screening instrument

1 Results literature overview of internationally used screening tools

In 2013, Martin et al. conducted a systematic review on mental health screening tools used in correctional institutions. The impetus for this research stemmed from the ascertainment that there was little guidance to inform the selection of an appropriate mental health screening tool in correctional settings. They identified twenty-two screening tools of which only six tools had replication studies. Due to the limited amount of replication studies, the authors provide a descriptive summary in lieu of using of meta-analytic techniques. The identified tools were the Brief Jail Mental Health Screen (BJMHS; Policy Research Associates, 2005), the Correctional Mental Health Screen for Men (CMHS-M; Ford & Trestman, 2003), the Correctional Mental Health Screen for Women (CMHS-W; Ford & Trestman, 2003), the England Mental Health Screen (EMHS; Grubin et. al, 2002), the Jail Screening Assessment Tool (JSAT; Nicholls et al., 2005), and the Referral Decision Scale (RDS; Teplin & Swartz, 1989). Apart from the EMHS, all of these instruments were developed in the United States. These instruments appeared to be promising tools. However, the authors discourage use of the RDS given that the BJMHS was developed to address the limitations of the RDS.

To develop the BelRAI detention screening tool, we relied upon relevant information pertaining to the utilization, development, composition, scoring instructions, and performance of the recommended mental health screening tools. Subsequently, we present a descriptive summary of this information.

The BJMHS, CMHS-M and CMHS-W and EMHS are brief tools, they approximately take 5 minutes or less to be complete and are administered by health or custodial staff, whereas the JSAT requires 20-30 minutes to complete and is administered by nursing or psychology staff.

1.1 Brief Jail Mental Health Screen

For the development of the BJMHS, the total number of items of the RDS was reduced from the original 14 to a set of 8 items. Because the RDS subscales did not perform well in discriminating among the different disorders, they aimed at developing a single composite scale the scoring approach of the BJMHS. Items that had questionable content validity and did not contribute statistically to the composite scale were eliminated (Steadman et al., 2005). RDS-items no longer included in the BJMHS were the items that questioned feeling watched, feeling followed, feeling poisoned, thought racing, grandiosity, reduced sleep and sex desire. Additionally, it appeared that the items of the RDS did not take into account the dramatically limited personal freedom of incarcerated persons and did not seem to sample the conditions aimed for (Veysey et al., 1998). This is referred to as “face validity”. Face validity is a form of validity assessment used in research

and measurement to determine whether a test or measurement instrument appears, on the surface, to measure what it intends to measure. The developers changed the retained items from lifetime occurrence to “recent” and “currently” aiming to enhance the face validity. The first six items question the psychological state of the individual and deal with symptoms that may be indicative of depression, bipolar disorder, schizophrenia or other delusional disorders. The seventh item asks whether the individual is currently taking psychotropic medication prescribed by a doctor. The final question asks whether the individual has ever been hospitalized for emotional or psychological problems. See *Table 1 f* or an overview of all items. Further assessment is indicated when the individual answers positively to any of the last two questions, or to at least two of the first six questions. These alterations proved beneficial for sensitivity and specificity rates for referral. Sensitivity refers to the ability of the instrument to accurately identify individuals who have the condition or risk factor of interest (e.g., mental health needs), while specificity refers to the instrument's ability to accurately identify individuals who do not have the condition or risk factor. In the context of prison screening, a high sensitivity ensures that individuals who require further assessment or intervention are not missed. It helps identify those who may be experiencing mental health needs or other relevant factors that require attention. On the other hand, a high specificity is important to avoid unnecessary burden on the system and to minimize false positives, ensuring that resources are directed appropriately to those who truly need them. A screening instrument with a good balance between sensitivity and specificity optimizes the accuracy of the screening process. The scales of the RDS had sensitivity rates ranging from 73%-80% and specificity rates ranging from 16%-31% (Veysey et al., 1998). The sensitivity of the BJMHS is considerably higher, with percentages ranging from 82-95% for sensitivity and ranges from 30% to 60% for specificity (Martin et al., 2013). Unfortunately, with 34,7% the BJMHS generates an unacceptable high number of false-negative results for females (Steadman et al., 2005). Furthermore, Osher et.al. (2004) acknowledge the lack of a systematic screening process to evaluate the risk of suicide within the BJMHS. By recommending the incorporation of an additional standardized screening tool, they recognize the imperative of assessing and addressing these risks.

Table 1 Questions of the BJMHS

1. Do you currently believe that someone can control your mind by putting thoughts into your head or taking thoughts out of your head?
2. Do you currently feel that other people know your thoughts and can read your mind?
3. Have you currently lost or gained as much as two pounds a week for several weeks without even trying?
4. Have you or your family or friends noticed that you are currently much more active than you usually are?
5. Do you currently feel like you have to talk or move more slowly than you usually do?
6. Have there currently been a few weeks when you felt like you were useless or sinful?
7. Are you currently taking any medication prescribed for you by a physician for any emotional or mental health problems?
8. Have you ever been in a hospital for emotional or mental health problems?

1.2 Correctional Mental Health Screen for Men/Women

The CMHS-M is a 12 item yes-no answer questionnaire that warrants further psychiatric evaluation if the prisoner answers yes to at least 6 of the 12 questions. Comparable to the BJMHS, questions inquire about current and lifetime indications of serious mental disorder. Its scope is slightly wider than the BJMHS with items on symptoms that may be indicative of depression, anxiety, post-traumatic stress disorder, borderline personality disorder and antisocial personality disorder. The version for women (CMHS–W) is an 8 item yes-no questionnaire that warrants further evaluation if the prisoner answers yes to at least 5 of the 8 questions. For an overview of the questions included in the screeners, see Table 2 and Table 3. Six questions regarding symptoms and history of mental illness are the same on both questionnaires. There are six questions unique to the men screening tool questions one, four, five, six, seven and twelve) and two unique questions to the women screening tool four and six).

Table 2 Questions of the CMHS-M

1. Have you ever had worries that you just can't get rid of?
2. Some people find their mood changes frequently – as if they spend everyday on an emotional roller coaster. Does this sound like you?
3. Do you get annoyed when friends or family complain about their problems? Or do people complain that you're not sympathetic to their problems?
4. Have you ever felt like you didn't have any feelings, or felt distant or cut off from other people or from your surroundings?
5. Has there ever been a time when you felt so irritable that you found yourself shouting at people or starting fights or arguments?
6. Do you often get in trouble at work or with friends because you act excited at first but then lose interest in projects and don't follow through?
7. Do you tend to hold grudges or give people the silent treatment for days at a time?
8. Have you ever tried to avoid reminders, or to not think about, something terrible that you experienced or witnessed?
9. Has there ever been a time when you felt depressed most of the day for at least 2 weeks?
10. Have you ever been troubled by repeated thoughts, feelings, or nightmares about something you experienced or witnessed?
11. Have you ever been in a hospital for non-medical reasons such as in a psychiatric hospital? (Do NOT include going to an Emergency Room if you were not hospitalized.)
12. Have you ever felt constantly on guard or watchful even when you didn't need to, or felt jumpy and easily startled?

Table 3 Questions of the CMHS–W1

1. Do you get annoyed when friends and family complain about their problems? Or do people complain you are not sympathetic to their problems?
2. Have you ever tried to avoid reminders of, or to not think about, something terrible that you experienced or witnessed?
3. Some people find their mood changes frequently-as if they spend every day on an emotional rollercoaster. For example, switching from feeling angry to depressed to anxious many times a day. Does this sound like you?
4. Have there ever been a few weeks when you felt you were useless, sinful, or guilty?
5. Has there ever been a time when you felt depressed most of the day for at least 2 weeks?
6. Do you find that most people will take advantage of you if you let them know too much about you?
7. Have you been troubled by repeated thoughts, feelings, or nightmares about something terrible that you experienced or witnessed?
8. Have you ever been in the hospital for non-medical reasons, such as a psychiatric hospital? (Do NOT include going to an Emergency Room if you were not hospitalized.)

Martin et al. (2013) report that CMHS-M had a sensitivity of 74% in the development study for the detection of an Axis I or II disorder. Rates of 70% were reported in the replication study. The CMHS-W had a sensitivity of 65% in the development study and 64% in the replication study for the detection of Axis I or II disorders. The screens proved highly valid with accuracy rates of 75,5% for the CMHS–M and 75% for the CMHS–W in correctly classifying prisoners as having a previously undetected mental illness (Ford & Trestman, 2003).

1.3 England Mental Health Screen

The EMHS consists of four yes-no questions (see Table 4). There are follow-up questions for three out of these four questions in case the prisoner answers yes. The EMHS relies heavily on historical information. They ask about psychiatric consult, psychiatric medication and past self-harm behaviours. Question four inquires about the presence of current suicidal thoughts. A psychiatric evaluation by a mental health nurse is recommended if the prisoners answer yes on any of the four questions. In their systematic review Martin et al. (2013) reports finding one study were the EMHS achieved sensitivity for referral of only 50% in their small sample of male prisoners and one study in which a sensitivity for referral of only 42% was found. Dietzel et al. (2017) assessed the performance of the EMHS by comparing the results for referral with scores on the 12-item version of the General Health Questionnaire (Goldberg & Blackwell, 1988). Again, the EMHS proves not sensitive enough by indicating the need for further evaluation for over 30% fewer inmates than the GHQ12.

The EMHS is part of a larger health screen that was developed by Grubin et. al (2002) for the reception of new incoming prisoners. The modified first reception health screen consists of the EMHS and is supplemented with sections on physical health and substance abuse. Physical health

screening consists out inquiring about recent doctor's appointments, recent injuries, prescribed medications, and going over a short list of symptoms or diseases (asthma, diabetes, epilepsy, chest pain, tuberculosis, sickle cell disease and allergies). The section on substance abuse inquires about the frequency of use of alcohol, heroin, methadone, benzodiazepines, amphetamine or cocaine/crack and if any of these are used intravenously.

Table 4 Questions of the EMHS

1. Have you ever seen a psychiatrist outside prison?
2. Have you ever received medication for any mental health problems?
3. Have you ever tried to harm yourself?
4. For some people coming into prison can be difficult, and a few find it so hard that they may consider harming themselves. Do you feel like that?

1.4 Jail Screening Assessment Tool

The JSAT is a structured interview that consists of several questions in each of eight sections: identifying information, legal situation, violence issues, social background, substance use, mental health treatment, suicide and self-harm issues, and mental health status. The JSAT differs significantly from the BJMHS, CMHS and the EMHS since it has no score-based decision rules. The JSAT relies on current. It is the nurse or member of psychology staff making decisions about referral based on general guidelines offered for each of the sections. This method is likely to be reflective of the more variable performance of the JSAT across studies reported by Martin et al. (2013) with sensitivity rates ranging from 38% up to 84% and specificity rates ranging from 67% up to 71% for referral.

In conclusion, the systematic review conducted by Martin et al. (2013) serves as a strong foundation for understanding the existing screening tools used in the prison context. The findings from this review, along with additional research on the validity and applicability of these tools, provide valuable insights and guidance for the development of a BelRAI detention screening instrument. The tools discussed above mainly assess mental health needs. However, the Federal government wants to reform the prison health care system to address a broad scope of needs of prisoners for which the scoping review served purpose.

As part of the scoping review, the objective was not only to identify the general care needs of prisoners but also to explore additional research related to the screening tools discussed and to identify additional screening tools used internationally. Out of the 25 studies included in the review, five of them specifically addressed screening tools that were previously mentioned. The study of McInerney et al. (2013) used the JSAT in order to evaluate an integrated mental health prison in-reach and court liaison service for prisoners suffering psychosis. Butler et al. (2022) used the JSAT in their study to study the prevalence of mental health needs, substance use, and co-occurring disorders among people admitted to prison. The CMHS-M was also administered in a prevalence study (Chow et al., 2018). Our scoping review only revealed one study assessing validity. Gerritsen et al. (2022) researched the ecological validity of the BJMHS through its positive predictive value. They assessed the ability of the BJMHS to correctly identify prisoners requiring any further referral, intervention or transfer. In their study, they did initial screening on reception by administering the

BJMHS. All positive BJMH screens were referred for triage within up to a week later by specially trained clinicians employing the JSAT. The results of their study revealed that approximately one third of individuals who screened positive for mental health problems did not meet the threshold for intervention during triage. The researchers emphasized that the timing of the assessments could be a crucial factor in this observation, as the initial period after reception is characterized by significant upheaval and adjustment. They suggested that the mental health status of individuals might naturally improve over the first few weeks without immediate intervention. The researchers found 15% higher positive predictive values than previous research for prisoners being in need of specialist care. These findings were comparable to positive predictive values reported by the CMHS in other research they consulted from Ford et al. (2009) (61%–66%).

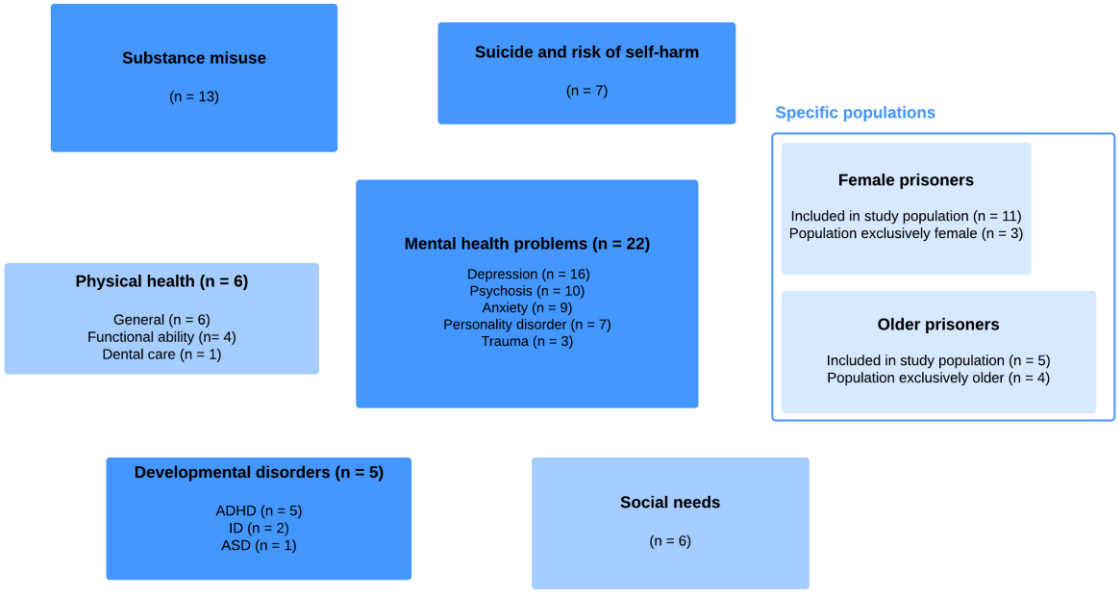
Within our scoping review, two studies were identified that utilized an instrument that has not been discussed thus far (O'Hara et al., 2016; Senior et al., 2013): the Camberwell Assessment of Need – Forensic Version (CANFOR; Thomas & Slade, 2021). The CANFOR is primarily employed for assessing the needs of individuals who have been diagnosed with severe mental health issues and are in contact with forensic services, encompassing both prison-based and community-based settings. However, considering the specific focus of our study on the care needs of prisoners within the Belgian detention context, the scope of the CANFOR appears to be overly broad, extending beyond the confines of our research objectives.

2 Results scoping review

The purpose of the conducted scoping review is to comprehensively identify and describe the care needs of prisoners in an international context. The review aims to provide an overview of the different topics that have been addressed in relation to prisoners' care needs. Additionally, the review aims to identify any gaps in knowledge and understanding in this area.

Figure 8 provides a visual representation of the identified topics and their frequency of reference within the reviewed literature.

Figure 8 Visual representation of the identified topics



This figure serves as a valuable summary and reference point for understanding the breadth of care needs that have been explored. The review will proceed with narrative reports for each of the identified topics. These reports will delve deeper into each topic, synthesizing the findings from the literature and highlighting key points, trends, and gaps in knowledge. The details of these papers can be found in the accompanying table, which provides a summary of each paper see Table 5 and Table 6 .

Table 5 Table of identified reviews

Author Year	Purpose	Key findings
Fazel et al. 2016	To present clinical, research, and policy recommendations to improve mental health care in prisons.	• Mental disorders are over-represented in prisoners. The strongest evidence is for serious mental disorders. Substance abuse is also greatly increased in prisoners • Individuals in prison with mental health problems are at increased risk of suicide, self-harm, violence, and victimisation. Risk factors for these outcomes are not specific and few of these factors are shared across them, limiting development of effective interventions • High quality RCT evidence exists on methadone maintenance and opioid substitution treatments, but little on how to treat alcohol misuse • A number of special groups in prison, including women and older prisoners, appear to have specific mental health needs and may need tailored treatments.
Lorito et al. 2017	To review and meta-synthesize literature around the experience of life in prison, its impact on their wellbeing and how prison services are currently addressing their complex needs of ageing prisoners, grounded in a Good Lives Model theoretical framework.	• Ageing prisoners have unique and complex health and social care needs which, to varying degree across different countries, are mostly unmet • Promising initiatives to address their needs are emerging, but, at present time, the overall experience of incarceration for the ageing prisoner is quite poor, given the inconsistent physical, emotional and social care support offered from prison intake to release and beyond
Stürup-Toft et al. 2018	This paper focuses specifically on emerging health issues for prisons across the world	• Deaths in custody are a key concern for the justice system as well as the health system • Suicide is the leading cause of mortality in prisons worldwide but non-communicable diseases, such as cardiovascular disease, are increasing in importance in high-income countries and are now the leading cause of mortality in prisons in England and Wales • The prison population is ageing in most high-income countries. Older people in prison typically have multiple and complex medical and social care needs including reduced mobility and personal care needs as well as poor health
Parrott et al. 2019	To identify existing research robust enough to inform policy and practice in relation to mental health in older offenders and the knowledge gaps that should drive future research	• The older population in prisons and secure settings is growing, and there is much concern as to how far facilities and services have been able to identify and meet the mental health needs of those of older age • Cooperation between researchers and services and between disciplines will be essential if we are to secure a more robust evidence base in this respect

		• Engaging service users in such research and considering the whole criminal justice pathway including diversion remains a priority
Peacock et al. 2019	The purpose of this paper is to synthesize the existing research literature regarding the phenomenon of the health and social care needs of older persons living with dementia in correctional settings	• Recognition of dementia as a concern for older persons in correctional settings • Dementia-related screening and care for older persons • Recommendations for screening and care practices.
Favril et al. 2020	To synthesise evidence and assess the risk factors associated with self-harm inside prison	• The wide range of risk factors across clinical and custody-related domains underscores the need for a comprehensive, prison-wide approach towards preventing self-harm in prison. This approach should incorporate both population and targeted strategies, with multiagency collaboration between the services for mental health, social care, and criminal justice having a key role.
Brooke & Diaz-Gil 2020	The objectives of this review were to identify the prevalence of dementia in the prison setting and how prison, health and social care providers assess, diagnose, treat, support and care for prisoners with dementia.	• Three themes emerged: prevalence of dementia in the prison population, identification of older prisoner's needs, and knowledge of correctional officers and legal professionals. • The prevalence and incidence of dementia in prison populations remain largely unknown. There is a need for national policies and local strategies that support a multi-disciplinary approach to early detection, screening and diagnosis of cognitive impairment and dementia across prison settings • Need for the development of structured prison environments, non-pharmacological interventions, continued assessment of prisoners with a dynamic care plan, and training for health, social and prison staff and prisoner

Table 6 Table of reviewed articles

Author Year Country	**Aim**	**Instrument used**	**Discussion**
Derkzen et al. 2013 Canada	To outline the mental health needs of federally sentenced females in Canada	- Computerized Diagnostic Interview Schedule (C-DIS-IV)	This research highlights the critical importance of comprehensive and ongoing mental health assessment, and treatment, for the successful management and reintegration of female offenders.
McInerney et al. 2013 Ireland	Implementing a participatory action research approach in order to provide an integrated mental health prison in-reach and court liaison service for newly committed prisoners	- The Jail Screening Assessment Tool (JSAT)	It is possible to match research findings in clinical practice by systematic. screening, to sustain this over a long period and to achieve consistent levels of diversion from the criminal justice system to appropriate mental health services.
Martin et al. 2013 Canada	To evaluate the use of an iterative classification tree (ICT) approach to mental health screening compared with a simple binary approach using cut-off scores on screening tools	- The Brief Symptom Inventory (BSI) - The Depression Hopelessness and Suicide Scale (DHS) - The Cognistat - The Adult ADHD Self-Report Scale (ASRS)	This first evaluation of the application of such an approach offers the prospect of more effective and efficient use of the scarce resource of mental health services in prisons.
Senior et al. 2013 UK	To examine the health and social care needs and current service provision for older male adults entering and leaving prison, and evaluated a model for systematic needs assessment and care planning for these groups.	- Camberwell Assessment of Need – Short Forensic Version (CANFOR-S52) - The Geriatric Depression Scale short form (GDS-15) - The Brief Psychiatric Rating Scale (BPRS) - The UK minimum data set (MDS)	The number of older prisoners leads (OPLs) in health care departments has increased in recent years but they are often hampered in their ability to proactively improve services for older prisoners. Furthermore, 44% of establishments do not have an older prisoner policy. There is a lack of integration between health care and social care services.
Heidari et al. 2014 UK	To discuss the establishment of a primary care inter-professional relationship network (IRN) developed within a prison setting involving a dentist and other healthcare professionals	- Five case descriptions	The IRN allowed information sharing between professionals and an open care culture. An IRN can help to identify vulnerable groups and allow healthcare providers to give

			appropriate, targeted and focused care in a timely fashion.
Togas et al. 2014 Greece	To assess HRQoL in a prison population in Greece and to explore the relationship between HRQoL and a set of individual sociodemographic and health related characteristics and characteristics of detention	- Short Form 36 health survey questionnaire (SF-36) - EuroQol-5 dimension (EQ-5D)	Implementation of policies that aim at preventing the use of narcotics within the prison environment is expected to contribute to improved HRQoL in this population.
Gooding et al. 2015 UK	To examine the impact of two risk factors working together on a measure of suicide probability in a highly vulnerable group who were male prisoners identified as being at risk of self-harm	- The Suicide Probability Scale (SPS) - The Beck Hopelessness Scale (BHS) - The defeat scale - The entrapment scale - Brief Psychiatric Rating Scale (BPRS) - Standardised Assessment of Personality – Abbreviated (SAPAS)	Clinical assessments of highly vulnerable individuals, as exemplified by prisoners, should include measures of a range of general psychiatric symptoms, together with measures of psychological components, in particular perceptions of hopelessness.
Gooding et al. 2015 UK	To examine the ways in which perceptions of self-esteem and coping ability interacted with defeat and entrapment to both amplify suicidal thoughts and feelings, and to act as a buffer against suicidal thoughts and feelings	- Suicide Probability Scale (SPS) - The Beck Depression Inventory-second edition (BDI-II) - The Robson Self Concept Questionnaire (RSCQ) - The Coping Inventory for Stressful situations (CISS) - The defeat scale - The entrapment scale	Therapeutic interventions would benefit from boosting perceptions and appraisals of coping ability, in particular, in people who are at high risk for suicide.
Beaudette & Stewart 2016 Canada	A current estimate of prevalence rates of mental disorder among Canadian federal offenders is required to facilitate treatment delivery and service planning	- Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) - Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II) - The Global Assessment of Functioning Scale (GAF)	The results underscore the challenge posed to Canadian federal corrections in providing the necessary mental health services to assist in the management and rehabilitation of a significant percentage of the offender population with mental health needs.
Jarret et al. 2016 UK	To explore the feasibility of expanding a community service for early detection of psychosis	- Prodrome Questionnaire - Brief Version (PQ-B)	Expanding community services into custodial settings should take into account the different environment and needs of the prisoner

	into a local London prison for men in the United Kingdom	- Comprehensive Assessment of At-Risk Mental States (CAARMS)	population. Specifically, early detection and intervention services should target a broad range of mental health problems rather than psychosis alone.
National Guideline Centre 2016 UK	This guideline covers health assessment, coordination and communication between health care staff, health promotion, use of medication, urgent and emergency management including management of deteriorating conditions and continuity of healthcare	For an overview of the researched tools see following chapters: - 5.3 Tools for the recognition of mental health problems - 5.4 Tools to support or assist in the assessment of mental health problems - 5.7 Tools to determine the health promotion needs of prisoners	Chapters: 5. Health assessment 6. Coordination and communication 7. Promoting health and wellbeing 8. Medication management 9. Monitoring chronic conditions 10. Deteriorating health and emergency management 11. Continuity of healthcare
O'Hara et al. 2016 UK	To examine unmet health and social care needs among older men entering prison and their links with depressive symptoms	- Camberwell Assessment of Need-Forensic short version (CANFOR-S) - Geriatric Depression Scale-Short Form (GDS-15)	high levels of depressive symptoms were experienced by older prisoners on entry into prison. Personalised health and social care needs assessment and discrete depression screening are required on prison entry to facilitate effective management of unmet needs.
Antonetti et al. 2018 Italy	To gather information about the needs of women in prison and to identify which of their needs are the most or the least met	- Questionnaire for the survey of the health needs of the female prison population	The recognition of multi-dimensional women's needs is of primary importance to create opportunities to support incarcerated women and to build health-promoting gender-sensitive interventions.
Besney at al. 2018 Canada	To explore incarcerated women's health and whether a Women's Health Clinic improved care within this vulnerable population	- Retrospective chart reviews - Focus groups with incarcerated women and health care providers - Focus groups with health care providers	Fragmentation of care remained at transition points, and further work is needed to improve continuity within corrections and the community.
Chow et al. 2018 Hong Kong	To validate the CMHS in the Hong Kong prison population and determine the prevalence of psychiatric disorders among	- CMHS-M - CMHS-W	Psychiatric disorders are prevalent in remand prisoners in Hong Kong. The CMHS is an

	remand prisoners in Hong Kong and the associated factors of mental illness	-	Structured Clinical Interview for DSM-IV for current affective disorder and psychotic disorder	effective tool to screen remand prisoners for timely treatment of prisoners with mental health needs
Gerritsen et al. 2018 Canada	To examine the performance of the Brief Jail Mental Health Screen (BJMHS) for indicating secondary mental health need in 'real world' conditions	-	BJMHS	While these findings add support to the use of the BJMHS in screening mental health need among people under custodial remand, its false positive rate, particularly among women suggests a need to improve its performance. One potentially important avenue for future research would be whether repeating the screen after an interval prior to specialist referral would improve efficiency.
Martin et al. 2018 Canada	To explore whether screening can narrow regional and demographic disparities in access to care	-	Depression Hopelessness Suicide Screening Form (DHS) - The Brief Symptom Inventory (BSI)	Findings suggest potential resource gaps and/or differences in the performance of screening to detect mental health needs across demographic and regional groups. Screening did not narrow, and may have widened, differences between groups.
McCarthy et al. 2018 UK	To examine vulnerabilities for mental illness and self-harming behaviours among male prisoners screening positive for a range of neurodevelop-mental difficulties— including but not confined to disorders of intel-lectual ability, attention deficit hyperactivity, and in the autistic spectrum	-	Mini International Neuropsychiatric Interview (MINI)	The study found prisoners with neuro-developmental difficulties showed greater vulnerability to mental disorder and thoughts of suicide and suicide-related behaviours than other prisoners. Accordingly, we recommend routine early screening across the criminal justice system for any neurodevelopmental difficulties to inform decision-making on the most appropriate disposal and support.
Tyler et al. 2019 UK	To measure the prevalence and comorbidity of mental health needs across a representative sample of both men and women across 13 prisons in one UK region	-	Severity of Dependence Scale (SDS) - Alcohol Use Disorders Identification Test (AUDIT-PC) - Suicide Behaviours Questionnaire— Revised (SBQR) - The SCOFF questionnaire	Rates of pre-existing and current mental illness continue to be high amongst prisoners. Women report significantly higher levels of mental health need compared to men.

Forsyth et al. 2020 UK	Part I: To establish the prevalence of dementia and mild cognitive impairment in prisons in England and Wales To establish the degree and type of impairment, risk level, needs and social networks of those who screened positive on the ACE-III To validate the six-item cognitive impairment test for routine use in prisons to aid early and consistent identification of older prisoners with possible mild cognitive impairment or dementia	- Montreal Cognitive Assessment (MoCa) - Addenbrooke's Cognitive Examination – Third Revision (ACE-III) - Six-item cognitive impairment test (6-CIT)	The study found that the prevalence of dementia and mild cognitive impairment in prisoners in England and Wales is 8%, equating to 1090 individuals.
Vogel et al. 2020 USA	To evaluate perceived worth and meaningfulness in life as mediators in the relationship between self-rated health (SRH) and depression and anxiety	- Physician Health Questionnaire (PHQ-9) - 7-item Generalized Anxiety Disorder Scale (GAD-7) - 7-item Loss of Personal and Social Worth (GSIS-LOSS) - 8-item Perceived Meaning in Life (GSIS-MIL)	SRH has both direct and indirect effects on depression and anxiety, by working through perceived worth and meaningfulness in life, in older incarcerated males. Assessing SRH, and focusing on ways to maintain self-worth and meaning, may be instrumental in promoting and sustaining their good mental health.
Facer-Irwin et al. 2021 UK	to establish the prevalence of ICD-11 PTSD and CPTSD in a UK prison sample using a validated instrument (the International Trauma Questionnaire). We also explored the associations of these two diagnoses with their traumatic antecedents and psychiatric comorbidities	- The International Trauma Questionnaire	This study confirms that CPTSD is a very common and comorbid condition in male prisoners. There is an urgent need to develop trauma-informed care in prisons.
Jones et al. 2021 UK	To examine psychological preparedness indicators for the transition from opiate substitution treatment (OST) to opiate withdrawal and abstinence	- Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES 8D) - Drug-Taking Confidence Questionnaire (DTCQ-8) - Confidence for Treatment Scale (CTS) - Attribution of Treatment Responsibility Scales (ATRS) - Depression Anxiety Stress Scales (DASS-21)	Self-efficacy beliefs are a potentially useful indicator of readiness for transitioning from OST to a medically assisted opiate withdrawal and subsequent abstinence. Ambivalence regarding change, age, and lifetime heroin use duration are potentially useful predictors of patients maintaining contact with services, and of being retained in research.

		-	The Addiction Severity Index (ASI)	
Proctor et al. 2021 USA	To examine the clinical utility of six different 2-item pairs in identifying risk for DSM-5 major depressive episode among a sample of county jail inmates	-	Comprehensive Addictions and Psychological Evaluation-5 (CAAPE-5)	Screening for major depression using as few as two items can be a valid and efficient strategy in identifying risk for major depressive episode among jail inmates.
Butler et al. 2022 Canada	To examine changes in the prevalence of mental and substance use disorders among people admitted to provincial prisons in British Columbia (BC), Canada	-	Jail Screening Assessment Tool (JSAT)	The clinical profile of people admitted to BC prisons has changed, with dramatic increases in the proportion of people with co-occurring disorders and reported methamphetamine use. More treatment and efforts to address social and structural inequities for people with complex clinical profiles are required in the community to reduce incarceration among people with multifaceted and complex mental health care needs.

2.1 Mental health problems

Out of the 25 studies included in our scoping review, 22 of them focused on mental health problems among prisoners and their associated needs (Figure 8). The remaining three studies specifically examined physical health or substance misuse without addressing mental health issues in general.

The evidence supporting the prevalence of depression among prisoners is particularly robust, with 16 references. Depression was the most frequently mentioned mental health problem. The literature review of Fazel et al. (2016) addressing mental health of prisoners revealed percentages ranging from 9% up to 18% for prevalence of major depressive disorders in prison populations.

Proctor et al. (2021) sought to examine the risk for major depressive episode among a sample of prisoners using a 2-item pair. Screening tools that use as much as one or two items are referred to as ultra-brief screening tools. These tools lend themselves well for prison settings that have a high turnover and workload. The results of the study demonstrated that out of the six item pairs they researched, the most effective 2-item screen consisted of the combination of "difficulty concentrating" and "lack of energy." This particular combination exhibited the best balance of sensitivity (85.5%) and specificity (76.6%). The study findings suggest that screening for major depression using as few as two items can be a valid and efficient strategy for identifying prisoners who may require further evaluation.

The second most mentioned topic in our scoping review was psychosis, with 12 references addressing this issue. A study conducted over a six-year period, involved the systematic screening of all newly received remand prisoners (McInerney et al., 2013). Based on a short screening that involved questioning psychiatric history, prisoners were referred for further assessment. Prisoners exhibiting unusual behaviour at reception or persons charged with homicide were automatically referred for further follow-up. Those who get identified as severely mentally ill or in need of high psychological support are transferred to a landing for vulnerable prisoners. In the follow-up assessment after the screening procedure, they identified 2.8% of individuals as having a current psychosis.

Fazel et al. (2016) reported in their literature review a prevalence of 4% for psychotic illnesses among adult prisoners. Furthermore, the rates of psychotic illnesses in prison populations have shown little change over the past three decades according to these findings. Sturup-Toft et al. (2018) found in their review that rates of psychotic illnesses were two to four times higher in prison samples compared to the general population.

Anxiety was identified as a mental health problem for prisoners in nine studies. However, further exploration of this topic appears to be somewhat limited. In most studies, anxiety is assessed as a clinical syndrome, focusing on its overall presence and impact (Gooding et al., 2015a; Martin et al., 2018; Togas et al., 2014; Tyler et al., 2019). In studies where anxiety disorders are addressed, the emphasis is typically on prevalence or the investigation of comorbidities with other disorders (Beaudette & Stewart, 2016; Facer-Irwin et al., 2022; McCarthy et al., 2019). It is important to note that symptoms of psychoses, depression, and anxiety often co-occur, highlighting the clinical value of measuring a range of these symptoms rather than focusing solely on anxiety as an isolated assessment factor (Gooding et al., 2015a).

Eight studies included personality disorders as a research topic. Tyler et al. (2019), for instance, found that 54.8% of all participants screened positive for at least one type of personality disorder. In studies concerning the prison context, often only Cluster B personality disorders are assessed and researched, which is not surprising given that rates of antisocial personality disorder are approximately ten times higher than in the general population (Facer-Irwin et al., 2022; Gooding et al., 2015a). Tyler et al. (2019) reports that females signify higher levels of mental health needs compared to males, but that the mental health needs of female prisoners appeared to be better met. However, the researchers emphasize the significance of assessing psychiatric symptoms that are predictive of suicidality in individuals at ultra-high risk (UHR), rather than solely focusing on assessing personality disorders.

Trauma and trauma-related disorders, including post-traumatic stress disorder (PTSD), were mentioned in four of the studies. It appears that imprisoned males are significantly more likely than females to have unmet needs regarding PTSD (Tyler et al., 2019). The higher prevalence of Complex PTSD (CPTSD) observed in a prison sample may be attributed, at least in part, to the high reported rates of complex and developmental trauma experienced by prisoners (Facer-Irwin et al., 2022). Diagnosis of CPTSD was found to be comorbid with multiple disorders, including depression, substance misuse, psychosis, and ADHD. The findings suggest that prisoners with PTSD and CPTSD represent distinct groups with different clinical treatment needs. The researchers highlight the need to conduct further research on these profiles to develop comprehensive guidelines for assessment and interventions on PTSD and CPTSD within the prison population.

2.2 Substance misuse

The issue of substance misuse among prisoners is a prevalent and widespread concern. In our scoping review, we found that this topic was addressed in 16 of the included references.

Several studies consistently identified substance use disorders as a substantial mental health need among prisoners that requires attention (Beaudette & Stewart, 2016; Besney et al., 2018; Butler et al., 2022; Chow et al., 2018; Derkzen et al., 2013; McInerney et al., 2013; Sturup-Toft et al., 2018; Tyler et al., 2019). Notably, a specific study reported a significant increase in the prevalence of co-occurring mental health needs and substance use disorders among prisoners (Butler et al., 2022). The study found an increase from 15% in 2009 to 32% in 2017, with significant increases in the rates of heroin and methamphetamine use disorders. The use of these and other novel psychoactive substances (NPS; also known as designer drugs) has emerged as a growing concern within correctional facilities, presenting ongoing challenges in meeting the care needs of prisoners (Sturup-Toft et al., 2018

In addition to the previously mentioned studies, several other studies explored the relationship between substance dependency and misuse and other mental health needs of prisoners (Facer-Irwin et al., 2022; Jarrett et al., 2016; McCarthy et al., 2019; Togas et al., 2014). These studies highlighted the importance of assessing and addressing substance use disorders and how this could be beneficial for prisoners with ultra-high risk of psychosis, neurodevelopmental difficulties, posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD) and how this could contribute to improved Health Related Quality of Life (HRQoL) within this population. Togas et al. (2014) found

that the use of narcotics is negatively associated with HRQoL and. They emphasize that prison authorities should promote policies which reduce narcotic use in this population.

In their study, Jones et al. (2021) examined the significance of psychological preparedness in methadone-assisted opiate withdrawal and the subsequent achievement of heroin abstinence among incarcerated men. The researchers identified self-efficacy as a potentially valuable indicator of readiness for transitioning to a medically assisted opiate withdrawal program and subsequent abstinence from heroin. The assessment of these psychological factors has the potential to serve as valuable predictors for treatment adherence.

2.3 Suicide and risk of self-harm

Almost one third of the studies (*n* = 7) referenced suicide and the risk of self-harm among prisoners. Historically, suicide has been the leading cause of mortality in prisons worldwide. However, non-communicable diseases have now surpassed suicide as the primary cause of death according to the literature review done by Sturup-Toft et al. (2018). Nevertheless, it remains crucial to consider the issue of suicide within the broader prison population. Besney et al. (2018) their research revealed that 27.3% of participants score above the cut off indicating risk of suicidal behaviours. It is notable that a higher proportion of women scored above the cut off for the risk of suicidal behaviours compared to men (Besney et al., 2018).

The significance of investigating factors that contribute to an increased likelihood of suicide within the prison population is emphasized by (Gooding et al., 2015a). In addition to suicidal ideation, their study revealed that feelings of hopelessness consistently emerged as a predictor of suicide probability. In another study (Gooding et al., 2015b), the researchers explored the moderating effects of coping mechanisms and self-esteem on the relationship between feelings of defeat, entrapment, and suicidality among a sample of high-risk prisoners. After controlling for levels of depression, the findings indicated that individuals with low self-esteem and poor coping abilities were more likely to experience suicidality. Furthermore, the study provided evidence that dysfunctional coping skills exacerbated perceptions of entrapment, subsequently increasing the hopelessness component of the suicide probability measure. On the other hand, functional coping skills had a beneficial impact on perceptions of defeat and reduced the hopelessness component of the suicide probability scale. These results underscore the importance of considering coping strategies and self-esteem in understanding and addressing suicidality among individuals at high risk of suicide in prison.

Another significant finding reported by Gooding et al. (2015a) was that while hopelessness consistently predicted suicide probability, a more crucial observation was that it intensified the impact of general psychiatric symptoms, thereby increasing the likelihood of suicide. Even more concerning was the amplified risk when both hopelessness and general psychiatric symptoms were present simultaneously. Given the co-occurrence of these symptoms and their clinical significance, the study recommends the assessment of feelings and perceptions of hopelessness alongside the evaluation of psychiatric symptoms during suicide risk assessments conducted within prison settings.

The findings from the systematic review and meta-analysis conducted by Favril et al. (2020) confirm the importance of assessing psychiatric symptoms in relation to self-harm among prisoners. The review reveals that suicide-related antecedents, such as current or recent suicidal ideation, lifetime

history of suicidal ideation, and previous self-harm, have the strongest associations with self-harm behaviours in prison. Furthermore, the review identifies current risk factors that contribute to the elevated risk of self-harm. These factors include solitary confinement, disciplinary infractions and experiencing sexual or physical victimisation while in prison. The authors advocate for a multilevel suicide prevention strategy that encompasses various interventions, including screening on reception. They emphasize the need to address the unique challenges and dynamics of the prison environment when designing and implementing suicide prevention measures.

2.4 Social needs

In our scoping review, the concept of social needs was addressed in nine studies. Notably, more than half of these studies (four out of nine) specifically focused on addressing the social needs of older prisoners. Additionally, two studies specifically focus on examining the social needs of female prisoners. This observation highlights the significance of understanding and addressing the social requirements of this particular subgroups within the prison population and will subsequently be discussed as separate topics.

We identified six studies that referenced social needs for the entire prisoners. Social needs is stressed as an important factor for all prisoners in addition to mental health needs as recommended for clinical practice, research, and policy (Fazel et al., 2016).

In their study, Butler et al. (2022) examined changes in the prevalence of mental and substance use disorders among people admitted to prison, with a specific focus on the mediating effects of social exclusion. They assessed the following factors as determinants for social needs being present: homeless or unstable housing; receiving social assistance or disability payments and level of education. Based on their findings, the researchers concluded that it is crucial to consider the health of individuals in prisons within the broader societal context, taking into account factors such as the criminalization of poverty and cultural and socioeconomic deprivation.

Sturup-Toft et al. (2018) did a literature review on emerging health issues for people in prison and made recommendations that align with the findings of the aforementioned study. The researchers in this review address the social determinants of health and emphasize that the disproportionately high levels of poor health among prisoners can be attributed to the social and economic conditions prevalent in the communities from which many incarcerated individuals originate. It is noted that a significant proportion of the prison population comes from economically deprived communities, characterized by inadequate housing conditions, low educational levels, and low levels of employment prior to their incarceration.

2.5 Physical health

As was the case with social needs, a significant proportion (67%) of the articles referencing physical health of prisoners (n = 6) concern the specific subpopulation of older or female prisoners. Four out of ten studies concern older prisoners, while two articles concern the female prison population.

One of the remaining reports are published NICE guidelines on physical health of people in prison. NICE guidelines aim to improve the quality of the care for individuals in specific clinical conditions or circumstances and provide clinical recommendations. These guidelines prescribe the assessment of all people entering prison in the UK (Physical Health of People in Prison: Assessment, Diagnosis

and Management of Physical Health Problems, 2016). A health professional undertakes the health assessment in order to explore physical and mental health issues, and to ensure continuity of care. This assessment is also seen as an opportunity for the health professional to engage with the prisoner and potentially provide health promotion advice, regarding detox or self-harm issues. The assessment consists of two parts. The initial assessment conducted by healthcare assistants, serves as a means of triage to ensure mental and physical safety upon the first days of entry. This assessment covers physical health, alcohol use, substance misuse, mental health, self-harm and suicide risk. Within the following five consecutive days a second health assessment is conducted by a qualified nurse. This concerns a more comprehensive assessment. Prisoners will be questioned on any previous misuse of alcohol, use of drugs or improper use of prescription medicine, whether they have ever suffered a head injury or lost consciousness, whether they have any problems with their memory or concentration, smoking history, the date of their last sexual health screening, any history of serious illness in their family, whether they have ever had a screening test (for example, a cervical screening test or mammogram) and whether they have (had) any gynaecological problems. Furthermore, there will be measurement and recording of the person's height, weight, pulse, blood pressure and temperature, and the carrying out a urinalysis to screen for medical conditions. If referral proves necessary on basis of these assessments, the prisoner will be referred to relevant healthcare professionals operating within the prisons or to clinics outside if needed. They advise on appointing a lead care coordinator responsible for managing the care. Results of urinalysis and other laboratory results are provided to the prisoners community-based GP, if consent is given.

In reviewing the literature, Sturup-Toft et al. (2018) found supporting evidence that prisoners as a population experience significant health inequalities. In comparison to the general population, they face a higher burden of communicable and non-communicable disease, mental health and substance misuse problems. Non-communicable diseases are now the leading cause of mortality in prisons in England and Wales. The authors describe that these deaths as a result of a naturally occurring disease process are increasing in importance in high-income countries and may represent a global trend. Policy makers have made committed to making NHS Health Check programme available for prisoners. The NHS Health Check is a free check-up of overall health, available for all community members aged 40 to 74. It assesses one's risk of developing heart disease, stroke, diabetes and kidney disease. Therefore, they draw upon a combination of personal details, family history of illness, smoking, alcohol consumption, physical activity, body mass index (BMI) and blood pressure. Cholesterol and possibly blood sugar level is assessed by the analysis of a drop of blood using finger-prick testing. The authors conclude that improving research into the health of prisoners plays an important role in reducing health inequalities.

Togas et al. (2014) assessed HRQoL in a prison population to explore the relationship between HRQoL and and health related characteristics. One of the assessed characteristics was physical functioning and included mobility and self-care activities. The majority of the prisoners had no problems performing these activities, but age was found to correlate negatively with these activities and HRQOL in general. Only 23% of the respondents considered themselves in a full state of health.

Heidari et al. (2014) found that the oral and dental health of prisoners is of poorer quality when compared to a similar age community sample. They argue that comprehensive oral care for this population is challenging and requires training in order to gain the skills and knowledge required to manage their complex needs and the heightened dental anxiety that they exhibit. In order to be

able to meet the dental care needs of prisoners who are in need of it the most, they decided to install a primary care inter-professional relationship network (IRN). The first step of installing an IRN in prison is gathering a team of professionals that will be helping to address the problem, in this case being oral health. This specific IRN involves a dentist, a nurse, the forensic psychology team, the communicable disease lead, a general medical practitioner (GMP), prison officers and the healthcare manager. The team can be supplemented by other professions in case this proves necessary, like for instance, a diabetic nurse. The establishment of this IRN allows for improved communication and collaboration among team members, leading to more comprehensive and coordinated care for vulnerable prisoners. By working together, the IRN can develop criteria for identifying vulnerable prisoners who are eligible for treatment within the network. This team approach proved successful in removing barriers to care for vulnerable prisoners and improve dental care provision for this particular group.

2.6 Developmental disorders

We identified developmental disorders as a significant care requirement for prisoners. A total of six references were found in relation to this topic. Among these references, six studies specifically mention Attention Deficit/Hyperactivity Disorder (ADHD), with four studies referencing intellectual disability (ID), and two studies discussing autism spectrum disorder (ASD).

It is worth noting that there is a tendency for ADHD to be overestimated within research contexts as Fazel et al. (2016) established in their literature review. Nevertheless, lifetime diagnoses of ADHD among prisoners are with 20,0% for males and 7,3% for females are significantly high (Tyler et al., 2019). For prevalence of ASD in male and female prisoners, they found rates of respectively 5,4% and 1,2%.

It is important to highlight that prisoners with ID possess characteristics that render them more susceptible to various forms of victimization. Specifically, individuals with ID are at an increased risk of experiencing physical assault, property theft, emotional and psychological victimization, intimidation, and sexual victimization (Fazel et al., 2016).

McCarthy et al. (2019) conducted research that extended beyond specific diagnostic categories, focusing on the examination of neurodevelopmental symptoms and indicators among adult offender populations and their correlation with mental health needs. The findings of their study align with previous research, indicating a heightened prevalence of psychiatric symptoms among prisoners with neurodevelopmental disorders. Men with neurodevelopmental difficulties reported significantly more attempted suicides and were more likely to have thought about self-harm or suicide in the month prior to the assessment. The authors emphasize the potential benefits of implementing screening measures for neurodevelopmental disorders within the prison and emphasize that identifying offenders with a spectrum of neurodevelopmental difficulties should become a routine practice, implemented as early as possible within the criminal justice system.

2.7 Specific populations

2.7.1 Female prisoners

We identified eleven studies that researched female prisoners (Butler et al., 2022; Chow et al., 2018; Forsyth et al., 2020; Gerritsen et al., 2022; Martin et al., 2018; Physical Health of People in

Prison: Assessment, Diagnosis and Management of Physical Health Problems, 2016; Proctor et al., 2021; Tyler et al., 2019), three of these eleven studies exclusively targeted female prisoners (Antonetti et al., 2018; Besney et al., 2018; Derkzen et al., 2013).

The mental health needs of female prisoners are significantly high, one study addressing the unmet health needs of female prisoners found 61% of their participants to be ever diagnosed with a mental illness. The literature review of Fazel et al. (2016) confirm this finding by indicating high overall lifetime prevalence of psychiatric disorders, reaching up to 62%. Furthermore, research suggests that female prisoners tend to report significantly higher levels of mental health needs compared to their male counterparts (Chow et al., 2018). These elevated prevalence findings align with other studies examining the mental health needs of female prisoners.

The experience of a lifetime major depressive episode seems to be extremely common within the subpopulation of female offenders with percentages of 50% and 69.3% (Derkzen et al., 2013; Tyler et al., 2019). Similarly, the prevalence of post-traumatic stress disorder (PTSD) among this subpopulation is also significant, with reported rates of 52.3% and 70.0% (Derkzen et al., 2013). Additionally, studies have identified extremely high prevalence rates of substance use disorders among female prisoners, with percentages of 80% and 84% (Besney et al., 2018; Derkzen et al., 2013).

The evidence regarding the elevated risk of suicidal behaviours among female offenders shows some variation, with percentages ranging from 29% to 63.3% (Antonetti et al., 2018; Fazel et al., 2016; Tyler et al., 2019). Although the specific percentages may vary, a consistent pattern emerges, female offenders experiencing mental illness highlights the wide spread and complex mental health needs of female prisoners.

In the study conducted by Antonetti et al. (2018), the health needs of female prisoners were examined across three dimensions: physical needs, psychological needs, and social needs. Within the physical dimension, several phenomena were considered to gain insights. These included assessing feeding preferences, intestinal function, the availability of physical exercise opportunities within the prison setting, sexual preferences, and sleeping problems.

The authors also examined the psychological and social needs of female prisoners. Within the psychological dimension, factors such as the availability of a comfortable detention room, privacy, personal hygiene facilities, and any occurrence of self-injurious actions were assessed to understand the psychological needs and challenges faced by female prisoners. In terms of the social dimension, the study investigated the availability and comfort of public areas, the nature of relationships (both positive and negative) with other prisoners, penitentiary police, and health professionals. Additionally, the satisfaction of the prisoners' spiritual needs and the availability of work opportunities were also considered as important social factors. The results indicated that the physical health dimension had the highest percentage of unmet needs among female prisoners, with a rate of 56.4%. In addition, the study identified high levels of unmet needs in both the social and psychological dimensions, with a rate of 50.9% for each.

Furthermore, the study conducted by Besney et al. (2018) highlighted that female prisoners expressed the need for facilities that go beyond addressing basic physical health needs such as common cold or pregnancy. 63% reported current symptoms indicative of sexually transmitted infections (STIs).

2.7.2 Older prisoners

Among the identified studies, nine referenced the subpopulation of older prisoners. Notably, six of these studies focused exclusively on the topic of older prisoners. The review of Di Lorito et al. (2018) confirms this growing interest this specific population within the literature.

People in prison generally experience health difficulties comparable with their 10year older counterparts in the community and die significantly younger, even when it's from natural causes (Sturup-Toft et al., 2018). Due to these factors, many studies focusing on older prisoners consider the age of 50 as the lower threshold for defining this specific subgroup (Forsyth et al., 2020; Parrott et al., 2019; Senior et al., 2013).

The number and proportion of older adults in prison is rising and expected to continue to rise in high-income countries as the population ages (Fazel et al., 2016; O'Hara et al., 2016; Parrott et al., 2019; Sturup-Toft et al., 2018). This demographic shift highlights the importance of addressing the specific needs of older prisoners, which differ from those of their younger counterparts and individuals of similar age in the community. Older prisoners often present with more complex health and social care needs (Di Lorito et al., 2018; Senior et al., 2013; Tyler et al., 2019; Vogel et al., 2021).

In a qualitative research study conducted by Senior et al. (2013), the researchers aimed to identify the highest proportions of unmet needs among prisoners. The study revealed that the most frequently mentioned unmet need was the lack of information, accounting for 38% of the responses. This lack of information encompassed various aspects, including a lack of knowledge about the prison system itself, as well as insufficient information regarding their own condition and available treatment options. The absence of necessary information had a notable negative impact on prisoners' anxiety levels, exacerbating their already challenging circumstances. The domain of psychological distress emerged as the second most frequently mentioned area, accounting for 34% of the responses. Following psychological distress, the study found that daytime activities (29%), financial problems (28%), and physical health (21%) were also prominent domains with unmet needs. The physical health category included considerations of functional ability, and many prisoners expressed concerns that the prison environment did not accommodate their limited mobility effectively.

The mental health of older individuals in prison is a significant concern. Studies cited in our scoping review (O'Hara et al., 2016; Senior et al., 2013) found prevalence rates of clinically significant symptoms of depression ranging from 31% to 55% among older prisoners. Additionally, a prevalence rate of 23% was reported for depressive symptoms indicating a higher level of severity.

In their study, Vogel et al. (2021), the researchers examined the relationship between self-rated health (SRH) and depression and anxiety among older incarcerated males, while also considering the mediating role of perceived worth and meaningfulness in life. The findings revealed that SRH had both direct and indirect effects on depression and anxiety, with the indirect effects being mediated by perceived worth and meaningfulness in life. The study stresses the importance of assessing SRH and focusing on ways to maintain self-worth and meaning.

The needs related to mild cognitive impairment and dementia in older prisoners are becoming increasingly significant, as highlighted in multiple literature reviews (Brooke et al., 2020; Parrott et al., 2019; Peacock et al., 2019). Quantitative research conducted by Forsyth et al. (2020) estimated

that the prevalence rate of suspected dementia and mild cognitive impairment (MCI) among the prison population is 8%. However, only 3% of the sample had received an official diagnosis documented in their prison files, indicating a current under-recognition of these conditions within the prison system. The systematic review of Brooke et al. (2020) concerning the impact of dementia in prison settings found prevalence rates ranging from 0.8 to 18.8% in prison populations. These high variations may be due to different population groups being studied and the use of different measures to assess dementia and MCI. These findings confirm need to develop and implement programs for screening and regular assessment for people with dementia in the prison environment. Additional qualitative research conducted by Forsyth et al. (2020) shed light on the challenges faced by older prisoners with cognitive impairment. The lack of training and knowledge among prison staff regarding dementia and mild cognitive impairment was identified as a significant issue. As a result, problematic behaviours associated with cognitive impairment were often treated as disciplinary matters rather than health-related concerns.

3 Course and results of the expert panels of phase 1 of the study

The results of the first two expert panels are presented together to ensure participant anonymity. The discussion started with a brainstorm session for which the answers were collected via Wooclap® (Figure 9). The responses from both expert panels were translated into English and combined to generate a single word cloud for processing and representation in this report. The results of the discussion of these topics will be presented followed by the presentation of the results on the topics proposed by the government. It is important to note that, due to the limited number of participants, the topics will not be listed by frequency of mention. To end, the obstacles and opportunities mentioned by the participants regarding the identified topics and the development of the BelRAI detention screening instrument will be presented.

3.1 Course of the expert panels

During the expert panels in phase 1, the participants briefly introduced themselves and their roles in the penitentiary process of detainees, including their names, job titles, organizations, and experience.

The main questions guiding the discussion were focused on identifying the care needs of prisoners. During the discussion, the participants were asked additional questions regarding these needs. They shared their insights on common care needs that prisoners have and identified those that are often overlooked or not given enough attention. They also reflected on how these needs are currently identified and why it would be beneficial to identify them more quickly. The group explored potential strategies for improving the identification of these needs.

After a short break, the group discussed the development of a BelRAI detention screening tool and considered the government's request to focus on general and mental health, with special attention to suicide risk, substance abuse and intellectual disability. The participants provided feedback on these topics and made recommendations on how to incorporate the identified needs in the development of the BelRAI detention screening instrument.

After this, the participants discussed the potential advantages and pitfalls of using a screening tool to identify the care needs of prisoners.

In conclusion, the participants reflected on whether there were any other important topics related to the development of a screening tool for the detention context that were not yet discussed. Additionally, they shared their overall impressions and feedback on the outcomes of the discussion. Furthermore, the participants were asked if any additional insights or perspectives from other respondents were missing in this discussion.

3.2 Brainstorm

During the brainstorm participants provided answers on the question: 'What do you believe are the common care needs of detainees?' Participants could send in their answers via Wooclap ® (Figure 9). The topics 'Psychiatric care', 'Addiction' and 'Listening' were mentioned twice, while the other topics were mentioned once:

- Attention
- Psychiatric care
- Somatic care
- Healthy lifestyle
- Addiction
- Meaningful activities
- Listening
- Medical history
- Medical treatment
- Communication
- Contact details for inquiring about external care
- Old age
- Clarity
- Depression
- Psychiatric care
- Psychosis
- Anxiety
- Social situation
- Family resources
- Drug use
- Mental health
- Intellectual disability
- Sleep
- ADHD
- Acquired Brain Injury
- Dental problems
- Care network
- Incarceration history
- Preceding trajectory
- List of current medications
- Updating of care

Figure 9 The generated word cloud

3.3 Identified umbrella topics

3.3.1 Mental health needs

The participants mentioned that they are frequently confronted with prisoners with anxiety, psychosis and ADHD. Additionally, depression and apathy were commonly observed. It was emphasized by the participants that fast and timely identification of these conditions is crucial, as symptoms may exacerbate in the challenging prison environment.

3.3.2 Suicide and risk of self-harm

Screening for suicide risks is deemed a sensitive issue and should be approached carefully. The participants mentioned that prisoners may not feel comfortable disclosing their thoughts or behaviours related to suicide or self-harm if asked directly, as it may create a sense of distrust or discomfort. Furthermore, the participants expressed discomfort in initiating conversations about suicide or self-harm themselves during the initial meetings with new incoming prisoners. This discomfort may stem from the sensitive nature of the topic and the potential emotional impact it can have on both the prisoner and the healthcare provider. Therefore, they suggested using indirect questioning without using specific terms such as ‘suicide’ or ‘harming yourself’. Finally, the experts mention risk-taking behaviour as a potential indicator for self-harm, as it may be a more subtle sign that could go unnoticed without specific questioning. During our discussions, an important point raised by the participants was the potential benefit of incorporating information obtained from correctional officers in the development of the BelRAI detention screening instrument. Correctional officers have frequent and close interactions with prisoners, and they are often the first to observe significant behavioural indicators or changes that may be relevant to the assessment suicide and risk of self-harm. Therefore, leveraging their observations and including this information in the screening process.

3.3.3 Social care needs

According to the participants, unmet needs of prisoners can significantly reduce their chances of successful reintegration into society. This exacerbates the challenges faced by a population that typically has a lower socio-economic status. Incarceration alone gives rise to a host of needs. A participant poignantly described the losses frequently observed among incoming prisoners:

> "Someone who ends up in detention, both literally and figuratively, loses their job, social security, home, network... The only thing they experience is loss."

The experts have emphasized the importance of collecting information at reception to assist the prisoners adequately and to enhance their prospects of successful reintegration into society. They have identified several areas in which they need information, these include: (il)legal status, possession of a valid identity card, affiliation with a health insurance fund, homelessness, financial situation (source of income), and any pending or outstanding financial fines. Furthermore, the participants noted that the prison environment often creates obstacles rather than facilitating the addressing of these needs. In addition to administrative information, they stressed the importance of having access to information about the prisoner's broader network, including family and general social environment, as well as their professional network. Such information could be useful for ensuring continuity of care, but it is often difficult to obtain in the prison setting.

3.3.4 Intellectual disability

Follow-up questions provided further insight into the participants' views on the topic of intellectual disability (ID), revealing that these disabilities can significantly complicate a prisoner's trajectory. The participants highlighted that prisoners with an ID may struggle to understand the necessary steps or the reasons behind them, which can add additional stress to an already vulnerable population. Moreover, the participants observed that prisoners with an ID are at a higher risk of harassment and victimization. These individuals often require additional guidance and coaching on various levels.

3.3.5 Somatic and physical needs

Participants emphasized multiple times that limited access to medical information in correctional facilities presents a significant challenge for providing proper medical care to inmates, particularly for managing (chronic) conditions that require ongoing medication or close monitoring. Many inmates are unaware of the specific medications they are taking, leading to a significant amount of time being spent on identifying the appropriate medications. Furthermore, the participants emphasized the importance of screening for various medical conditions that prisoners may neglect or be unaware of. This includes diseases such as HIV, diabetes, hepatitis, tuberculosis, and sexually transmitted diseases (STDs). To provide adequate care for prisoners, the participants suggested that the registration of general vital parameters such as weight and blood pressure at admission to prison could be useful. We learned that this is not common practice due to time constraints and high caseloads.

The participants highlighted the significance of dental care for prisoners, as many of them exhibit severe dental neglect and have not undergone a dental examination in years. In addition to medical requirements, there were discussions around physical needs and the necessity for physical care, such as personal hygiene and the use of a wheelchair. Palliative care arrangements were also mentioned, particularly in the context of the observed trend of aging prisoners, although these needs were not limited to this group.

3.3.6 Older prisoners

The participants noted that a considerable number of prisoners are categorized as 'elderly', which entails specific needs that are usually not catered to within the prison setting. One participant mentioned the establishment of a specially equipped ward to meet the needs of this increasingly growing group. The needs associated with aging, as highlighted by the participants, include extensive somatic care, the requirement for assistive devices to facilitate self-care or mobility, assistance with activities of daily living, and the inability to navigate staircases, among others.

3.3.7 Substance use and dependence related risks

The participants emphasized the importance of substance use and dependence as significant factors affecting the prisoner population. From a medical standpoint, they expressed a need for information on dependency to products that could potentially cause life-threatening withdrawal symptoms. Continuation of medication, particularly for substitution therapy, was also stressed in relation to this topic. The participants pointed out that drug use and dependence can exacerbate other problems commonly faced by prisoners, highlighting the importance of identifying these needs.

3.3.8 Gender identity

Incarceration facilities are increasingly faced with gender identity issues and the associated gender fluidity and sex changes. One participant expressed concerns about the handling of this emerging phenomenon within the prison system.

3.3.9 Female prisoner

The topic of female offenders was raised by the participants, and they suggested inquiring about possible pregnancy among new female prisoners, as it brings with it many additional needs. The participants noted that inquiring about pregnancy is already good practice in many prison settings.

3.4 Proposed topics and input

The Federal Public Services and cabinets of Justice and Public Health stipulated that the BelRAI detention screening instrument should minimally screen for general and mental health needs (including suicide risk), addiction, and the presence of an intellectual disability. These topics were presented to the expert panel. The panel provided their input, which will be discussed in relation to each topic.

3.4.1 Substance misuse

The participants of the expert panel have previously emphasized the importance of addressing the needs related to substance use and dependence, including the potential life-threatening withdrawal symptoms and the need for continuation of medication. During the discussion of the proposed topics, the panel provided additional input on this issue. Specifically, they highlighted the need for information on the initiation or continuation of substitution therapy, which they deemed crucial for effective care. However, the participants also raised concerns about the use of "black market meds" and emphasized the need to base medication continuation on official medical records rather than relying on medication that prisoners may have brought with them upon arrival in prison.

One of the participants highlighted the significance of understanding the reasons behind an individual's drug use, as well as their willingness to abstain from drug use. This information, according to the participant, provides an insight into the severity of the issue and directs the type of support required. In addition to the requirement for treating dependencies, the participant suggested allocating more space to harm reduction initiatives within the prisons.

3.4.2 Suicide and risk of self-harm

Similar to the previous topic, the participants gave additional feedback during this section of the discussion. The participants acknowledge that new prisoners often feel overwhelmed, particularly if it is their first time being incarcerated or if they were recently arrested. They suggest that there is an increased risk for these individuals due to the disruptive nature of these events and the emotions of despair, hopelessness, and powerlessness that they may experience. They believe it is important to screen for elevated risks of suicide and self-harm and provide additional follow-up for these individuals. One way of identifying these elevated risks is by inquiring about previous losses, as this can exacerbate feelings of despair.

The participants acknowledged the importance of directly questioning prisoners about suicidal thoughts and behaviours. However, they also recognized the need for a more nuanced approach to identifying at-risk prisoners, particularly those who may be less likely to disclose their struggles. As mentioned before, the panel emphasized the value of detecting subtle signs of self-neglect or other less obvious indicators of risk. By doing so, they believe that it may be possible to identify prisoners who may be flying under the radar and in need of additional support and monitoring.

3.4.3 Intellectual disability

The topic of ID was briefly discussed during the broad questioning, but it was later revisited and discussed in greater depth. The participants discussed the usefulness of including this topic in the BelRAI detention screening instrument in the form it was presented. None of the other topics were questioned in this regard. The participants expressed doubts about the relevance of knowing whether a prisoner has an ID.

The participants suggested including information about reading and writing skills in the BelRAI detention screening tool. However, they noted that the absence of these skills does not necessarily indicate an ID. Other factors such as education, social background, and culture can also play a role. Additionally, the participants emphasized that the prison environment itself can be overwhelming for many prisoners, thereby necessitating the need for a clear explanation adjusted to their level of functioning. They highlighted that other prisoners, such as those who do not speak the language, those who experience psychosis or have acquired brain injury (ABI), could also benefit from the proposed adjustments.

Additionally, the participants suggested taking a broader perspective on the concept of ID. They argued that focusing solely on IQ scores when screening new incoming prisoners would be too narrow, and could potentially result in overlooking prisoners with specific and substantial needs. One participant highlighted the cultural bias present in most IQ tests and emphasized the importance of this broader perspective. They added:

> "Ethnopsychiatry shows us that if we start conducting IQ tests without sticking to the heart of the matter, we will get stuck."

The participants provided examples of prisoners who have known ID but appear to adapt well to the prison environment without displaying any signs of distress. However, the participants expressed concern for those who struggle to adapt to the environment in general, regardless of whether they have an ID or not. They emphasized the importance of identifying these vulnerable prisoners and suggested that the screening process should be able to do so. The participants used various terms during the discussion of this topic, including resilience and capacity. However, the term that was proposed as the most encompassing for this concept was ‘adaptive functioning’.

The participants suggested that they currently assess the adaptive functioning of prisoners by looking for signals of distress. They recommend asking about the impressions of prisoners upon arrival and how they are integrating into the environment, paying special attention to their adaptation to their prison cells and, in the case of multi-person cells, their interactions with new cellmates. The latter could also be used to estimate someone's group living skills, especially as more and more prisons aim to use an open-door regime.

4 Discussion of the results of phase 1 of the study

The initial phase of our study aimed to determine which topics need to be included in the BelRAI detention screening instrument. We conducted a literature review to determine the key topics that should be included in the BelRAI detention screening tool. To ensure a comprehensive overview of the instruments used in the international prison context, we relied on the systematic review conducted by Martin et al. (2013). This review provided valuable insights into the use of these tools, their development and composition, scoring instructions and performance. Subsequently, we conducted a scoping review to further explore and identify additional topics related to the care needs of prisoners that should be included in the development of the BelRAI detention screening instrument and to identify additional research on the screening tools discussed by Martin et al. (2013). Parallel with this literature review, expertise on the care needs that need to be screened when a person enters prison, was collected in Dutch and French speaking experts through a Dutch- and French-speaking expert panel. The results obtained from the literature and from the expert panels will be discussed subsequently.

In examining the recommended screening instruments used in prison settings according to the review conducted by Martin et al. (2013), several key considerations were identified for effective screening. It is recommended that a screening instrument used in prisons should be brief. This means that it should be concise and not overly time-consuming to administer. The goal is to efficiently identify individuals who may require further assessment or intervention. The scoring process should be straightforward and easy to understand. However, if a more comprehensive assessment is desired or warranted, an instrument that relies on structured professional judgment can be utilized, of which the JSAT is an example.

An effective screening instrument for prison settings recognizes and addresses the specific features and challenges of this unique context. Prisons are characterized by high turnover rates and heavy workloads. In addition to prison-specific environmental factors, an effective screening instrument for prison settings should also consider the psychological and emotional distress that prisoners often experience upon entering the prison environment, commonly referred to as "entry shock." By aiming for an optimal balance between sensitivity and specificity, the screening instrument can effectively identify individuals with genuine needs while minimizing unnecessary burden on the system. This balance is crucial for ensuring accuracy, efficiency, and resource allocation within the prison healthcare context. In their review, Martin et al. (2013) discussed five tools that showed promising results and suggested their consideration for implementation in the assessment of prisoners' care needs. These tools are the BJMHS, the CMHS-M, the CMHS-W, the EMHS and the JSAT. The four first screening tools are designed to provide a brief assessment of prisoners' mental health status, allowing to identify prisoners that warrant further psychiatric evaluation. Each tool has its own accuracy rates for referral, which refers to their ability to correctly identify individuals who may require further intervention or support. The selection of a specific tool depends on the desired balance between sensitivity (the ability to identify true cases) and specificity (the ability to correctly exclude non-cases). The fifth tool, the JSAT, takes longer to administer and relies on structured professional judgement and thus has no clear screening protocol.

It appears that inquiring about current symptoms of mental health conditions is beneficial for the face validity and accuracy rates for referral of the screening instrument in the prison setting. This is compared to inquiring about past mental health conditions exclusively. This finding emphasizes the importance of capturing the current mental health status of prisoners rather than solely relying on historical information. By assessing current symptoms, the screening instrument can identify individuals who may require immediate further evaluation and intervention. However, it is important to note that past mental health conditions should not be disregarded. Historical information can still provide valuable insights into an individual's mental health trajectory and treatment history, which may inform appropriate interventions or follow-up care.

Some of these screening tools have incorporated supplementary questions related to physical health and substance misuse. In the context of prison settings, the screening process has predominantly emphasized mental health issues. While mental health is undeniably a critical concern for prisoners, it is essential to recognize that their overall needs extend beyond mental health alone. To capture these and other possible additional dimensions that contribute to overall well-being a scoping review was conducted. The selection process for this review identified a total of 25 research papers that met the eligibility criteria for inclusion. Additionally, seven papers were identified as literature reviews that were relevant to our research question. Additionally, by conducting a scoping review, we aimed to identify to identify additional research on these five screening tools. We identified four papers that addressed screening tools that were previously mentioned. No additional screening tools specifically designed for assessing the care needs of prisoners, suitable for addressing our research question, were identified in our review.

The assessment of mental health needs has been a prominent focus in studies examining prison populations. Several key areas of mental health have received particular attention, including depression, psychosis, anxiety, personality disorders, and trauma. The expert panels provided valuable insights and confirmed the importance of addressing specific mental health needs in the development of the BelRAI detention screening instrument. Based on the information gathered, several recommendations for item-building for the detention screening instrument can be derived. These recommendations aim to guide the item-building process for the BelRAI detention screening tool, ensuring that it adequately captures the identified mental health needs in the prison population.

Our review of the literature revealed that substance misuse emerged as the second most addressed topic after mental health disorders. These studies highlighted the importance of assessing and addressing substance misuse disorders. More specifically, the use of NPS or designer drugs has emerged as a growing concern within correctional facilities. The participants from the expert panels emphasized the importance of acquiring information about dependencies on substances that could potentially lead to severe withdrawal symptoms. Additionally, they highlighted the significance of maintaining medication, especially in cases of substitution therapy, in relation to this particular issue. A valuable approach in addressing this concern would involve relying on official medical records rather than depending solely on medication that prisoners may have brought with them upon their arrival in prison. During the panel discussions, the importance of comprehending the underlying motivations behind an individual's drug use and their willingness to abstain from drug use was emphasized. It is worth noting that the traditional approach of interRAI focuses on

inventorying and describing care needs, rather than providing explanations for them (see paragraph 2.2 of Chapter 1). Our review of the literature further revealed that self-efficacy emerged as a potentially valuable indicator for assessing an individual's readiness to transition towards drug abstinence. Self-efficacy refers to an individual's belief in their own ability to successfully perform specific tasks, achieve goals, or handle challenging situations.

The assessment of self-harm and suicide risk is considered crucial. Our scoping review revealed that self-harm and suicide emerged as one of the most frequently mentioned topics. The literature consistently highlighted the significance of addressing these issues within the prison context, emphasizing the need for effective screening. The literature review revealed a heightened risk associated with the simultaneous presence of hopelessness and general psychiatric symptoms. The expert panel participants advised on indirectly assessing this factor by inquiring about the losses that prisoners may have experienced, recognizing that losses can contribute to feelings of hopelessness. Therefore, it is recommended to assess not only psychiatric symptoms but also individuals' feelings and perceptions of hopelessness acknowledging the importance of evaluating both factors.

The literature review and expert panel discussions both underscored the importance of assessing social needs in the context of the prison population. The expert panels stressed the significance of collecting specific information at the reception stage to facilitate appropriate assistance and improve the prospects of successful prisoner reintegration into society. They additionally provided valuable insights into the types of information that can enhance this process. Within the literature it is noted that a significant proportion of the prison population comes from economically deprived communities, characterized by inadequate housing conditions, low educational levels, and low levels of employment prior to their incarceration. This emphasizes the need to incorporate social determinants of health in our BelRAI detention screening instrument.

Our review of the literature demonstrated the significant challenges prisoners encounter concerning their physical health. Notably, a concerning trend was observed, with non-communicable diseases emerging as the primary cause of mortality within correctional facilities. Furthermore, the expert panel discussions brought attention to the challenges posed by limited access to official medical information in effectively managing (chronic) conditions within prison settings. By examining international published guidelines and gathering input from the expert panel, we identified significant assessment factors and approaches to assess physical health in the prison population. Among these factors communicable and non-communicable diseases, physical functioning and oral care emerged as important topics.

Furthermore, our review of the literature revealed the success of inter-professional relationship networks (IRN). These IRNs involve collaboration and coordination among different healthcare professionals. In the identified paper, and IRN was installed to address oral health needs in a prison setting. The successful use of IRNs in the context of oral health highlights the potential benefits of adopting a similar inter-professional approach for addressing other healthcare areas within correctional facilities.

Our literature review highlighted the significant prevalence of developmental disorders among prisoners, particularly high prevalence rates were found for ADHD and ASD. Given the observed

relationship between neurodevelopmental disorders and psychiatric symptoms, the screening and assessment of neurodevelopmental symptoms and indicators were recommended.

The assessment of intellectual disability could prove to be a valuable factor in the context of prisoner assessments, as individuals with intellectual disabilities are more vulnerable to various forms of victimization. This risk was emphasized by the participants of the expert panels. Additionally, the expert panel expressed concerns regarding the adaptive functioning of prisoners, particularly those with intellectual disabilities, in adapting to new environments. While prisoners with intellectual disabilities may face specific challenges in adaptive functioning, they emphasize the importance of recognizing that all prisoners, regardless of their intellectual capabilities, may experience difficulties in adapting to the prison setting. By considering adaptive functioning as a wider concept in prison assessments, it allows for a comprehensive evaluation of prisoners' abilities to navigate and cope with the challenges of incarceration.

Upon reviewing the literature on the care needs of prisoners, two distinct subpopulations were identified (females and older prisoners), both of which exhibited significant care needs that may warrant a different approach. In alignment with these findings, the expert panels also identified and discussed these specific subpopulations within the prison system.

Female prisoners were discussed as a subpopulation. Female prisoners exhibit needs in the same areas as their male counterparts, with high prevalence of major depressive disorder, substance misuse disorders and risk of self-harm and suicide. There seemed to be evidence for extreme high rates of PTSD among female prisoners. Overall, there appears to be a notable scope for improvement in addressing the needs of female prisoners in relation to their physical health, as well as the social and psychological dimensions of their well-being. The literature highlights the need for a distinct approach to addressing the care needs of women in prison. It provides valuable insights and guidance on effectively addressing the specific challenges and requirements associated with assessing women's needs within the prison setting. The participants of the expert panels emphasized the importance of including inquiries about possible pregnancy and appropriate testing in the assessment process. However, our literature review revealed further recommendations suggesting a broader approach to include the assessment of sexually transmitted diseases (STDs) and other gynaecological problems.

The second identified subpopulation was that of older prisoners. Our review of the literature revealed that the proportion of prisoners in the older age group is increasing, which has drawn growing interest and attention to this population in research. Most studies that include older prisoners in their research define this specific subgroup based on an age threshold of 50 or older. The mental health of older individuals in prison is a significant concern. The review of the literature confirms that that ageing prisoners have unique and complex health and social care needs which are mostly unmet. Besides psychological distress, daytime activities, financial problems, and physical health were also prominent domains with unmet needs. The physical health category included considerations of functional ability, there are considerable concerns that the prison environment does not accommodate the limited mobility of this group effectively. This concern was also expressed by the participants of the expert panels. Furthermore, needs related to mild

cognitive impairment and dementia in older prisoners are becoming increasingly significant, as highlighted in multiple literature reviews.

The scoping review and the input from the expert panels showed a remarkable overlap in the topics that emerged as important in the assessment of prisoners' needs. However, the expert panels also introduced an additional topic that was not initially captured in the scoping review, which is the issue of gender identity among prisoners. They expressed concerns regarding the challenges associated with managing this issue within the correctional system. They recommended including an item specifically addressing this topic in the BelRAI detention screening instrument. By incorporating this item, the assessment tool can contribute to addressing the unique needs and experiences of individuals with diverse gender identities.

5 Strengths and limitations of phase 1 of the study

By setting a timeframe of the past decade for article selection, we ensured the inclusion of literature that is most pertinent to the current prison population and the development of the BelRAI detention screening tool. This approach allowed us to identify and highlight emerging and significant trends within this population on an international level. Additionally, the organization of expert panels aimed to ensure that our findings and recommendations are tailored as closely as possible to the specific context of detention in Belgium, further enhancing the relevance and applicability of our research outcomes.

The limitations of our research need to be acknowledged. Due to the constraints of time, our research focused on utilizing the PubMed database as source for conducting the literature search. While PubMed is a widely recognized and comprehensive database for biomedical and healthcare literature, it is important to acknowledge that the inclusion of additional databases could have provided a more comprehensive coverage of relevant studies. Additionally, grey literature was identified that has not been comprehensively reported in this review. These papers gave us insights specific to the Belgian detention system, including policies, which were taken into consideration during preparation of our feasibility study. While our expert panels aimed to include a diverse range of participants, it is acknowledged that the absence of prisoners themselves could be viewed as a limitation of our study. Their input could have offered unique perspectives on the assessment factors and considerations for developing the BelRAI detention screening instrument. In future studies, it is recommended to involve prisoners directly in the expert panels or conduct separate consultations to ensure their voices are included in the decision-making process.

6 Conclusion

It is recommended to adopt a comprehensive approach to address the diverse care needs of prisoners and to consider the unique considerations associated with the correctional environment and population in the development of the detention screening instrument. By incorporating these considerations, the assessment tool can better serve the purpose of accurately identifying and addressing the complex care needs of prisoners, thereby contributing to the overall quality of care provided in correctional settings.

Chapter 4
Development of a BelRAI detention screening instrument and conditions for a first pilot study

This chapter reports the results of the second phase of the study. We begin by explaining how the first draft version of the BelRAI detention screening instrument was developed based on the results of the first phase of the study. Next, we describe the feedback gathered on this draft through consultation with (1) the study's commissioners (the Cabinet and FPS Public Health, and the Cabinet and FPS Justice) and (2) the expert panels. Combining the feedback from the experts from the field, the study's commissioners and the results of the first phase of the study resulted in a first pilot version of the BelRAI Detention Screener and the BelRAI Detention Instrument.

1 Development of a draft version of the BelRAI detention screening instrument

Based on the care needs identified in the scoping review and expert panels in research phase 1, several interRAI and BelRAI instruments were screened for items that could operationalise the care needs.

First, all Screeners were reviewed:

- InterRAI Brief Mental Health Screener Police Assessment Form
- InterRAI Brief Mental Health Screener Standard Edition
- Brief Mental Health Screener for correctional Facilities*
- InterRAI Emergency Screener for Psychiatry
- InterRAI COVID-19 Vulnerability Screener*
- InterRAI Emergency Department Screener
- BelRAI Screener*

Second, two other types of interRAI/BelRAI tools linked to correctional settings were examined:

- Corrections Contact Assessment*
- InterRAI/BelRAI Forensic Supplement

Finally, an additional search was carried out in interRAI/BelRAI instruments from other sectors:

- InterRAI/BelRAI Long Term Care Facilities*
- InterRAI/BelRAI Quality of Life survey*
- InterRAI/BelRAI Home care*
- InterRAI/BelRAI (Community) Mental Health*
- BelRAI Social supplement*
- InterRAI Intellectual Disability instrument*
- Social recovery supplement Community Mental Health*

The first draft version of the BelRAI detention screening instrument is composed of original and modified interRAI/BelRAI items found in the instruments listed above that are marked with an asterisk[2]. Some interRAI/BelRAI items were adapted because the item or certain response categories were not (sufficiently) adapted to the detention context. In addition, 9 new items of the 120 items in the draft version have been developed for those care needs for which no suitable interRAI/BelRAI item could be found for the prison context.

The first draft version of the BelRAI detention screening instrument can be found in Annex 4. In this appendix, the reference to the results of the scoping review and expert panel from research phase 1 is included in the last column for each item and corresponding response categories. This draft version consists of seven sections. Each section is divided into subsections consisting of (modified) interRAI/BelRAI or new items.

A. Identification information
    - Sex & Gender identity
    - Education level
    - Reason for assessment
    - Language
    - Responsibility / Directives
B. Medical past/ history
    - In-Client Status-Admission
    - Mental health and substance use program (history)
    - Medication
C. Physical health
    - Height and weight
    - Blood pressure
    - Pregnant
    - Self-care
    - Tobacco
    - Oral/dental care
    - Diseases and diagnoses
D. Mental health indicators and behaviours
    - Mental health indicators
    - Self-Reported mood
    - Use of psychoactive substances
    - Addictions and Substance Use
    - Indicators of self-harm
E. Social care needs
    - Housing
    - Financial problems
    - Social contact
    - Autonomy and self-determination

[2] Some of these items are also found in other screened instruments, as the interRAI / BelRAI instruments partly overlap. This only shows in which instruments the items were primarily found.

F. Services
   - Need for comprehensive geriatric assessment
   - Need for comprehensive mental health assessment
   - Referral to services

G. Assessment information
   - date and time of the assessment
   - signature of the person coordinating/conducting the assessment

Based on the data collected with this draft BelRAI screening instrument, one index and three scales can be calculated:

1. **Body Mass Index**

   This index shows the relationship between height and weight in a person. A high BMI (> 35) indicates obesity in adults, and a low BMI (< 20) indicates a vulnerable weight in adults.

2. **ADL Hierarchy Scale**

   This scale measures functional performance. It reflects a person's ability to perform basic activities of daily living. The values range from 0-6. A higher score indicates with a high degree of certainty that the person needs more help compared to a lower score.

3. **Self-Report Mood Scale**

   The Self-reported Mood Scale values range from 0 to 9 with higher scores indicating greater mood disturbance. The scale is associated with diagnoses of mood disorders. However, the aim is not to substitute the judgement of mental health professionals regarding a diagnosis. This scale may be used for screening to flag possible mood disorders for referral purposes, and is likely to be an effective tool for targeting populations in need of mental health services (Hirdes et al., 2022).

4. **Addictions and Substance Use Scale CAGE**

   This scale screens for potential substance use. The values range from 0-4. A score of 2 or higher indicates a potential problem with substance use.

2 Feedback on the draft version of the BelRAI detention screening instrument

In this section, we first describe the feedback gathered on the draft version of the BelRAI detention screening instrument (see Annex 4) through consultation with the study's commissioners. In 2.2 we discuss the suggestions made by the experts from the field who were also involved in the first phase of the study, regarding the items and response categories.

2.1 Preparation of the expert panels

The meeting with the commissioners of the study took place before the second expert panels. In addition to feedback at section and item level, comments were made on the tool as a whole. Based on this feedback, some changes were made to the draft version of the instrument, which were

subsequently discussed with the experts from the field in the Dutch- and French-speaking expert panels.

First, the feedback from the commissioners in discussion with the researchers relevant to the research objectives of this feasibility study is briefly summarised below.

- *Length (number of items) of the instrument*

  At the moment, the instrument is too long to be a typical interRAI/BelRAI Screener, which is generally shorter. In its current scope, based on the commission, the scoping review and expert panels from Phase 1, the tool is more in line with the length of the interRAI Contact Assessments within the interRAI toolkit.

- *Aim of the instrument*

  The aim of the screening tool, as set out in the research design, is that it should help care providers to gather all the essential information on which to decide whether to initiate a care pathway for a particular care need within the detention environment.

  In addition, it is a legal requirement that every detainee who enters prison must be seen by a doctor within the first 24 hours of arrival. According to the commissioners, this consultation should focus on identifying risks (for example, acute somatic disorders, suicide risk) and collecting relevant basic information. The commissioners ask that this information will also be collected using a 'screening instrument'. It is possible that in certain types of correctional facilities, only the first 24-hour screening is feasible because the inmates stay there for only a few days.

  The BelRAI detention screening instrument should go beyond the needs that are inventoried by a doctor within the first 24 hours and are linked to a longer stay in a prison. It is therefore proposed to divide the screening instrument into a section to be completed within the first 24 hours (e.g., medical conditions, suicide risk), most likely by a general practitioner, and a section to be completed a few weeks later, possibly by different care providers, based on the information they have gathered in the recent weeks. Nurses and primary care psychologists might receive a relevant task in this respect. The aim is for the tool to be used in a multidisciplinary way.

- *Feasibility to complete the instrument*

  The feasibility for care providers to complete the screening instrument is important to consider, including the sensitivity of the data collected and the number of items included in the instrument.

- *Overlap in the retrieval of information*
  The items included in the current draft sometimes overlap with information already collected elsewhere. Linking these databases is currently very difficult. Whether it is desirable, is also a relevant question. The detainee may wish to share some information with a health professional, but not with other prison staff. The FPS Justice is currently developing a new medical file that will be linked to eHealth. It is not clear at the moment whether a link with BelRAI will be possible. This option would not provide a solution for people who are in the country illegally. Information that is currently transferred directly

from SIDIS[3] into the medical file is: (1) Surname/first name, (2) Date of birth, (3) Sex, (4) National register number, (5) DDB number, (6) Cell number. This information should therefore not be completed in the BelRAI detention screening instrument.

- *Sharing information*

  Members of the medical service will complete the screening instrument; not the counselors of the Psychosocial Service. Information collected by the medical service and by the Psychosocial Service is best kept separate.

- *Acceptability of the instrument*

  The acceptability of the instrument by prisoners is an important consideration, including the sensitivity of the data collected and the number of items included in the instrument. There are also concerns about the completion of the instrument in case the detainee does not wish to provide certain information. The instrument is completed by (health) care providers, based on information they receive from the detainee, possibly from prison officers and other care providers. Therefore, in case the detainee does not want to answer questions related to the screening instrument, the care provider checks whether he has enough information to answer the item with sufficient reliability. If not, the item is left open. In other healthcare sectors outside correctional facilities - where steps are being taken to link medical databases - clients can always indicate whether or not they agree to share data with other healthcare providers. The researchers take the sensitivity of the data into account when finalizing the pilot version of the BelRAI detention screening tool.

- *Feedback in relation to specific section and (sub)items*

Section A: Identification information

- The sub-item 'Sex & gender identity' contains sensitive information. For this reason, gender is currently not allowed to be included in the Belgian BelRAI software. From a medical point of view however, this is important information as it can have a significant impact on the medical condition of the detainee. It can also have an impact on the person's functioning, especially if the sex does not match the person's gender identity. This increases the vulnerability of the person.
- Regarding the 'Education level' sub-item, commissioners wonder whether this topic is necessary to assess. There is much debate about its usefulness.
- The sub-item Responsibility / Directives is a very 'broad' item. The question is whether we need to collect information regarding this topic in the context of an initial screening. What we certainly need to know in an initial screening is who can give informed consent when a doctor has to carry out certain medical actions: the person himself or his representative.
- It would be interesting to include an inventory of the person's legal status. This is relevant information in the context of suicide risk. It also gives an indication of how long a person will stay in detention, so it also has an impact on whether and how a care process can be initiated if necessary.

[3] Sidis Suite is a database of the FPS Justice that processes the data necessary for the daily management of prisons. (Rekenhof, 2022).

Section B: Medical past/ history

- A commissioner wonders why the sub-item 'medication' is assessed with references to "the last 3 days". The last 3 days before deprivation of liberty are usually a very chaotic period. If necessary, it is better to ask about prescribed medication. From a medical point of view, we need to know which medication (including substitute treatment in case of addiction) the person has taken in the last three days in addition to the maintenance medication they are taking.
- Many prisoners do not have a GP or see several doctors. It might be useful to include this in the screening instrument.

Section C: Mental health indicators and behaviours

- Mental health indicators: In order for these items to be reliably completed, correctional officers will have relevant observations for the medical services. There is currently no official system to report these observations. If necessary, the observation sheets of the correctional officers can be used to provide additional feedback to the medical services in a structured way. In case this is applied, prisoners need to be aware of this. It may be useful for the correctional officers to be involved in the training courses organised by the federal government during the roll-out of the pilot projects.
- Suggested additional item: an item on intravenous administration of drugs.

Section F: Services

- This section will not be included in the draft instrument to be presented to the expert panels. After all, the aim of this screening tool is to identify which prisoners need a full, comprehensive assessment and/or initiation of a care trajectory. Referral to the relevant disciplines and services is obviously an important element of the care process. It is part of the decisions that care providers have to make based on the screening that has been done through completing the instrument. But this topic does not have to be assessed as part of the screening itself.

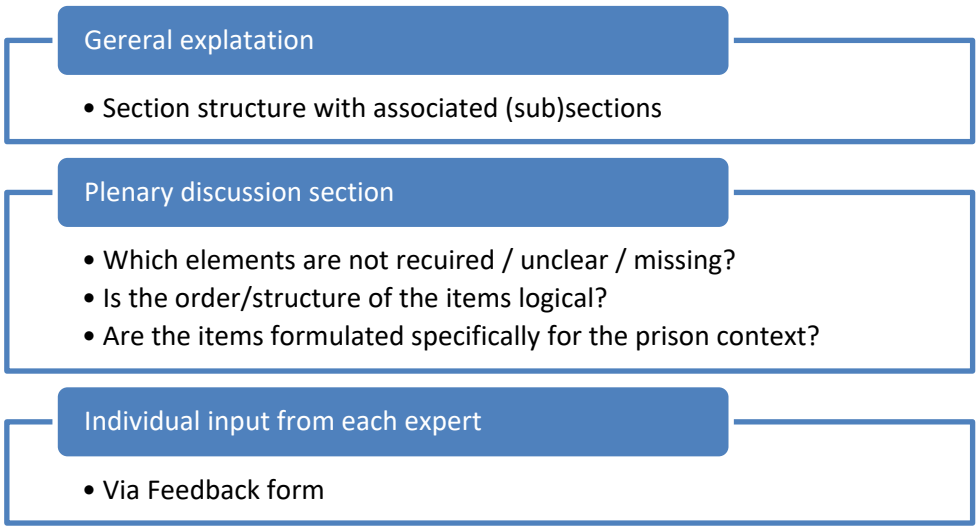
Section G: Assessment information

- This section contains information specific to the assessment that is being carried out for a particular person. This concerns, for example, items such as 'date and time'; signature of the person coordinating/conducting the assessment. For this last item, the person who carried out the assessment fills in their name, signature and the type of organisation they work for). The item 'date & time' records the exact time and date of the assessment. As is the case in the federal BelRAI platform 3.0, this information will be automatically generated by the IT system. Therefore, (health) care providers will not have to complete these items themselves.

Based on the feedback from the commissioners in discussion with the researchers, two major changes were made to the procedure of the expert panels:

- The sections 'F - Services' and 'G - Assessment information' were omitted from the Dutch and French draft versions of the BelRAI detention screening instrument that were made available to the participants of the expert panels (see also Annex 4).
- During the expert panels, participants were asked for each item of the instrument at what point in time it would be useful for them to collect this information: in the first 24 hours after detention, or after "x" number of weeks of detention. This feedback from the experts was needed in order to be able to arrive at a staged screening.

Figure 10 Overview of the procedure to discuss each section of the draft screening instrument during the expert panels of phase 2 of the study



During the expert panels, after the plenary discussion of each section each expert was asked for individual input via a feedback form (Figure 11). First, participants were asked to indicate, for each item, whether the topic of the item was "need to know", "nice to know" or "no need to know" in the context of considering the initiation of a care trajectory. Second, they were asked to indicate at what point in time it would be useful for them to collect this information: in the first 24 hours after deprivation of liberty, or after 'x' number of weeks after deprivation of liberty.

Figure 11 Feedback form to be completed by the participants of the expert panels for each item of the draft version of the BelRAI detention screening instrument

MODULE A. IDENTIFICATION INFORMATION		Need to know (Necessary)	Nice to know (May remain)	No need (To be removed)		Short BelRAI Screener (first 24hrs)	Extended BelRAI Screener (x number of weeks after deprivation of liberty)
Sex & Gender identity							
Sex	**1** Male **2** Female **3** Intersex **4** Unknown						

2.2 Feedback from expert panels on draft version of the BelRAI detention screening instrument

In this section, we will report the plenary discussion of the Dutch and French-speaking expert panels for each section of the screening instrument, and subsequently present the results of the individual feedback forms in two figures.

2.2.1 Section A: Identification information

Sex & Gender identity

From both the plenary feedback and the individual feedback forms (Figure 12) the experts conclude that both items, Sex and Gender identity, should definitely be assessed in the context of detention, and this within the first 24 hours of detention, in the short BelRAI detention screening instrument (Figure 13). Gender refers to the sex recorded in the passport, while gender identity refers to the way in which someone identifies themselves.

Three response categories of the item Sex – 'male', 'female' and 'unknown' - are approved by the experts. The response category 'intersex' is unclear to the experts. One participant wonders how to complete this item when a detainee is "in transition". It is therefore proposed to keep the response categories 'male', 'female' and 'unknown', and to drop the response category 'intersex' to avoid confusion.

For the 'Gender identity' item, it is noted that the answer categories are difficult to understand. For example, it is unclear whether and what the difference is between the response categories 'don't know' and 'don't want to answer'. For the response category 'other gender identity' it was suggested to replace this with 'non-binary'.

Results from the feedback form:

Figure 12 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the items Sex, Gender identity, Reason for assessment, Education level and Language

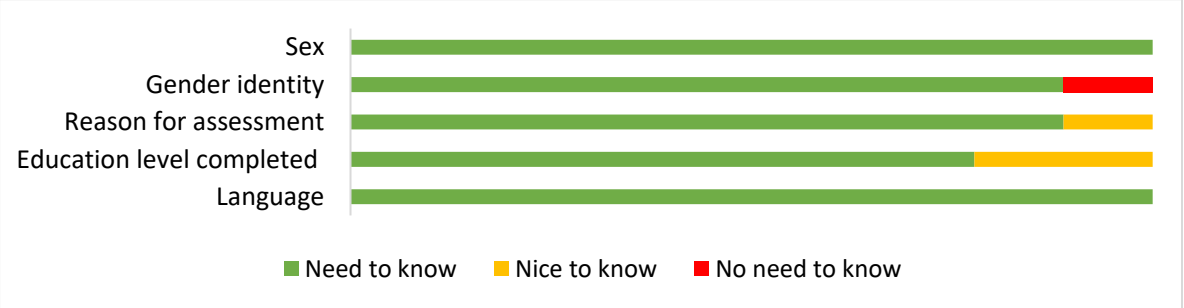
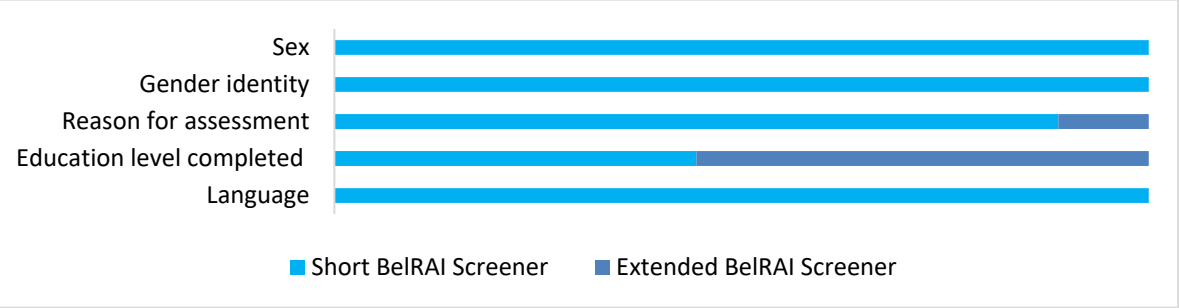


Figure 13 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the items Sex, Gender identity, Reason for assessment, Education level and Language



Educational level

During the plenary discussion, it is mentioned that the French response categories for this item are not clearly formulated. From the individual feedback forms we deduce that this item is seen by most experts as an item that should be included in the screening instrument. A small majority of the experts believes that this item should be included in the extensive BelRAI detention screening instrument (Figure 13).

Reason for assessment

The majority of experts agrees that the reason for the assessment should be included (Figure 12) in the short BelRAI detention screening instrument (Figure 13). However, there are questions about the wording. It looks like the item is more about the time of completion of the screening instrument than about the 'reason' for the assessment. For example, the first response category 'first assessment' is not well worded: participants expect that many (health) care providers will interpret this as their 'own first assessment'. Experts propose to replace the response category 'routine assessment' with 'reassessment'.

The response category 'assessment due to a significant change in status' raises the question whether this is linked to a change in the clinical status of a person. The experts point out that a change of clinical status is an important moment for a reassessment and should therefore be kept as a response category. A (re)assessment is also needed when a substantial change of status occurs linked to a change of legal status or to a life event.

Language

Four out of the nine experts ask, in the plenary discussion, for a revision of the item Understanding the language used by the institution, as the item is defined in the draft version of the instrument. They want to assess in which language they can communicate with the client in the context of a care process that might follow after the screening. This should be included explicitly in the screening instrument. This item is unanimously (Figure 12) mentioned by the experts as an item that must be filled out within the first 24 hours after detention (Figure 13).

Responsibility / Directives

Legal responsibility

From the plenary feedback and the individual feedback forms (Figure 14), we conclude that the topic of legal responsibility is a complex issue that is currently being assessed in correctional facilities by the Psychosocial Service. Some of the experts – but not all - indicate that this information is important for decision making when considering the initiation of a care process, and that it should be included in the screening instrument. This plenary feedback is also reflected in the individual feedback forms (Figure 14). There is less agreement on the importance of the sub-items. Of the six sub-items, the first three sub-items in particular are considered necessary by two-thirds of the experts: legal guardian, other legal supervision and durable power of attorney/health care proxy. This is not the case for the other 3 sub-items. Five out of nine experts consider these sub-items "nice to know" or "not necessary". In addition, the experts indicate that the content of the items requires further clarification in order to complete them correctly. As it is now, they would need the expertise of social workers to do this. The items are therefore perceived by some experts as complicated and unclear.

If these items about Legal responsibility will be part of the screening instrument, a majority of the experts thinks that this should be part of the extended BelRAI detention screening tool (Figure 15).

Results from the feedback form:

Figure 14 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Legal responsibility

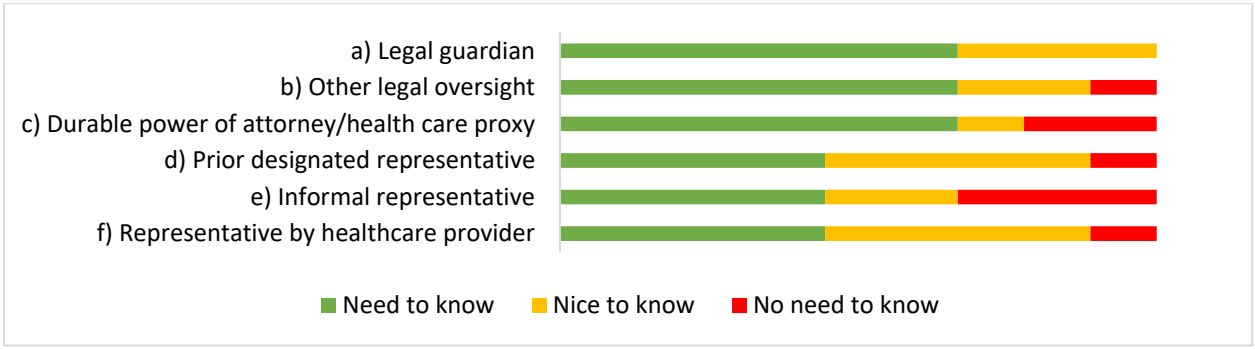
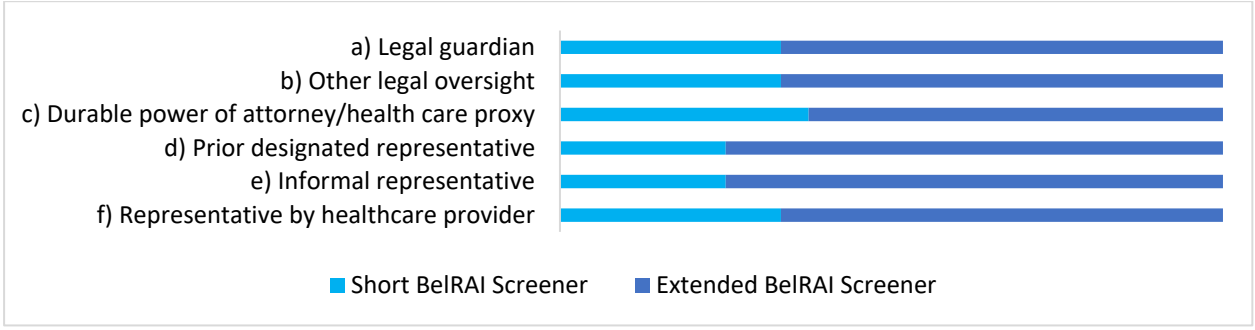


Figure 15 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the 9 experts for the sub-items of the topic Legal responsibility



Advance directives

From the plenary feedback, we learn that the items related to Advance directives are currently not systematically asked about in facilities and are only discussed when it appears that there is a serious illness. This information is not included in Epicure, the medical file of the Belgian correctional facilities. The doctors present in the expert panels point out the importance of this information. After all, they are legally obliged to comply with clients' wills in case they are legally capable. From the individual feedback forms, we deduce that the majority of experts finds the advance directives to be necessary to know about a client (Figure 16). However, the majority feels that this should not be discussed in the first 24 hours (Figure 17), but on a later moment in the extended BelRAI detention screening instrument.

Result from the feedback form:

Figure 16 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Advance directives

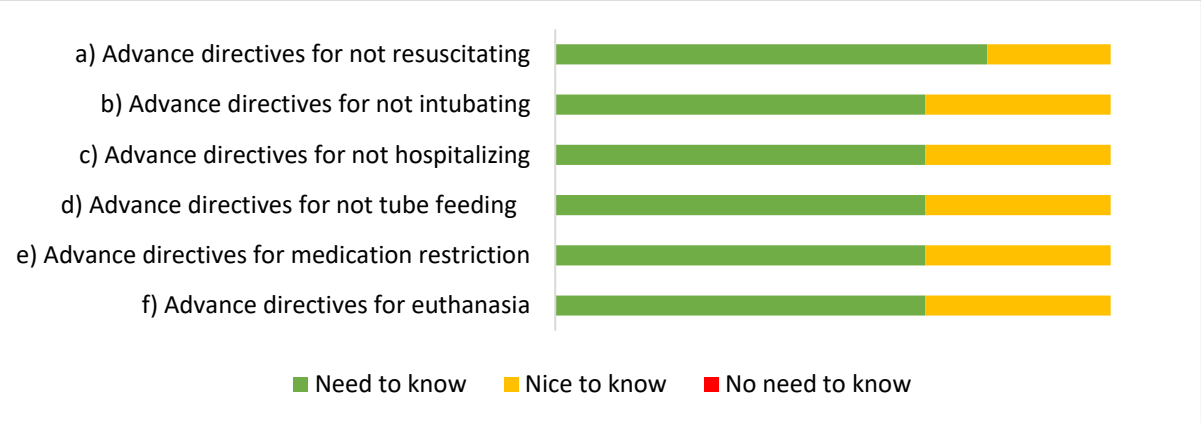
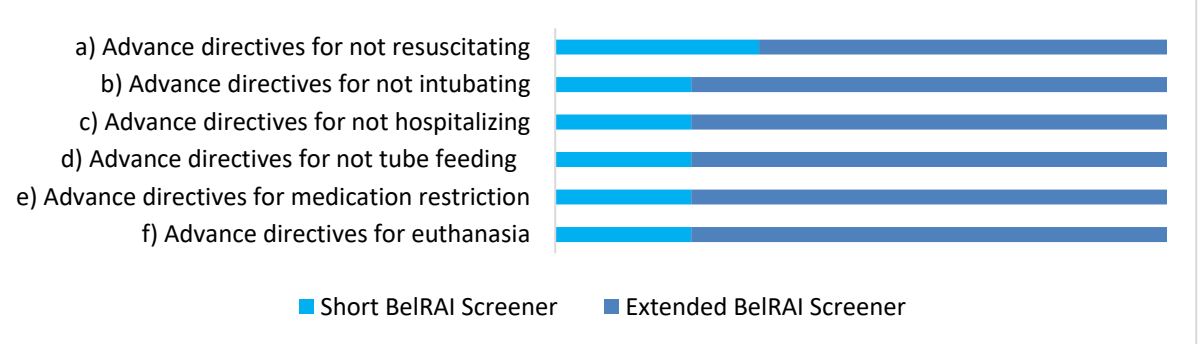


Figure 17 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the topic Advance directives



2.2.2 Section B: Medical past/ history

In-Patient Status- Last 90 days

Three items are questioned within the topic In-Patient Status. All three items are considered by two thirds of the experts as items that are necessary to query (Figure 18) and this within the first 24 hours in the short BelRAI detention screening instrument (Figure 19). In the plenary discussion, some experts mention that not only acute hospitalization with overnight stay need to be assessed, but also visits to a doctor in hospital or day treatment (for example for surgery).

Result from the feedback form:

Figure 18 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic In-Patient Status-Last 90 days

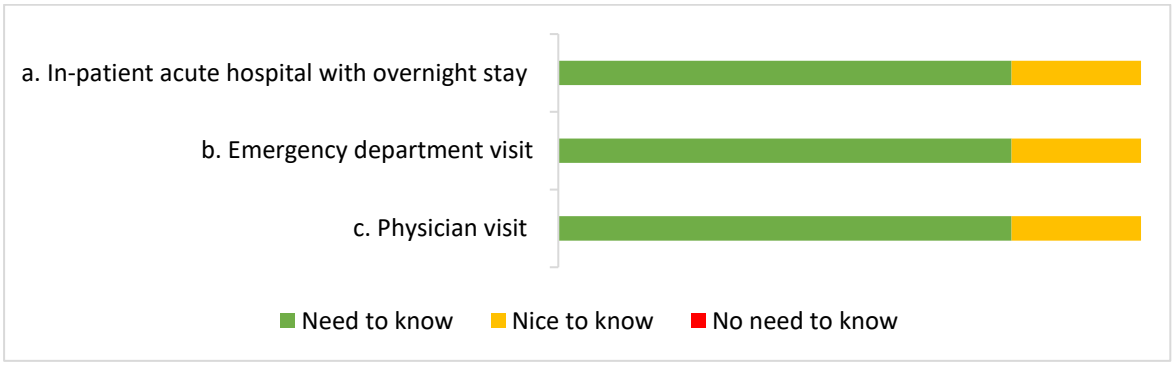
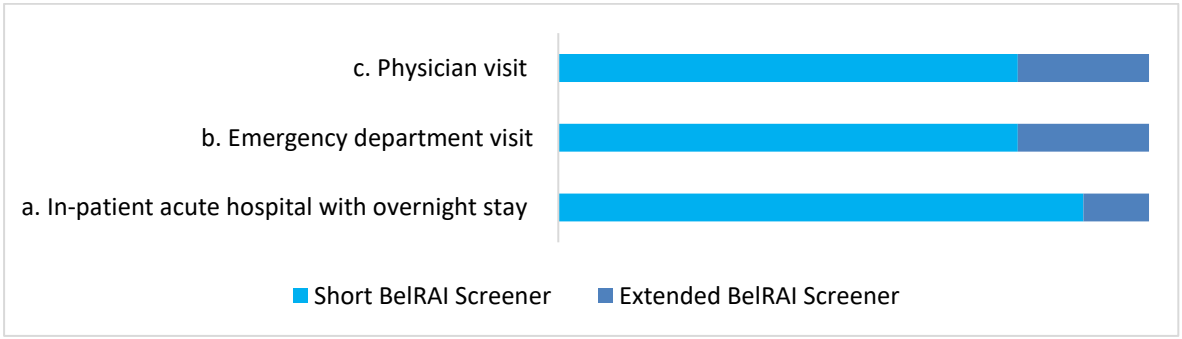


Figure 19 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine9 experts for the sub-items of the topic In-Patient Status Last 90 days



Mental health and substance use program (history)

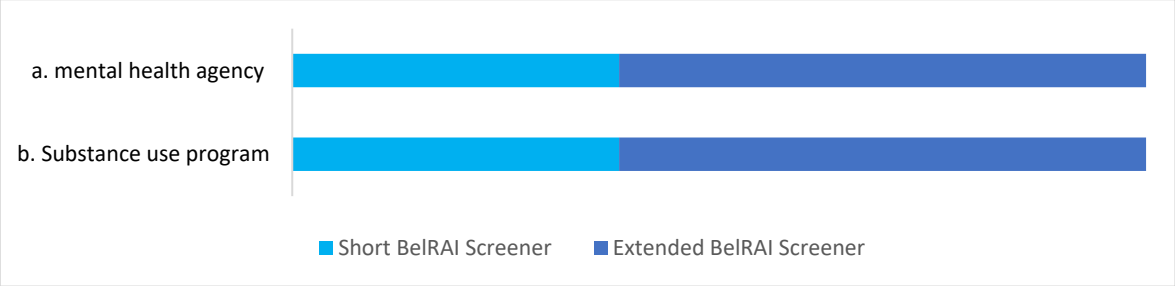
Whether a detainee is currently in treatment within a mental health agency or substance use program, is considered necessary to assess (Figure 20). Most experts prefer to ask these questions in the first 24 hours (Figure 21). In the plenary discussion, experts also note that it is not clear which kind of treatments are included in item 'a. Mental health agency'. At present, it is not clear whether private treatment (e.g., with a psychiatrist or psychologist) or ongoing treatment within the regular subsidised care programme (e.g., outpatient, inpatient, mobile) that is discontinued due to the arrest after committing an offence, or ongoing counselling/treatment within a prison context at

re(assessment) can be included. The manual (that will be developed in the future) should be clear about this.

Result from the feedback form:

Figure 20 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Mental health and substance use program (history)

Figure 21 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the topic Mental health and substance use program (history)



Medication

Five items are questioned within the topic Medication. From the individual feedback forms, we note agreement among experts. These five items are all necessary to include in the screening instrument (Figure 22) and should thereby be scaled in the first 24 hours (Figure 23).

We explicitly request taking medication in the past 3 days. In one of the two expert panels, the participants stated that they consider this period of time too short in a detention context. They see a period of 30 days as more appropriate. The experts note here that people have already been arrested for several days before they arrive in prison. Asking about the last three days would therefore give a distorted picture according to these experts. In addition, there are also forms of medication that are only taken every 14 days that can automatically be forgotten to mention when referring to the last 3 days.

For the item d. 'What type of substitution treatment does the client receive', they suggested to include Buvidal as response category. Only Subutex and Suboxone are explicitly listed. By including Buvidal, the three possible options are mentioned as response categories, so there can be no confusion.

An additional general concern raised in both expert panels is that only the medication that is taken by the detainee is assessed. This makes not clear whether this medication is prescribed/dispensed by a healthcare professional or that it is taken as medically prescribed. E.g., a detainee that takes

epilepsy medication but has never been examined for or diagnosed with this disease; the detainee obtained it on the black market.

Result from the feedback form:

Figure 22 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the 9 experts for the sub-items of the topic Medication

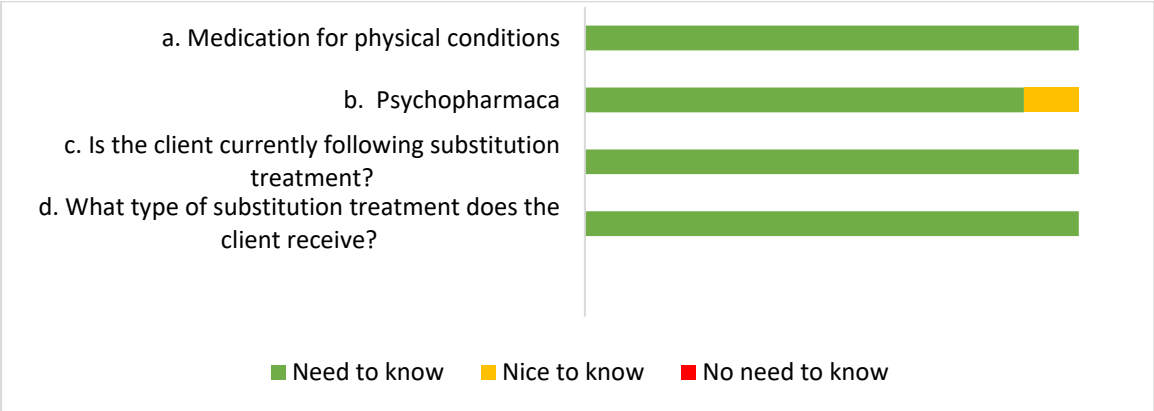
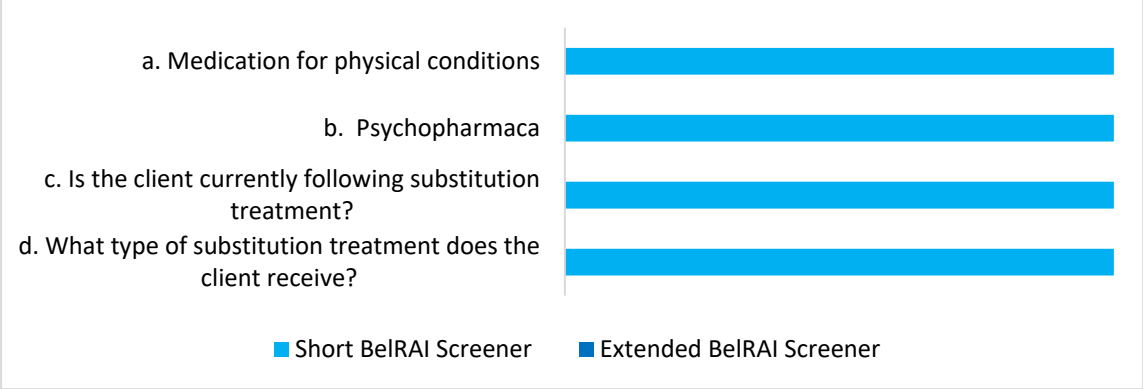


Figure 23 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the 9 experts for the sub-items of the topic Medication



2.2.3 Section C: Physical health

Height and weight

The majority of experts considers the three items Height, Abdominal circumference and Weight necessary to assess (Figure 24) and within the first 24 hours (Figure 25). These three items should be based on the most recent measurement in the last 30 days. In the plenary discussion, one expert pointed out the importance of weighing effectively at the time of filling in the instrument, to get an accurate measurement, as not all people will know how to do this well or have done it effectively recently. It should be clear to the care professionals what to do if a person is transferred to another prison after 5 days. Do they have to measure it again? The expert wondered if this makes sense. This has to become clear from the manual.

Result from the feedback form:

Figure 24 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Height and weight

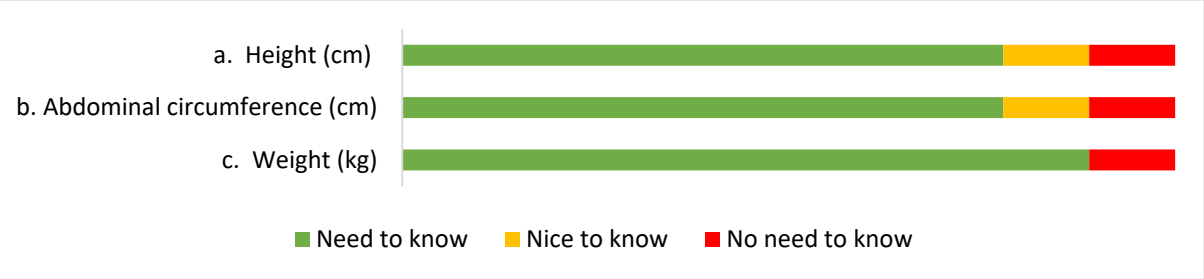
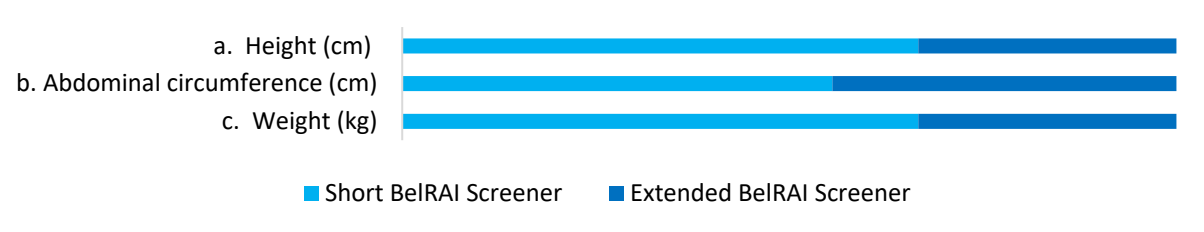


Figure 25 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the topic Height and weight



Blood pressure

From the individual feedback forms, we conclude that the experts unanimously agree that this item should be included (Figure 26). More than two-thirds of the experts think that the blood pressure should be taken during the first 24 hours after detention and should therefore be included in the short BelRAI detention screening instrument (Figure 27). In the plenary discussions, there was no further feedback on this item.

Result from the feedback form:

Figure 26 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the items Blood pressure and Pregnant

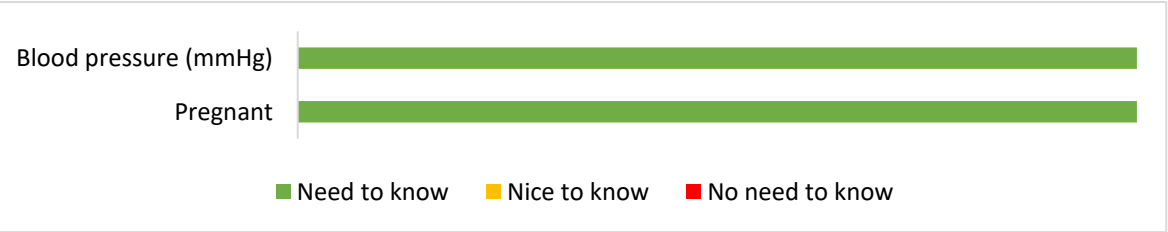
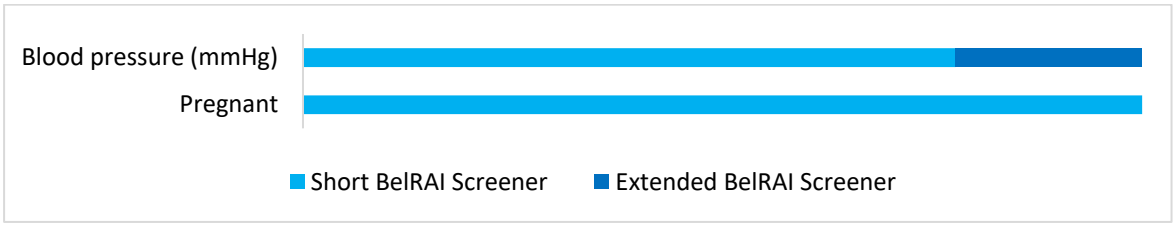


Figure 27 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the items Blood pressure and Pregnant.



Pregnancy

As shown in Figure 26 and Figure 27, the experts unanimously agree that one should inquire in the first 24 hours about whether a female detainee is pregnant or not. There was no further feedback on this item during the plenary discussions.

Self-care

Almost all experts (with one exception) from both expert panels consider the four items in the self-care section necessary to assess (Figure 28). Two-thirds of the experts would ask for this information in the first 24 hours, i.e., in the short BelRAI detention screening instrument (Figure 29). In the plenary discussions, one of the expert groups emphasized that it is important for them to be able to identify those people who are starting to have problems with self-care, and that the variety of response options gives them this possibility. So, they are positive about these items and response categories. They therefore consider it important to assess all the items for each person entering prison. According to one expert, this information is also important to know in the context of developing a safe reclassification plan.

From the plenary discussion during one of the expert panels, we extract the question to include two additional topics that they associate with self-care. First, whether a person is able to take or self-administer his medication. This is important to know for their further stay in prison: if a person is unable or unwilling to take his own medication, he is obliged to go to the infirmary to do so. Second, it is important to assess whether a person can orient himself in time and location. This can be, for example, the case when someone is still intoxicated by alcohol or is going through a withdrawal phase.

Figure 28 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Self-care

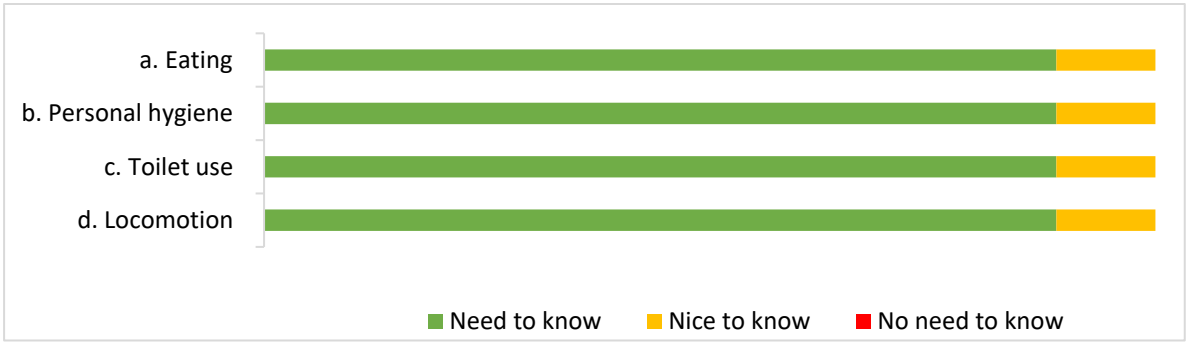
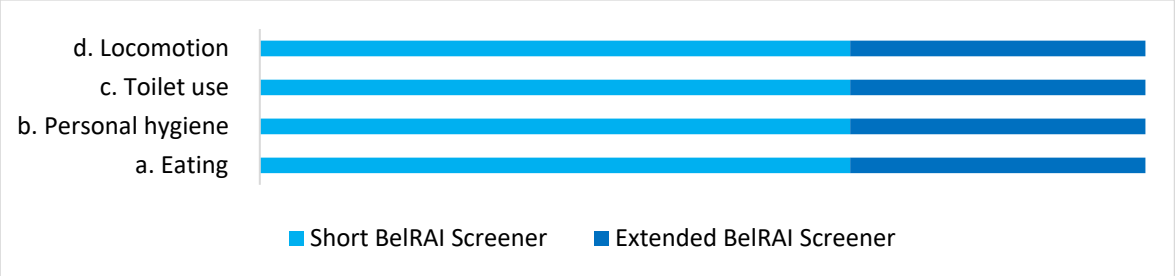


Figure 29 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the topic Self-care



Smoke

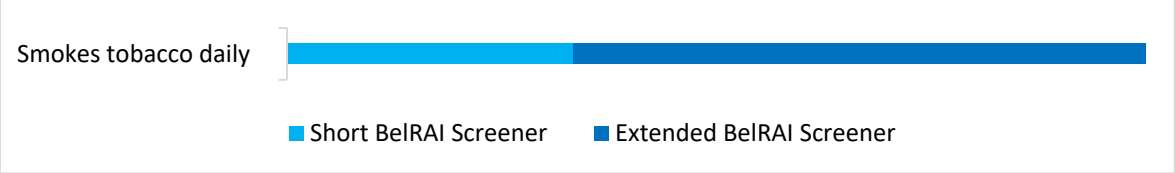
The individual feedback forms show that there is less unanimity among the experts on whether an item on tobacco use is necessary to include. Five out of nine experts indicate that they consider this item need-to-know (Figure 30). Two-thirds of the experts think that this item should be included in the extended BelRAI detention screening instrument in the weeks following detention (Figure 31).

One of the two groups of experts makes some additional suggestions on this point in the plenary discussion. Some experts suggest that alternatives to tobacco should also be considered for assessment. These might include patches, nicotine replacement or specific medication. Such an item would help to support detainees who want to quit smoking.

Result from the feedback form:

Figure 30 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the item Smoke

Figure 31 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the item Smoke



Oral/dental care

From the individual feedback forms we can conclude that the two items regarding oral and dental care are viewed differently by the experts. The item Dentist visit is seen as necessary to assess by five of the nine experts, but as less necessary than the item assessing whether pain or discomfort is currently experienced in the mouth (Figure 32). The time at which these items should be filled out also differs, according to the experts (Figure 33). The item is asking about pain and discomfort should be asked immediately within the first 24 hours, according to five of the nine experts. The item related to a visit to the dentist should be asked later, according to seven of the nine experts in the extended BelRAI detention screening instrument.

In the plenary discussion of one of the two expert groups, they suggested adding the question "Do you brush your teeth every day?". This would also give an indication of someone's oral health.

Result from the feedback form:

Figure 32 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Oral/dental care

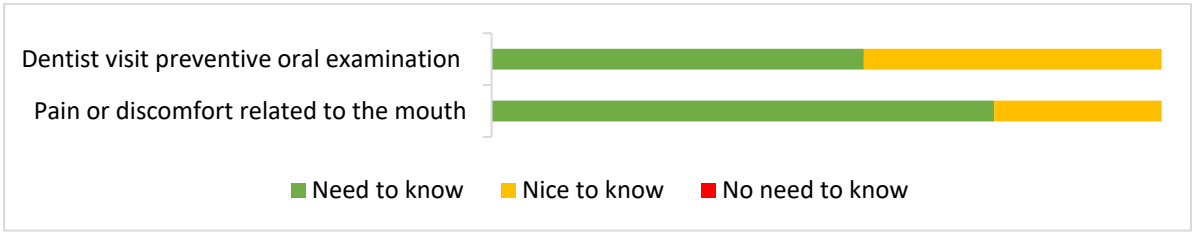
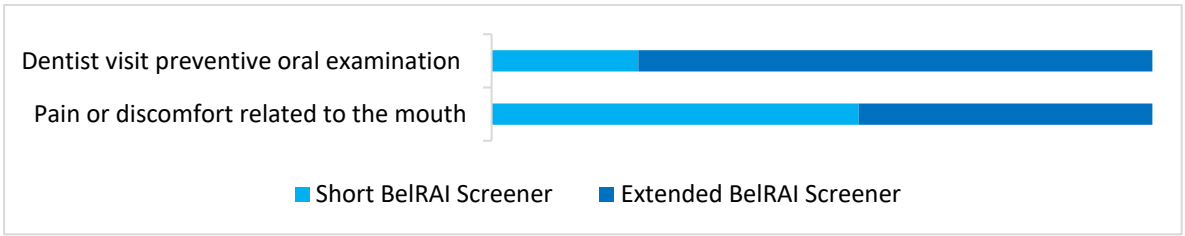


Figure 33 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the topic Oral/dental care



Diseases and diagnoses

The 'Diseases and Diagnoses' topic consists of a total of 26 items divided into several subtopics. Based on the individual feedback forms, we discuss all items here by subtopic. First, we explain the general considerations from the plenary discussions. Next, we explain the experts' feedback based on the individual feedback forms for each subtopic.

From the plenary discussion, we derive four general considerations. First, the distinction between the response categories 'primary diagnosis', 'diagnosis present, receiving active treatment' and 'diagnosis present, being monitored but not receiving active treatment' is not clear to the experts. In addition, they would like to add a response category to be able to indicate a suspicion of a disease or diagnosis without knowing for sure at that time whether the diagnosis applies. This would help

the care providers to keep in mind that a re-evaluation of the diagnoses has to take place a few weeks later. One expert mentions that the start of a treatment is sometimes based on a 'diagnostic hypothesis'. Also from the perspective, the expert believes it is important to add a response category like 'not yet known'.

Second, regarding the psychiatric diagnoses that have to be assessed, an expert suggests to use the groups of diagnoses from the DSM 5 (reference to chapter titles) instead of listing specific diagnoses. A first weeks of detention, it is sufficient to know which broad categories of diagnoses apply. For example: “After all, it doesn't really matter if we know at an early stage whether it's type one or type two bipolarity. It is enough to know that someone suffers from mood swings.” One wonders who will fill in this section. Only doctors can make a diagnosis.

Third, experts wonder why personality disorders are not included to assess. One expert note that there is much more understanding of psychotic and depressive suffering in the prison context than of acting out as a result of a personality disorder. Acting out as a result of a personality disorder is much more likely to be linked to criminal behaviour. Therefore, the expert thinks it is important to also make diagnoses of personality disorders if they apply. Moreover, this information might also generate hypotheses on specific medication that the prison doctor can prescribe, according to the expert. Fourth, experts indicate that there should be a clear description of all listed diseases and diagnoses in a manual.

Neurological diseases

Based on the individual feedback forms, dementia is the only item related to neurological diseases that all experts consider necessary (Figure 34). For the remaining items regarding neurological diseases (b-g), there is one expert who thinks that these items should not be included. We can conclude that the majority of experts considers all items necessary to be included in the BelRAI screening instrument. In addition, two thirds of the experts think that all items should be asked within the first 24 hours after detention, in the short BelRAI detention screening instrument (Figure 35).

Result from the feedback form:

Figure 34 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the subtopic Neurological diseases

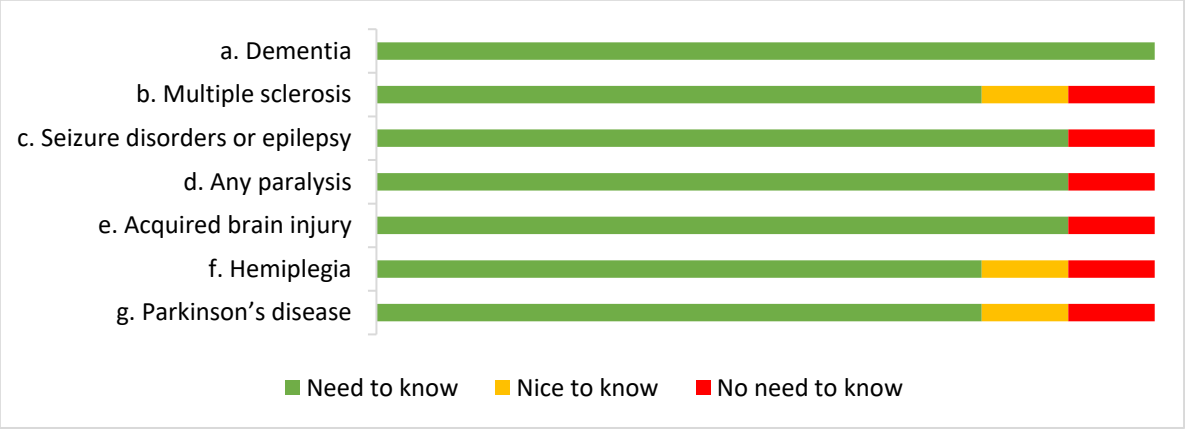
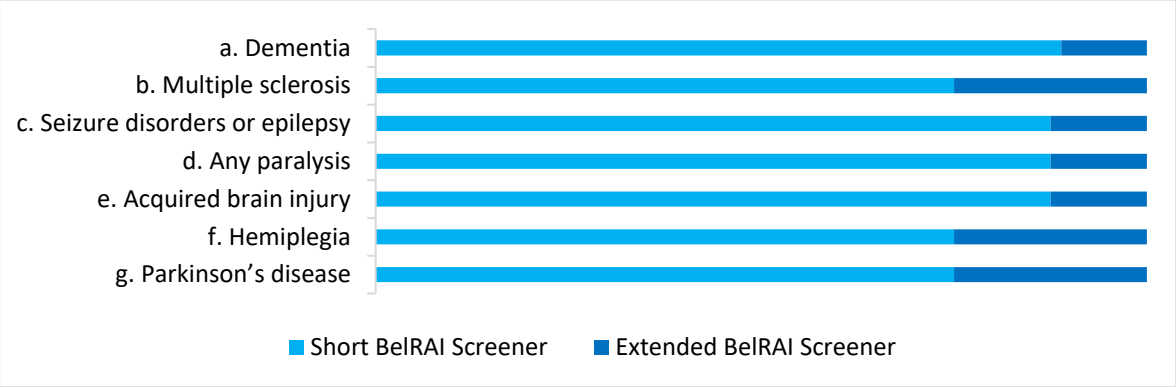


Figure 35 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the subtopic Neurological diseases[4]



Intellectual and developmental disabilities

The individual feedback forms show that only one expert would not include the items regarding intellectual and development disabilities. All the other experts consider it necessary to include these items in the BelRAI screening instrument (Figure 36). Of the eight experts who consider it necessary to include the four items, the majority thinks that they should be included in the short BelRAI detention screening instrument (Figure 37).

In one of the two expert groups, there was a general consideration that the instrument should be able to detect also a broader group of persons with an intellectual disability who experience difficulties related to cognitive ability and/or social-emotional development. The IQ of these persons does not always allow to make a diagnosis of a disability. Nevertheless, treating these persons in the same way as someone with normal cognitive functioning is not the best approach. Some experts point out that this is a difficult issue, not easily captured in a single item. But they believe it is important to include it. The experts point out that a person's school career, the work they do and their language skills can be indicators of this broad category of person with an intellectual disability.

[4] The expert who indicated 'No need to know' for items b to g did not indicate whether these items should be included in the short or the extended BelRAI detention screening instrument.

Result from the feedback form:

Figure 36 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the subtopic Intellectual / Developmental Disability

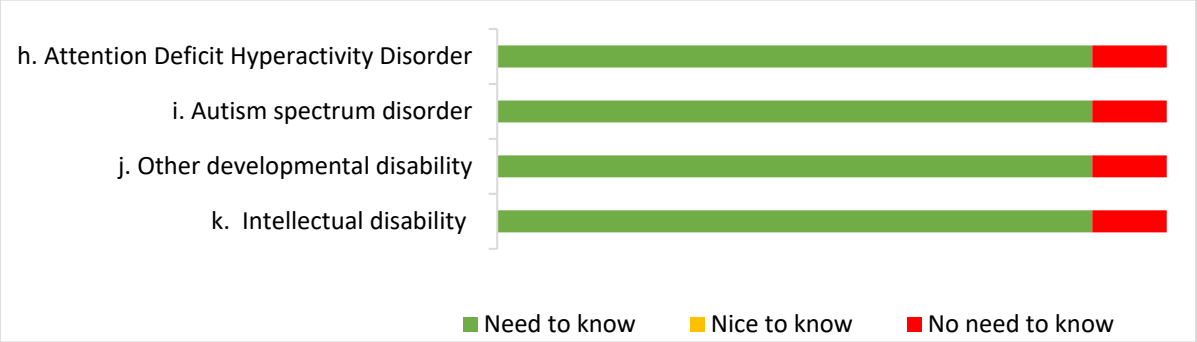
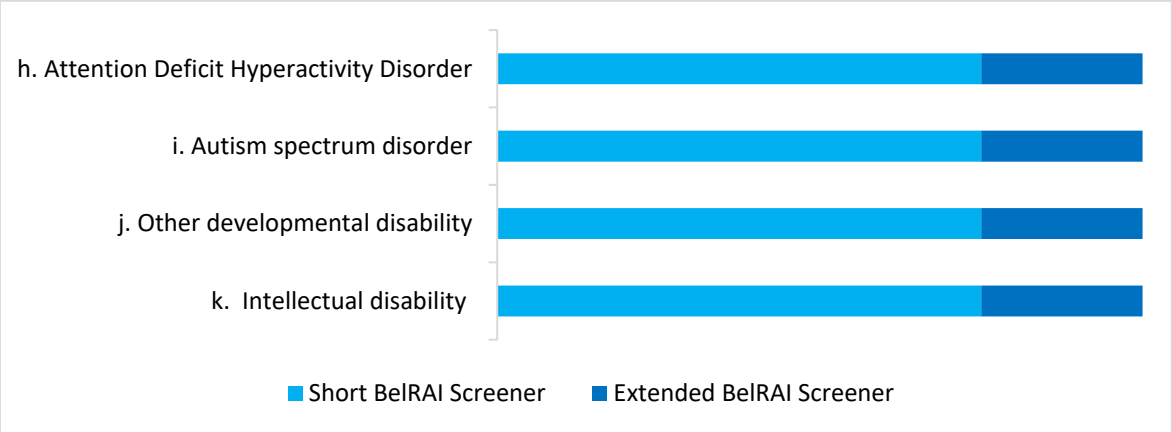


Figure 37 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the sub-items of the subtopic Intellectual / Developmental Disability[5]



[5] The expert who indicated 'No need to know' for items h to k did not indicate whether these items should be included in the short or the extended BelRAI detention screening instrument.

Cardiac or pulmonary diseases

The individual feedback forms show that only one expert would not include the three items regarding cardiac or pulmonary diseases. All other experts consider it necessary to include these items (Figure 38). Of the eight experts who consider it necessary to include these items, the majority thinks that they should be included in the short BelRAI detention screening instrument (Figure 39).

Result from the feedback form:

Figure 38 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the subtopic Cardiac or Pulmonary

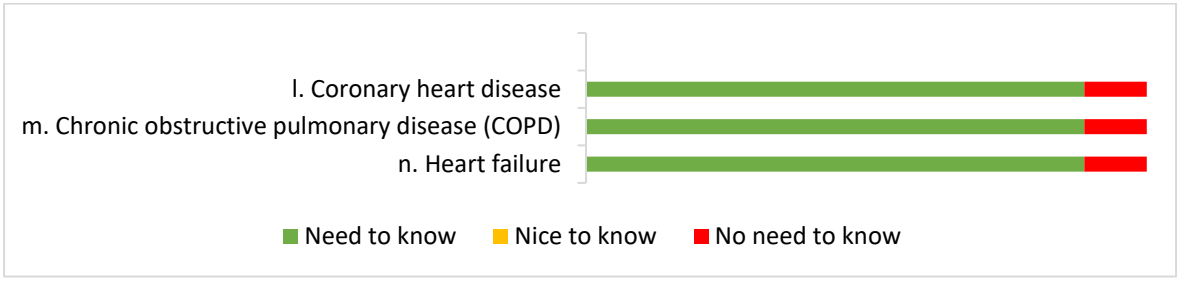
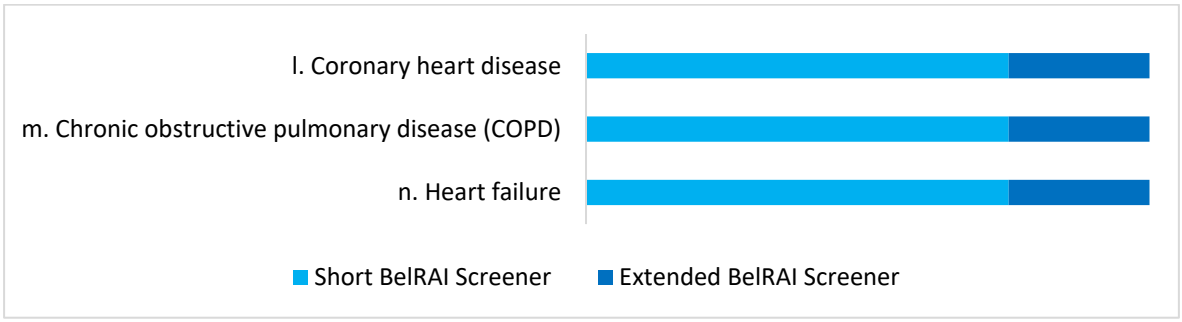


Figure 39 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the sub-items of the subtopic Cardiac or Pulmonary[6]



[6] The expert who indicated 'No need to know' for items l to n did not indicate whether these items should be included in the short or the extended BelRAI detention screening instrument.

Psychiatric diseases

Figure 40 shows that almost all experts consider the items regarding psychiatric diseases necessary to be assessed. Of the eight experts who consider these items need-to-know, just over half of them thinks that they should be assessed in the first 24 hours, in the short BelRAI detention screening instrument (Figure 41).

Result from the feedback form:

Figure 40 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the subtopic Psychiatric

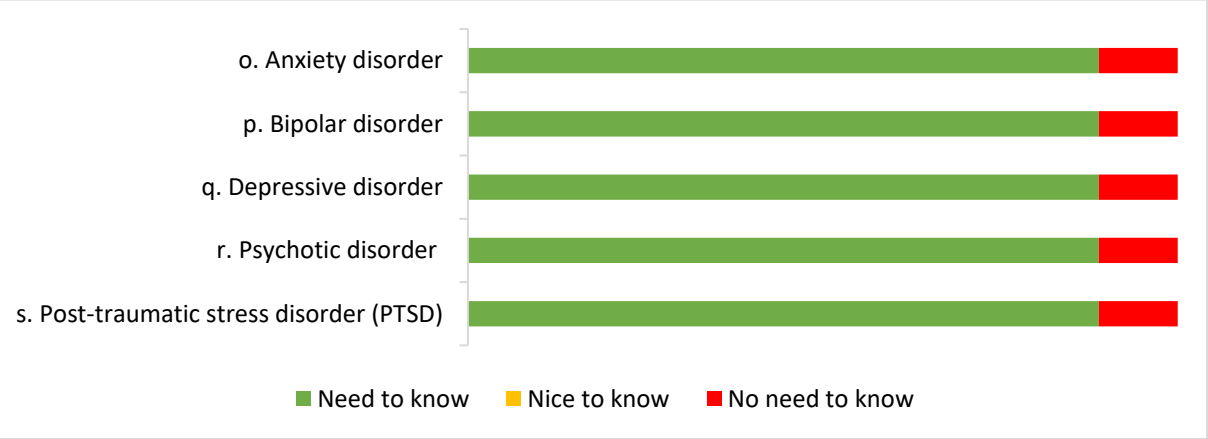
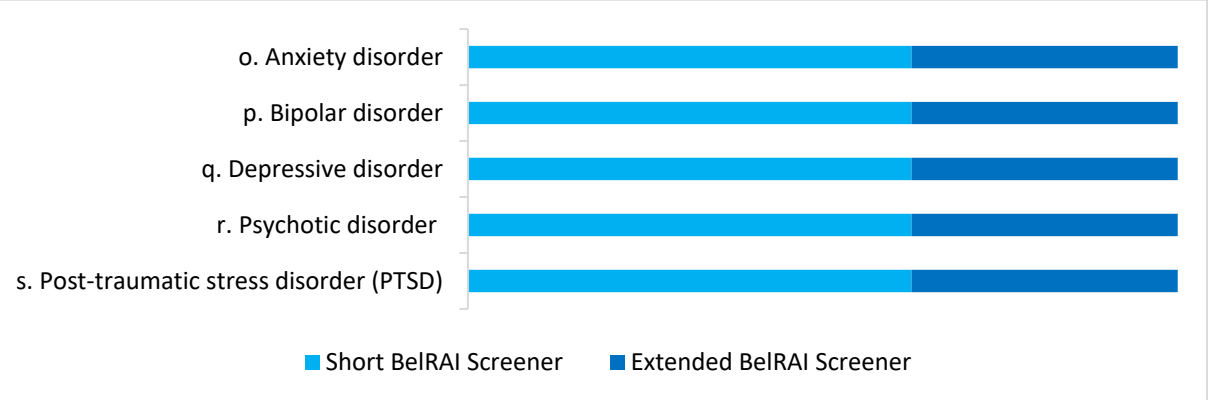


Figure 41 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the subtopic Psychiatric[7]



[7] The expert who indicated 'No need to know' for items l to n did not indicate whether these items should be included in the short or the extended BelRAI detention screening instrument.

Infections

All experts agree on the need to include all four infectious disease items (Figure 42) and to complete these items within the first 24 hours in the short BelRAI detention screening instrument (Figure 43).

Result from the feedback form:

Figure 42 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the subtopic Infections

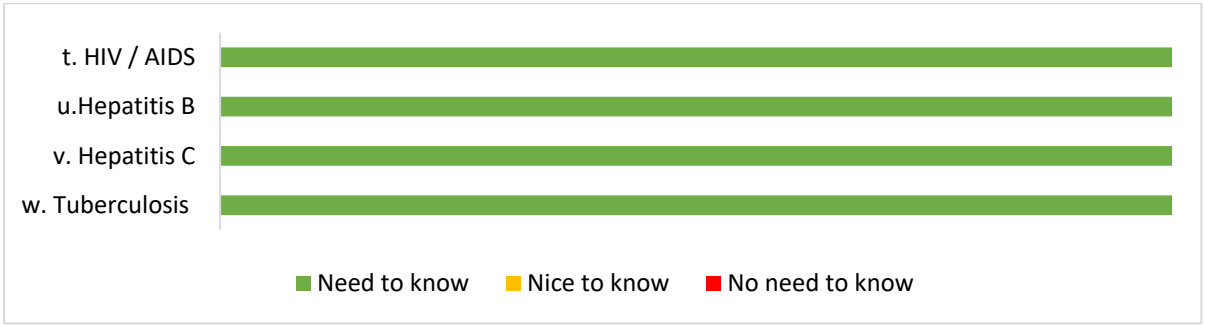
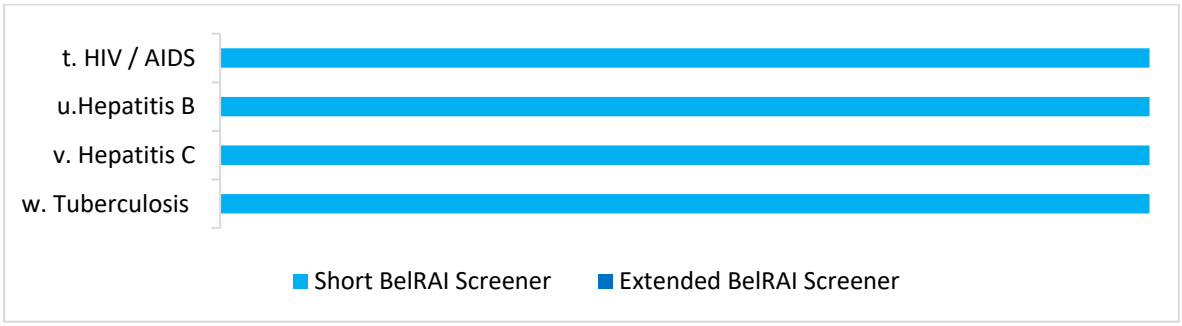


Figure 43 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the subtopic Infections



Other diagnoses

All experts consider the items on diabetes and the item on chronic kidney disease need-to-know (Figure 44). Seven of the eight experts who completed the individual feedback form prefer the extended BelRAI detention screening instrument to assess these items (Figure 45). One expert did not complete this sub-question.

Result from the feedback form:

Figure 44 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the subtopic Other

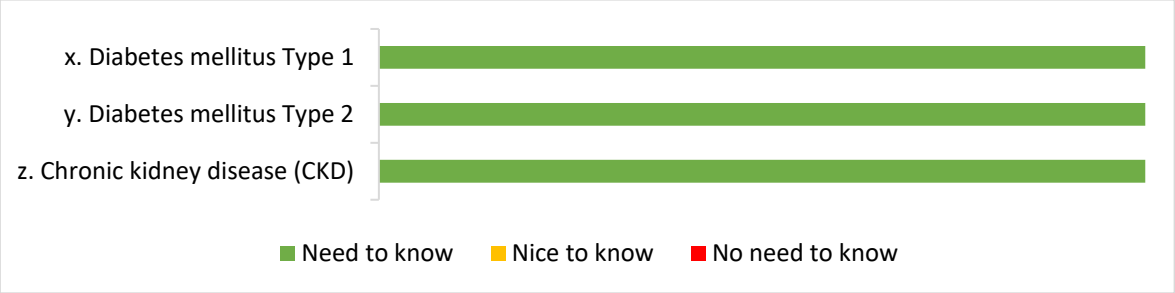
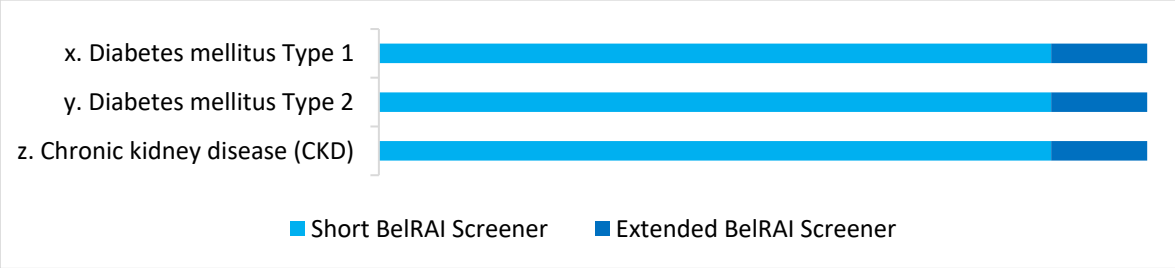


Figure 45 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the sub-items of the subtopic Other



2.2.4 Section D: Mental health indicators and behaviours

Mental health indicators

Within the subtopic of mental health indicators, 12 items are to be assessed. Overall, we observe that for all items at least five out of nine experts consider these items need-to-know. We also notice that for all items there are a number of experts who perceive the items as nice-to-know. Items c. Irritability is the only item that two experts rate as no-need-to-know. For items 'a. Inflated self-worth', 'b. Hyper-arousal', 'd. Fixed false beliefs', 'e. Pressured speech' and 'k. Reduced interaction', there is one expert each who thinks that the item is not necessary to assess (Figure 46).

Figure 47 gives an overview of the extent to which the experts think the items should be included in either the short or the extended BelRAI detention screening instrument. Overall, it shows that for all items at least half of the experts think that the items should be included in the extended screening instrument.

In the plenary discussion, both groups of experts point out the importance of a clear explanation of each item in the manual. Without a manual, it is not clear to the experts what is meant by certain items, e.g., item k. Reduced interaction. In one of the expert groups, there are different opinions about the time period for which these items should be completed: at one specific moment that the care provider is present to make observations (e.g., item c. Irritability), the last 24 hours (e.g., item h. Disorganized speech), or for a wider time period, e.g. the last 7 days, as the effect of detention had an impact on these symptoms in the first days after imprisonment. In addition, these items can only be completed if there is an exchange of information with the correctional officer. Another expert follows the logic behind the time frame for observation of the items and links these questions to the indicators of suicide risk. The expert does question whether it is realistic to apply within a detention context. An assessment of these items after x number of weeks might be more realistic. Finally, one expert points out that not all items are perceived as equally relevant. There is also concern that the assessment of these items can "haunt" a person during their time in prison. As is said in one expert panel: "Anyone can get angry at bad news. Sometimes someone is aggressive, sometimes not."

Result from the feedback form:

Figure 46 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Mental health indicators

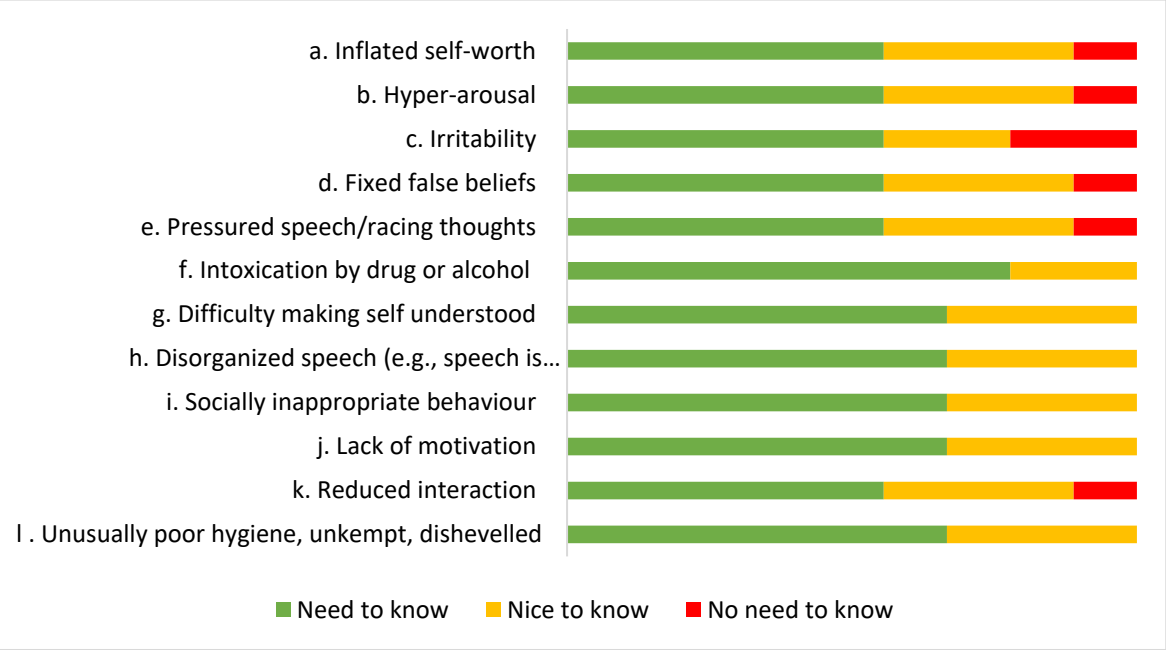
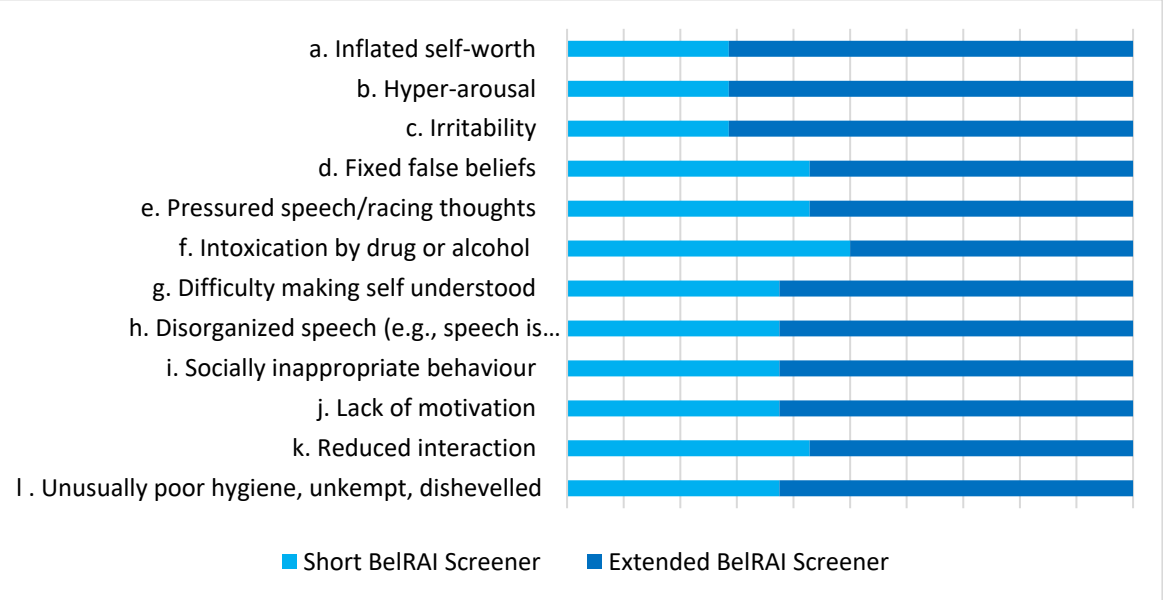


Figure 47 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the experts for the sub-items of the topic Mental health indicators[8]



Self-Reported mood

[8] For items a, b, c, d, e and k, seven experts answered this question. For items f, g, h, I, j and l, 8 experts filled out this question.

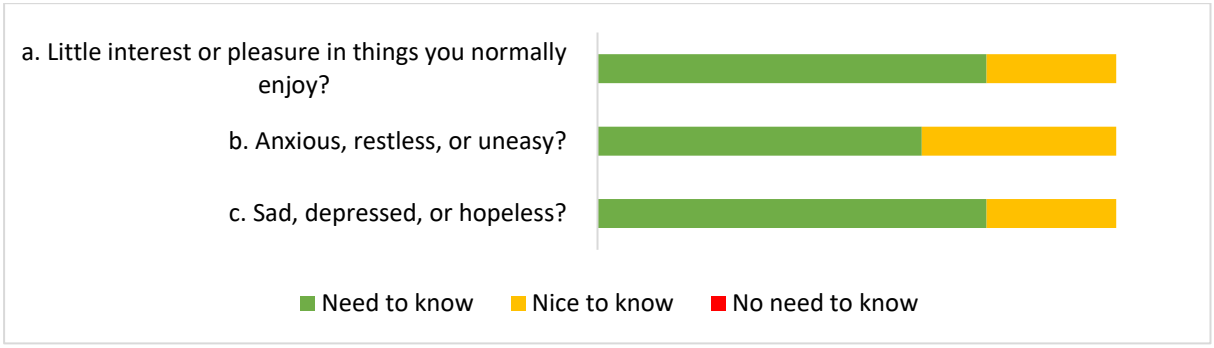
From the individual feedback forms we deduced that the majority of experts felt that the three items regarding Self-Reported mood should be questioned to the detainee (Figure 48). Not within the first 24 hours of detention, but in the following weeks. The majority of experts therefore considers that these items would best be included in the extended BelRAI detention screening instrument (Figure 49).

First, in the plenary discussion, some experts explicitly state that they think it is useful to make the assessment based on the “last 3 days” in order to be able to follow-up the evolution (in positive or negative direction). They experience that detainees are often anxious during the first intake with the care provider, but that this can change afterwards. This evolution in an indicator of how the person adapts to the new situation of detention. Only for detainees who stay anxious, depressed, hopeless, and for those going through a negative evolution regarding self-reported mood, it is necessary to further investigate whether a mood disorder is present and treatment is needed.

Second, some experts wonder to what extent a person with an intellectual disability will be able to answer these questions: whether they will be able to think back 'to the last 3 days' and whether they will really understand the question. For them it will mainly be a question of 'how do you feel now...'.

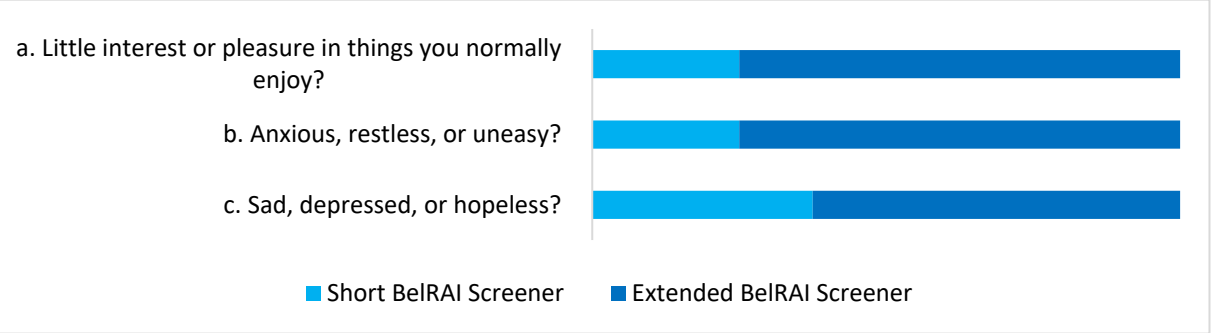
Result from the feedback form:

Figure 48 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the eight experts for the sub-items of the topic Self-Reported mood[9]



[9] One expert did not fill out this question.

Figure 49 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the 8 experts for the sub-items of the topic Self-Reported mood[10]



Use of psychoactive substances

Seven out of nine experts consider the 10 items regarding the topic Use of psychoactive substances need-to-know (Figure 50). There is one exception for item j. Dissociative drugs: six out of nine experts think it is need-to-know. One expert considers the item not-to-know. Overall, at least 50% of the experts think that the items should be included in the short BelRAI detention screening instrument (Figure 51).

In the plenary discussion, the researchers explained that interRAI is changing these items at the moment: the categories of substances will be replaced by the subdivisions included in the drug wheel (https://www.vad.be/assets/drugwiel_en_effecten_belgie_nl-1). The experts were more in agreement with the subdivision of the drug wheel than with the listing of substances in the draft-instrument. In addition, one expert made the suggestion to list the most common types if each category of substances, with their abbreviations/street names between brackets. This will make the items more clear to all healthcare providers.

Four other comments were made by the experts. First, the experts indicate that an additional response category would be useful, namely 'suspected drug use'. A lot of the detainees will not self-report drug use unless they are caught red-handed. Whether the detainee will be honest in his answers when asked about drug use, will also depend on whether the medical service of other services will ask about that. They believe that medical services with professional secrecy will get more honest answers. Second, one expert wonders to what extent it is problematic if these items cannot be completed, because the care provider does not know the correct answer. The expert mention: "Surely we are not screening who uses drugs and who does not. Surely we are mainly screening who is vulnerable here and who needs help." Third, the experts say that they would also like to know how they use the product (e.g. sniffing, injecting...) Fourth, there is a request to include problematic medication use in the list of psychoactive substances in case in case it concerns unprescribed use (bought on the black market) or excessive use of prescription drugs (not following the prescription).

[10] One expert did not fill out this question.

Figure 50 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the eight experts for the sub-items of the topic Use of psychoactive substances

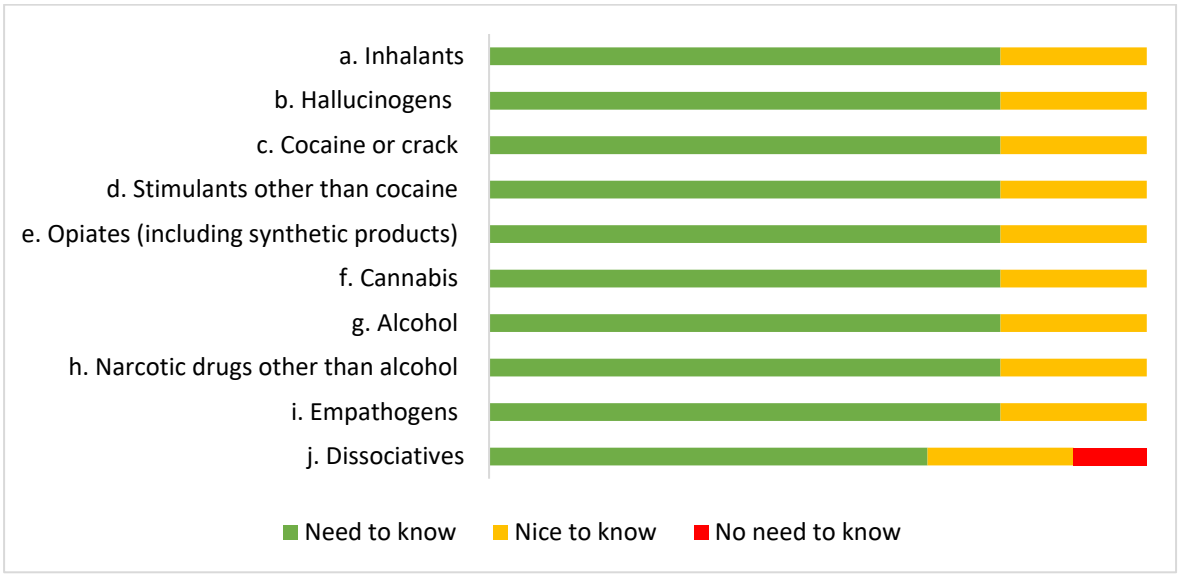
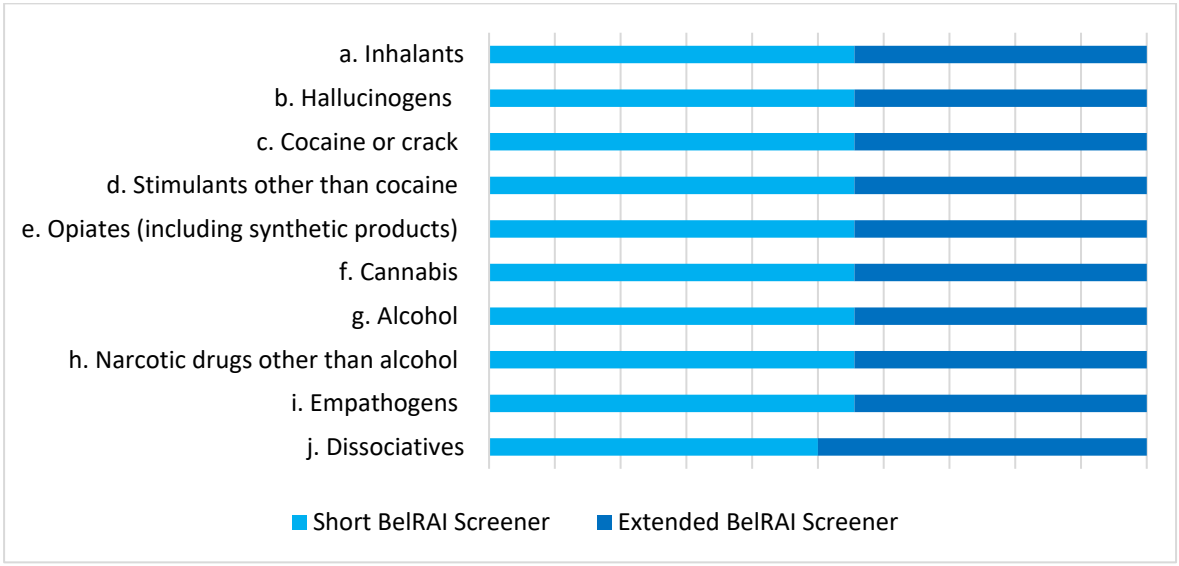


Figure 51 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the sub-items of the topic Use of psychoactive substances[11]



[11] The expert who indicated 'No need to know' for items j did not indicate whether these items should be included in the short or the extended BelRAI detention screening instrument.

Addictions and Substance Use

From the individual feedback forms we see that just over half of the experts consider the items of the addictions and substance use scale CAGE important to include; two experts think they are nice-to-know. Two of the nine experts believe that these items should not be included in the screening instrument (Figure 52). During the plenary discussion, one expert mentions that these are interesting items. No other feedback is recorded. Finally, we can see in the Figure 53 that the majority of experts thinks that these items should be asked in the extended BelRAI detention screening instrument.

Result from the feedback form:

Figure 52 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the eight experts for the sub-items of the topic Addictions and Substance Use

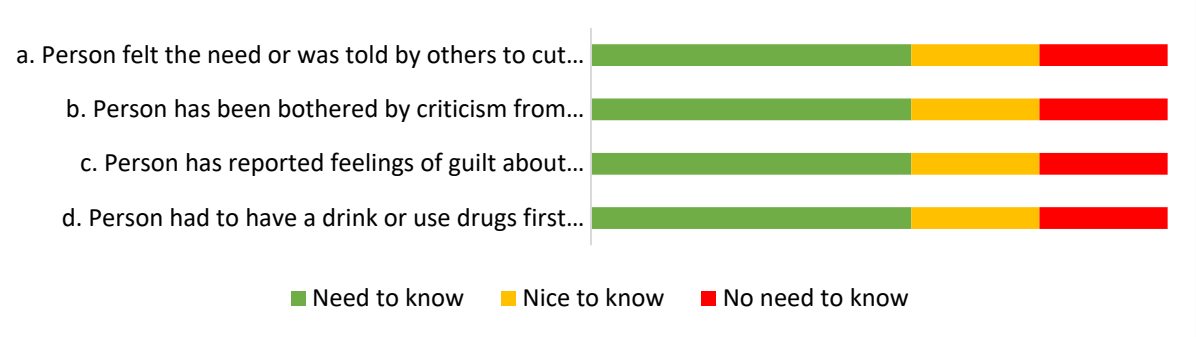
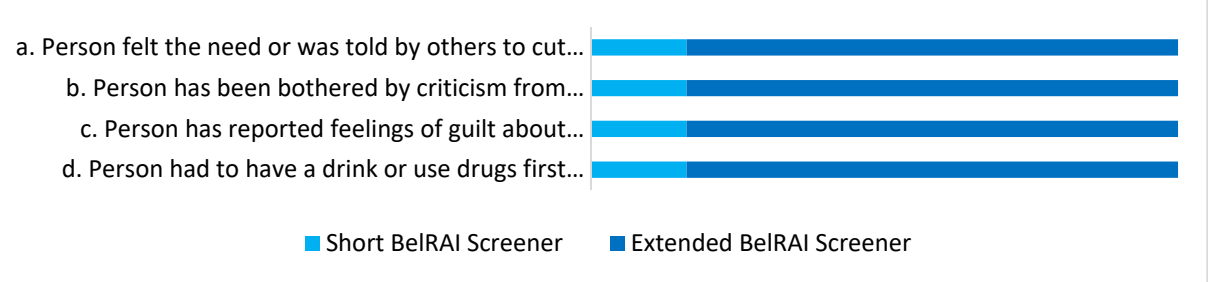


Figure 53 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the sub-items of the topic Addictions and Substance Use



Indicators of self-harm

We see from the individual feedback forms that nearly all experts rate the items as important to know. Only one expert states that they are nice-to-know (Figure 54). According to the majority of experts, these items should be included in the short BelRAI detention screening instrument (Figure 55).

Feedback from the plenary session suggest that the order of the items should be changed. The suggestion is to start with the question 'Have you ever considered doing something self-harming', followed by the second question 'Have you ever attempted self-harm/suicide in your life', the third question 'Most recent self-harm attempt' and the last question 'Have you ever been placed on 'suicide watch' in a formal service setting'.

During the plenary discussion, the experts stress that they want to ask about both recent and lifetime self-harm/suicide attempts. It gives an indication of how vulnerable people are.

Result from the feedback form:

Figure 54 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the eight experts for the sub-items of the topic Indicators of self-harm

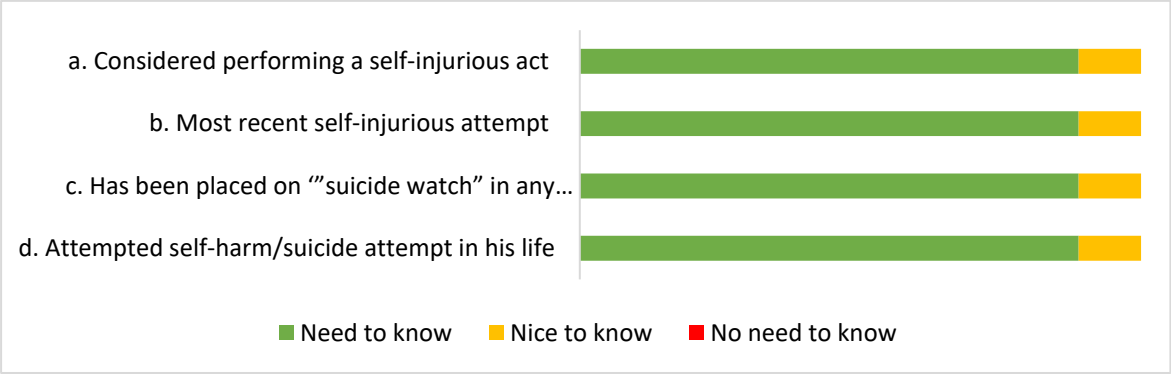
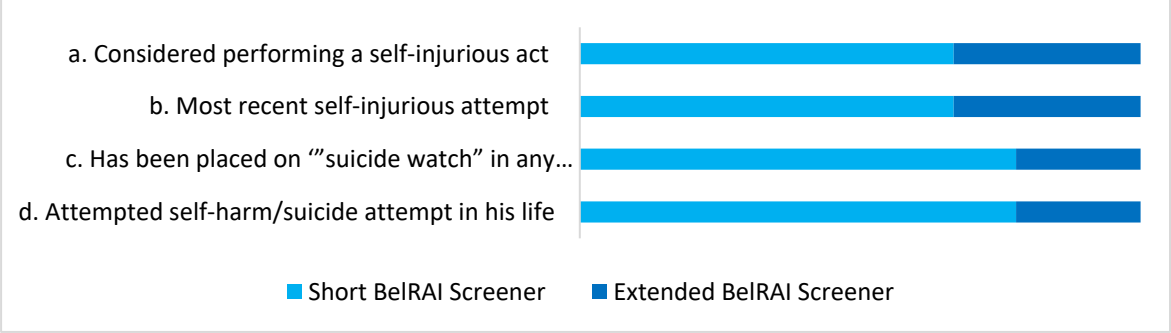


Figure 55 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the sub-items of the topic Indicators of self-harm



2.2.5 Section E: Social care needs

Housing

The majority of experts agrees that housing should be included in the screening instrument (Figure 56). There is less agreement on whether this should be included in the short BelRAI detention screening instrument or in the extended version (Figure 57). Of the eight experts who think that this item should be included or that it would be interesting to ask about it, five indicate that this should be done in the extended BelRAI detention screening instrument. From the plenary discussion it is clear that the experts prefer a different wording of this item. According to them, care providers want to know two things. First, where the person lived before imprisonment, i.e., whether the person was homeless (e.g., living on the streets) or had a place to stay. Second, they want to know whether the detainee has a place to live after leaving prison.

One of the two expert groups points out that they want to know if there are any problems with someone's housing as a result of their imprisonment, e.g., they cannot cope with a tenancy agreement or have taken out a loan and cannot pay it back. If so, it is important to consider what issues, if any, need to be addressed if that person is in prison for a long time. These issues can have far-reaching consequences for the person and/or their network. Therefore, these experts find this issue important to assess.

Result from the feedback form:

Figure 56 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the items Housing

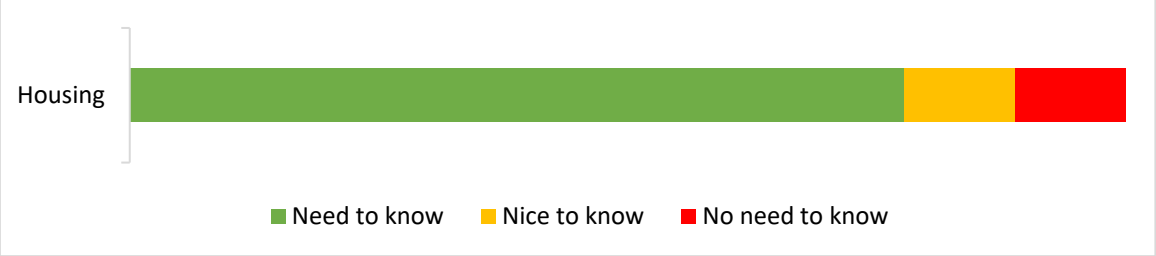
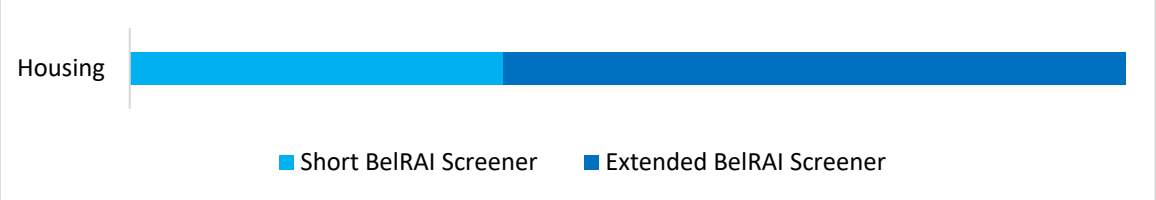


Figure 57 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the item Housing



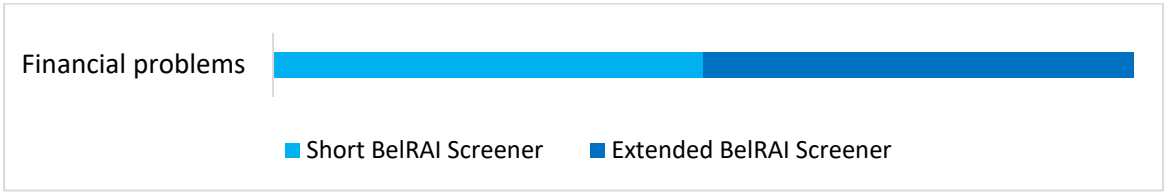
Financial problems

Also a majority of the experts thinks that the item Financial problem should be included in the screening instrument (Figure 58). Only one expert thinks that it is not necessary to assess this. Fifty percent of the experts who consider the item need-to-know thinks that it should be included in the short BelRAI detention screening instrument, the other half prefers the extended version (Figure 59). During the discussion, in one expert panel, it is stressed that this is a difficult item to ask to the detainee; first, the build-up of a confidential relationship is needed before this issue can be discussed.

Both panels of experts find the item not entirely appropriately worded to use for persons who have been in prison for a long time, as the examples of financial difficulties described apply to people who are not imprisoned.

Figure 58 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the item Financial problems

Figure 59 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the eight experts for the items Financial problems



Social contact

The three items dealing with social contacts are considered by seven of the nine experts as need-to-know (Figure 60). The remaining two experts consider this information to be nice-to-know. The experts are rather divided as to whether this should be covered in the short or the extended BelRAI detention screening instrument (Figure 61). One expert panel points out in the plenary discussion that the items b. Strong and supportive relationship and c. Strong and supportive relationship with friends/peers are very “black and white”, as they said it. For the experts it is more interesting to simply know whether there is a network and whether the detainee has contact with them.

Result from the feedback form:

Figure 60 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the social contact

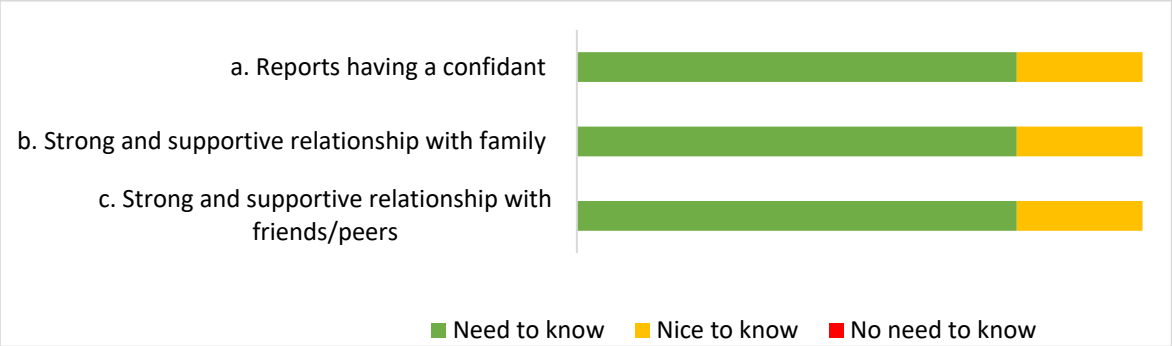
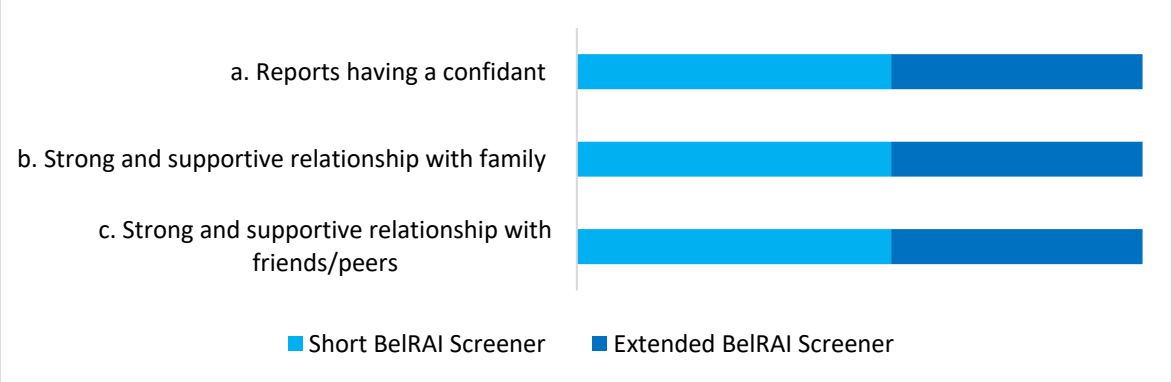


Figure 61 Overview of ‘Short BelRAI Screener’ or ‘Extended BelRAI Screener’ feedback from the nine experts for the sub-items of the topic Social contact



Autonomy and self-determination

Just more than half of the experts consider the items regarding autonomy and self-determination need-to-know. Three out of nine experts consider them nice-to-know. One expert states that these items should not be questioned (Figure 62). The majority of experts prefers to include these items in the extended BelRAI detention screening instrument (Figure 63). The experts do not give any additional feedback on these items in the plenary discussions.

Result from the feedback form:

Figure 62 Overview of 'need to know', 'nice to know' or 'no need to know' feedback from the nine experts for the sub-items of the topic Autonomy and self-determination

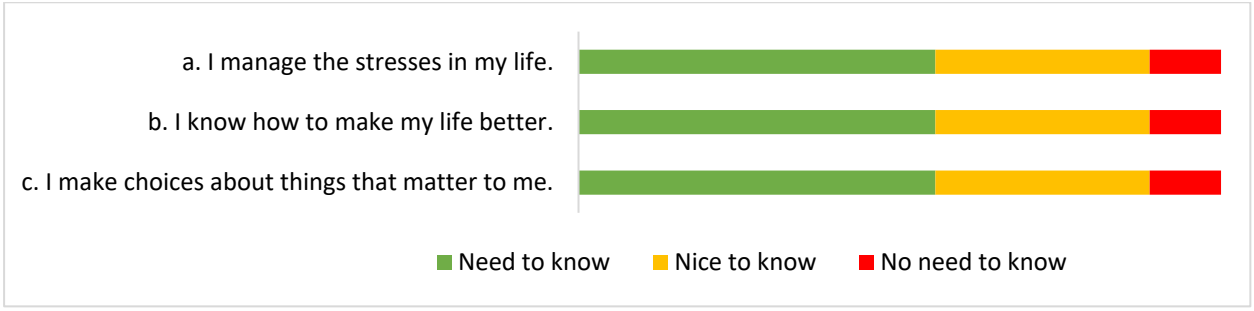
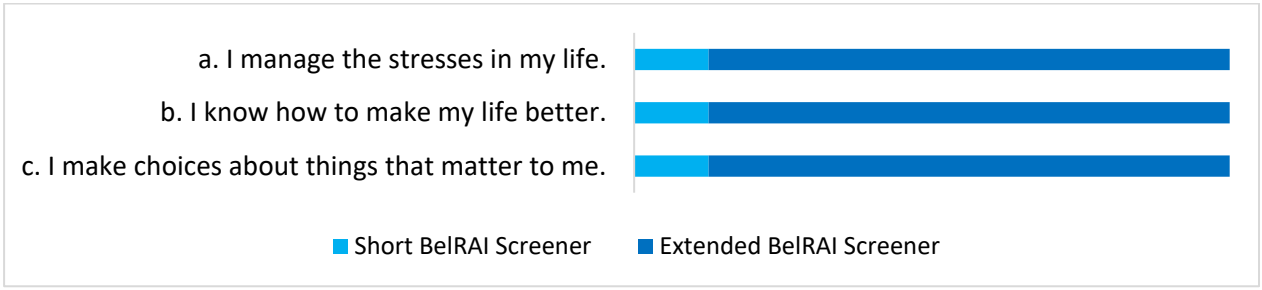


Figure 63 Overview of 'Short BelRAI Screener' or 'Extended BelRAI Screener' feedback from the nine experts for the sub-items of the topic Autonomy and self-determination



2.2.6 Additional 'need to know' topics

In addition to feedback on the items of the draft version of the BelRAI detention screening instrument, the experts make some suggestions regarding items that are important to add to the screening instrument. They suggest five topics: job/employment status, general practitioner, health insurance fund, legal/illegal residency status, legal status.

Job/Employment status

Experts consider it important to know whether the person had a job before detention, or in prison. They point out that having or not having a job outside prison while being incarcerated has implications for the financial and administrative impact they – or those around them – should manage. In addition, the experts point out that they would like to know what kind of work is involved, e.g., a permanent job; an interim/temporary contract; working in a company or an

enterprise within the social integration economy[12].According to the experts, information about someone's employment is also an indicator of how stable or unstable the person's life is. Also, people who are able to hold down a long-term job within prison are often more stable and have fewer mental health problems than those who do not or cannot hold down a job. Finally, this issue also gives some indication of whether or not people have an income.

General practitioner

Whether or not the detainee has a general practitioner is important for the experts to know. It can help support continuity of care. It gives (health)care providers a point of contact for asking for further medical information.

Health insurance fund

It is important to check whether the detainee is affiliated to a mutual health insurance fund.

Legal/illegal residency status

According to the experts, it is important to know whether a person has the correct 'papers/documents' for staying in Belgium; in other words, to know if the person is legally in Belgium. People without legal residence have very limited access to rights and services in Belgium. Many rights are only granted to people who have a valid residence permit. Depending on whether or not you have legal residence, care providers will have to deal with different administrative matters.

Legal status

Experts would like to know a person's 'legal status'; e.g. whether they are a defendant, convicted or an internee. This provides additional information about possible future needs/ behaviour/ personal/ administrative difficulties that they can anticipate based on their accumulated expertise.

2.3 Conditions for testing the BelRAI detention screening instrument in prisons according to experts

In the first part of the expert panels, we asked the experts for feedback on the draft version of the BelRAI detention screening tool (see 2.2). In the second part of the expert panels, we asked the experts what they think is essential in order to be able to run a pilot study with this BelRAI detention screening instrument in Belgian prisons. The questions can be found in Annex 3: Guideline questions expert panels phase 2. The experts' contributions are summarised below.

Target group and timeframe of the BelRAI detention screening instrument

The experts prefer to complete both the short and the extended BelRAI detention screening instrument for all persons within a detention context, without making any distinction in terms of type of legal status, medical history, et cetera. This is based on the observation that many detainees are vulnerable. For those who spend only a short time in prison, it is not useful to complete the

[12] Employment in work integration enterprises such as, for example local service economy, social workshops, work experience enterprises, insertion companies (A monitor for the social economy in Flanders, 2009)

extended version. In this sense, for example, it will not be completed for defendants who are about to leave prison. The experts suggest working in a two-part format: complete a certain number of items in the first 24 hours and the complete the extended version at a later stage. However, some experts suggest that the first 24 hours may not be feasible and that perhaps the first 48 hours should be considered. Only when the extended part of the instrument has been completed, the assessment is finalized. The experts point out that the detainees move a considerable amount of time within a prison, or people are sometimes only in prison for a few days or weeks. Only a more limited group are long-term prisoners. A reasonable group of people are on remand (up to 90 days).

Suggestions for the time frame for the extended BelRAI detention screening instrument vary between experts. The earliest suggestion is to complete the extended screening instrument after four weeks. Others suggest within two months of detention. The argument for four weeks is that after four weeks most detainees will have found "their place" in prison. When the whole tool has been completed (short and long part), the care providers can look further into what a care pathway might entail. Much earlier than after four weeks is not feasible according to the experts. The most urgent medical needs are tried to be met in the first 24 hours.

Type of organisations to participate in the pilot study

According to the experts, it is important that one penitentiary setting per region (Flanders, Wallonia and Brussels) participates in the pilot project. Ideally, it should be facilities housing wards for accuses, convicts (short-term and long-term sentences) and internees. In Flanders, the prisons of Ghent, Antwerp, Hasselt and Bruges house this diversity of inmates. In Wallonia, the experts consider the prisons of Lantin, Mons and Namur as ideal to participate in the study. In addition, the experts point out that pragmatic considerations may also have to be taken into account. Penitentiary settings where there is staff available to carry out a BelRAI should perhaps participate in the first pilot project. The conditions for having sufficient staff will certainly not apply to all penitentiary settings. Nor do all penitentiary settings have the same types of staff (certain types of staff are associated with specific departments and numbers of staff). For example, not every penitentiary setting has a care team.

Healthcare professionals to be trained in the use of the BelRAI screening instrument

Given (medical) confidentiality and the variety of items in the instrument, the experts believe that it will be a joint effort of different disciplines to complete the whole instrument. However, the group of people who will complete it should be limited to nurses, doctors, psychologists and social workers because of medical confidentiality. These different professionals should be involved in the training. In addition, it is important that coordinators/directors (at all levels) are involved so that they know the protocol of the pilot study and that everyone - at all levels - is fully on board. Experts point out that the current medical staff in prisons does not have the time to complete the BelRAI detention screening instrument. The more extended medical teams that will be installed in three prisons in Belgium could be an option to participate in the study. Experts also think that some coordination between the care providers will be needed to complete the tool. The experts note that currently, annual training sessions are provided for all types of professionals working in correctional facilities. Those moments can be used for the BelRAI training.

Data sharing

All medical interventions, diagnostics and testing included, is covered by medical confidentiality and is not shared with correctional officers. Therefore, any information collected by care providers through a BelRAI detention screening instrument cannot be shared with correctional officers, according to the experts. Nevertheless, the experts accord an important role to the correctional officers in the process of completing a BelRAI screening instrument. They can provide care providers with relevant information to complete certain sections of the BelRAI detention screening instrument. The information shared with the correctional officers is linked to what is useful for their work. For example, the fact that a person is exhibiting aggressive behaviour is shared, but not possible diagnoses that might explain the reason for the aggressive behaviour. Some experts consider it important that certain sections within the BelRAI detention screening tool should be completed by one discipline rather than another.

Finally, it is important to the experts that there is a clear framework for how the information collected will be stored and used, both while in custody and when a person leaves a penitentiary setting. This concern applies both to the data collected as part of the study, as to the data that will be collected once the BelRAI detention screening instrument will be implemented in Belgian correctional facilities.

ICT

The experts see a high-performance ICT system with the necessary access rights combined with the necessary equipment and good internet connections as necessary for a good pilot test and later effective implementation of the instrument. The experts point out that it must be clear in advance on which platform/environment the data can be entered, stored and consulted. Both the administrations of the FPS of Public Health, Food Chain Safety and Environment and the FPS of Justice use different systems and platforms. Experts point out that care providers who are linked to for the FPS of Public Health, and not to the Federal Public Service of Justice, do not always have access to a laptop and cannot always enter its judicial network. If the tool will be part of an external organisation's care file, personnel linked to the FPS of Justice cannot access it. One expert suggests that a BelRAI detention screening instrument should be integrated into the medical culture of the penitentiary setting rather than through an external organisation, so that it can be included in the medical file.

Other concerns

Finally, the experts highlight three additional elements that are important for successful implementation. First, the experts are concerned about the current shortage of staff in prisons, and the combination with running a pilot study. Without additional staff, the pilot is unlikely to be successful. The number of people entering prison is very high and there is far too few staff available. Second, the experts point out that not all detainees may agree to take part in the pilot study. Third, the experts stress the importance of good communication with the sector. Not only by showing that completion of a BelRAI detention screening instrument is useful for care planning, but also by showing that the pilot study is part of a long-term process to implement the BelRAI detention screening tool as part of the federal reform plan for correctional facilities. The experts point out that in recent years there have been many (research) projects in prisons for which the facilities have been mobilised. It has to be clear to the facilities from the beginning that this pilot study is a start of a long-term process that will result in the implementation of the BelRAI screening instrument in

all correctional facilities in Belgium. Otherwise, it will be difficult to find facilities that will be motivated to participate in the study.

3 The development of a pilot version of the BelRAI Detention Screener and BelRAI Detention Instrument

The draft version of the BelRAI screening instrument was revised based on the results of the expert panels of phase 2 of the study, and on feedback from the commissioning Federal Public Services and Cabinets on the draft instrument. During this revision process, also the results of phase 1 of the study were taken into account (for the second time). Annex 5 gives an overview of the result of the revision process.

The results of the scoping review and of the expert panels were partly overlapping and partly complementary. This means that the expert panels both confirmed the results of the scoping review and complemented them with more detailed care needs to be screened in some domains. Moreover, the expert panels introduced an additional topic that was not initially captured in the scoping review, which is the issue of gender identity among prisoners. It can be hypothesized that this topic did not emerge from the scoping review because it is only recently that this topic gets more attention in the correctional settings. Contradictions between the results of the scoping review and expert panels were not observed. Therefore, care needs that resulted from the scoping review and/or from one or more expert panels were combined into a consistent set of items that are required to perform a comprehensive screening of physical, psychological and social needs of detainees at entrance in prison. Annex 5 shows for each item which component(s) of the study underpin(s) the choice for that item – the scoping review, the expert panels of phase 1 of the study, and/or the expert panels of phase 2 of the study. Moreover, the selection of some items was also based on forensic expertise and BelRAI expertise from respectively KeFor and LUCAS, or expertise from the interRAI consortium of which two of the involved LUCAS-researchers are part of. This is also indicated in Annex 5. To end, Annex 5 shows the origin of each item:

- 40 (sub-)items are existing valid interRAI-items (i-codes): these items are also part of other interRAI-instruments that were validated in several countries. In these validated interRAI-instruments, these items are used in entirely the same way as in the BelRAI Detention screening instrument.
- 40 (sub-)items are adapted valid interRAI-items: either the items itself or the response categories were (slightly) adapted. The changes were based on the results of the scoping review and/or the expert panels.
- 2 (sub-)items are pilot interRAI-items: these are items from pilot interRAI-instruments that are being tested at the moment in several countries, or that are part of so-called beta-versions of interRAI-instruments. These beta-versions have been tested once or twice in one country, but are not (yet) recognized by interRAI as pilot-instruments to be tested in several countries.
- 11 (sub-)items are adapted pilot interRAI-items: these are pilot interRAI-items of which either the item itself or the response categories were (slightly) adapted. The changes were based on the results of the scoping review or of the expert panels.

- 6 (sub-)items were included that stem from BelRAI-instruments that have no equivalent in the interRAI assessment system.
- 4 (sub-)items are adapted BelRAI-items based on the expert panels from phase 2 of the study.
- 28 completely new (sub-)items were developed based on the results of the scoping review and/or of the expert panels of both phases of the study.

In total, the set of items consists of 131 (sub-)items. It turned out to be too long to create one screening instrument. Martin et al. (2013) recommended that a screening instrument used in prisons should be brief. This means that it should be concise and not overly time-consuming to administer. Moreover, to ensure the usability and acceptability of the instrument in daily practice in prisons, an effective screening instrument for prison settings recognizes and addresses the specific features and challenges of this unique context (Martin et al., 2013). Therefore, it was important to align the screening instrument to the screening process that is mandatory in Belgian prisons by law. Consequently, the revision process of the draft-version of the BelRAI screening instrument resulted in a two-stage screening tool:

- The **BelRAI Detention *Screener*** to be completed by a prison doctor in de first 24 hours of detention. A medical screening in the first 24 hours after detention is mandatory in Belgian prisons (https://etaamb.openjustice.be/nl/koninklijk-besluit-van-08-april-2011_n2011009292.html). The BelRAI Detention Screener consists of 65 (sub-)items.
- The **BelRAI Detention *Instrument*** to be completed multidisciplinary after four to eight weeks that rounds out the comprehensive screening of physical, psychological and social needs. The items of the BelRAI Detention Screener are also part of the BelRAI Detention Instrument. The BelRAI Detention Instrument consists in total of 131 (sub-)items. The items of the BelRAI Detention Screener that are also part of the BelRAI Detention Instrument are to be re-evaluated or completed after four to eight weeks when the BelRAI Detention Instrument is administered. This timing of four to eight weeks resulted from the expert panels in the second phase of the study. A first pilot study will give an indication of whether four to eight weeks is feasible.

The identification of the items that need to be assessed in the first 24 hours, was first based on the results of the expert panels of phase 2 of the study. The nine experts agreed to a large degree on several items that need to be assessed in the first 24 hours. But for about just as many items, the opinions of the experts diverted. For those items, the researchers decided based on the results of the scoping review or the existing interRAI Screeners and instruments in other sectors, whether they became part of the BelRAI Detention *Screener* or the BelRAI Detention *Instrument*. Therefore, for those items, the evidence was rather small to decide in which time period they need to be completed. In a first pilot study, the experience of the participating care providers with the BelRAI Detention Screener and Instrument will result in more robust evidence to decide which items need to be part of the BelRAI Detention Screener, and which items are to be passed on to the BelRAI Detention Instrument. For several items, care providers will need a few weeks to collect information through the detainee, the correctional officers or even relevant others of the detainee, to be able to complete the items. Often the built up of a relationship based on (mutual) trust with the detainee is needed to collect the relevant information to complete those items (Van Horebeek et al., 2021).

After completion of the BelRAI Detention Screener in the first 24 hours of detention, the prison doctor has the need-to-know information to identify the most urgent care needs. The BelRAI Detention Screener is aimed to serve as a means of triage to ensure mental and physical safety upon the first days of entry, as NICE recommends in the guidelines on physical health of people in prison (*Physical Health of People in Prison: Assessment, Diagnosis and Management of Physical Health Problems*, 2016; see Chapter 3). After completion of the BelRAI Detention Instrument after four to eight weeks of detention, care providers have all need-to-know information to determine whether the detainee needs a care trajectory in prison focused at certain care needs. In addition, the BelRAI Detention Instrument results in one index and three interRAI/BelRAI Scales that can also inform this process:

- **Body Mass Index**

  This index shows the relationship between height and weight in a person. A high BMI (> 35) indicates obesity in adults, and a low BMI (< 20) indicates a vulnerable weight in adults.

- **ADL Hierarchy Scale**

  This scale measures functional performance. It reflects a person's ability to perform basic activities of daily living. The values range from 0-6. A higher score indicates with a high degree of certainty that the person needs more help than if the score were lower.

- **Self-Report Mood Scale**

  The Self-reported Mood Scale values range from 0 to 9 with higher scores indicating greater mood disturbance. The scale can be associated with diagnoses of mood disorders or depression, they are not intended to be a substitute for judgement by mental health professional.

- **Addictions and Substance Use Scale CAGE**

  Screens for the person's potential substance use. The values range from 0-4. A score of 2 or higher indicates a potential problem with substance use.

Chapter 5
Discussion and policy recommendations

In this chapter, we discuss the results, strengths and limitations of the feasibility study in line with the research objectives of the study: developing a BelRAI detention screening tool and a protocol for the first pilot study. In the second part of the chapter, we formulate policy recommendations on the research and implementation process of the BelRAI screening instrument in the Belgian correctional sector.

1 General discussion of the results of the feasibility study

The research objective of this feasibility study was twofold:

1. To develop a BelRAI screening instrument for adult detainees based on which the need for care within the penitentiary can be estimated by (health) care providers for every prisoner that enters a correctional facility. More specifically, it should minimally screen for general and mental health needs (including suicide risk), addiction, and the presence of an intellectual disability.

   In paragraph 1.1 below, we give an overview of the research process and results that led up to a pilot version of the BelRAI Detention Screener and BelRAI Detention Instrument, and the strengths and limitations of this research process.
2. To develop a protocol for a first pilot study, and to identify the necessary conditions to carry out this pilot study.

   In paragraph 1.2 below, we propose a protocol for a first pilot study that examines the usability, feasibility and acceptability of the BelRAI Detention Screener and Instrument in Belgian correctional facilities. In addition, some necessary conditions that need to be realized to execute this pilot study will be reported.

1.1 Development of a BelRAI Detention Screener and BelRAI Detention Instrument, strengths and limitations

Commissioned by the FPS and Cabinets of Public Health and Justice, a *comprehensive* screening tool for correctional facilities was developed that assesses general and mental health needs, addiction, the presence of an intellectual disability and social needs of adult detainees. The study was executed by two research centers: LUCAS KU Leuven – Centre for Care Research and Consultancy, and KeFor – Knowledge Centre Forensic-Psychiatric Care of the Public Psychiatric Hospital of Rekem. Both research centers combined complementary expertise highly relevant for this feasibility study. LUCAS KU Leuven is an expert in (inter)national interRAI and BelRAI research in several sectors, for example mental health care, elderly care, primary care, long-term rehabilitation and palliative care. Implementation research in collaboration with the care and social organizations in the field, health care and social professionals, representatives of care users and policy makers, is part of their core business. The collaboration between LUCAS and KeFor started in 2018 when they piloted the BelRAI (Community) Mental Health instruments, the BelRAI Forensic supplement and

the extended BelRAI Addictions supplement in forensic psychiatry. KeFor conducts, initiates and supervises research within the various forensic (pilot) projects in Flanders and thus meets the demand for scientific evaluation of this specific work domain. Research domains are forensic diagnostics, risk assessment, treatment and resocialization of offenders with mental disorders. The collaboration between LUCAS KU Leuven and KeFor resulted in an interdisciplinary research project combining academic expertise from a psychiatrist, two psychologists, a criminologist, a social worker and a sociologist.

In phase 1 of the study, a scoping review was conducted to identify priority topics currently used in international screening tools in correctional facilities. In parallel, expertise from the field was collected in eight Dutch and French speaking experts on the care needs that are relevant to screen when a person enters prison. Based on these research activities, the first research question was answered: Which topics need to be assessed in a BelRAI detention screening instrument? The scoping review shows that the screening process in the context of prison settings has predominantly emphasized mental health issues. It is important to rely on historical information regarding the mental health of prisoners; but relying solely on this information may not provide a complete picture of their current mental health status. Therefore, it is crucial to capture the current mental health status of prisoners as well. While mental health is undeniably a critical concern for prisoners, it is essential to recognize that the overall needs of detainees extend beyond mental health alone. The scoping review revealed that substance misuse emerged as the second most addressed topic after mental health disorders. The assessment of self-harm and suicide risk is also considered crucial. In this respect, it is recommended to assess not only psychiatric symptoms but also individuals' feelings and perceptions of hopelessness. The literature review and expert panels both underscored the importance of assessing social needs in the context of the prison population. Within the literature it is noted that a significant proportion of the prison population comes from economically deprived communities, characterized by inadequate housing conditions, low educational levels, and low levels of employment prior to their incarceration. This emphasizes the need to incorporate social determinants of health in our BelRAI screening instrument. Next, communicable and non-communicable diseases, physical functioning and oral care emerged as important topics to screen on arrival in prison. Given the observed relationship between neurodevelopmental disorders and psychiatric symptoms, the screening and assessment of neurodevelopmental symptoms and indicators were recommended. The assessment of intellectual disability could prove as a valuable factor in the context of prisoner assessments, as individuals with intellectual disabilities are more vulnerable to various forms of victimization. Additionally, the expert panels expressed the need to assess the adaptive functioning of prisoners, particularly those with intellectual disabilities, in adapting to new environments. To conclude, the scoping review and the expert panels showed a remarkable overlap in the topics that emerged as important in the assessment of prisoners' needs. However, the expert panels also introduced an additional topic that was not initially captured in the scoping review, which is the issue of gender identity among prisoners. A detailed report and discussion regarding the scoping review and the expert panels of phase 1 of the study can be found in Chapter 3.

Next, in phase 2 of the study, the existing interRAI/BelRAI Screeners from other sectors and existing interRAI/BelRAI instruments related to detention were analysed in order to determine whether interRAI/BelRAI items are available to assess the care needs that resulted from the scoping review

and expert consultation in phase 1 of the study. If this was not the case, new BelRAI items were developed. Several inter/BelRAI items were adapted to the detention context. A first draft version of the BelRAI screening instrument was presented to the same Dutch- and French-speaking experts as in phase 1 of the study. Based on their feedback, and on feedback from the commissioning Federal Public Services and Cabinets, we revised the draft-version of the screening instrument. During this revision process, also the results of phase 1 of the study were taken into account (for the second time). Based on these research activities, the second research question was answered: "Which (adaptations of) BelRAI and interRAI items need to be included in the BelRAI detention screening instrument in order to assess these topics? Is it necessary to develop new items?" In summary, the final set of items consists of 131 (sub-)items. Of these, 40 are validated interRAI items, 40 are adaptations of validated interRAI items, 2 are pilot interRAI items, 11 are adaptations of pilot interRAI items, 6 are validated BelRAI items that have no interRAI equivalent, 4 are adapted BelRAI items, and 28 are newly developed items. A detailed report and discussion on the development of the BelRAI detention screening tool can be found in Chapter 4.

The final set of items turned out to be too long to create one screening instrument. Moreover, an important aspect of the revision process was the alignment of the screening tool to the screening process that is mandatory in Belgian prisons by law. A medical screening in the first 24 hours by a prison doctor is mandatory in Belgian prisons (https://etaamb.openjustice.be/nl/koninklijk-besluit-van-08-april-2011_n2011009292.html). Consequently, the development process resulted in a two-stage BelRAI screening tool:

- The **BelRAI Detention *Screener*** to be completed by a prison doctor in de first 24 hours of detention, to identify the most urgent care needs. It is aimed to serve as a means of triage to ensure mental and physical safety upon the first days of entry in a correctional facility. This BelRAI Detention Screener is part of the category of interRAI Screeners and Contact Assessments (see Figure 2 in Chapter 1).
- The **BelRAI Detention *Instrument*** to be completed multidisciplinary after 4-8 weeks that rounds out the comprehensive screening of physical, psychological and social needs. This instrument might evolve into a proper comprehensive BelRAI instrument (see Figure 2 in Chapter 1) that serves also to follow-up the evolution of the care needs of a prisoner throughout his stay in prison and afterwards, and that results in (more) Scales and Collaborative Actions Plans that provide guidelines for care planning in prison. Nevertheless, the experts consulted in this study felt that the care needs included in the BelRAI Detention Instrument should also be identified during the screening process of newly arrived detainees, but only after 4-8 weeks of detention.

The items of the BelRAI Detention Screener are also included in the BelRAI Detention Instrument, and are therefore to be re-evaluated or completed after 4-8 weeks when the BelRAI Detention Instrument is administered. The combination of both instruments is meant to serve as a decision-aid for care providers working in correctional facilities to support them in their (first) triage of prisoners who need care in prison focused at specific care needs.

The BelRAI Detention Screener and BelRAI Detention Instrument screen together five domains in adult detainees:

- Identification information

- Medical past/history
- Physical health
- Mental health indicators and behaviour, including substance misuse and suicide risk
- Social needs

Both instruments can be found in Annex 5.

The Board of Directors of the interRAI-consortium decided to make an international effort to validate the BelRAI Detention Instrument, in order to become also the international *interRAI* Detention Instrument for detainees between 18 and 49 years old. In Belgium, the BelRAI Detention Instrument is developed to use in every adult age category. For detainees aged 50+, interRAI is putting forward the Corrections Contact Assessment for Geriatric Corrections that was developed at the Waterloo University of Canada (Mofina et al., 2023). In Belgium, also the BelRAI Detention Instrument will be used for detainees aged 50+. InterRAI's aim is to develop an internationally validated suite of Correction Instruments including the BelRAI Detention Instrument and the Corrections Contact Assessment for Geriatric Corrections.

It is a strength of this feasibility study that de development of the BelRAI Detention Screener and BelRAI Detention Instrument is based upon (1) a scoping review of the international scientific literature to identify priority topics currently used in international screening tools in correctional facilities, and on (2) expertise from (health) care providers working in Belgian correctional facilities (both Dutch- and French-speaking). The study showed that internationally and scientifically identified care needs important to screen within prison align with the opinions of Belgian (health) care providers working in the field. This implies that the feasibility study resulted in evidence- and practice-based data to underpin the development of a first pilot version of the BelRAI Detention Screener and BelRAI Detention Instrument. While our expert panels aimed to include a diverse range of participants, it is acknowledged that the absence of prisoners themselves could be viewed as a limitation of our study. Their input could have offered unique perspectives on the assessment factors and considerations for developing a BelRAI detention screening instrument. In future studies, it is recommended to involve prisoners directly in the expert panels or conduct separate consultations to ensure their voices are included in the decision-making process.

A second limitation due to the time constraints of the feasibility study is that we did not have the opportunity anymore to organize a final consultation with the experts of the field. This would have allowed us to present them our revised instruments, which – probably – would have resulted in some last changes. Especially the evidence to decide which items need to be assessed in the first 24 hours, was rather small for several items based on this feasibility study. We recommend to include this final consultation – also with some prisoners - in the preparation phase of the first pilot study (see paragraph 1.2).

1.2 A protocol and necessary conditions for a pilot study in Belgian prisons

The next step in the evidence-based development process of the BelRAI Detention Screener and BelRAI Detention Instrument is a first pilot study. The third and fourth research question of this feasibility study are related to this pilot study: (3) How can the usability, feasibility and acceptability of a pilot version of the detention screening tool be tested in a first pilot study in Belgian prisons?

(4) Which necessary conditions need to be fulfilled to carry out this pilot study? These research questions will be answered below.

The main objective of this pilot study will be to test the **usability, feasibility and acceptability** of the BelRAI Detention Screener and BelRAI Detention Instrument in a few wards of – for example – three correctional facilities (as proposed by the commissioners of the feasibility study). The research questions related to this objective will be:

- Do the instruments assess the need-to-know information to support the first triage of prisoners who (might) need a care trajectory in prison focused at specific care needs? Are there any missing or redundant items?
- Are the items clearly formulated?
- Are there items that need to switched between the BelRAI Detention Screener and the BelRAI Detention Instrument?
- After how many weeks of detention, the BelRAI Detention Instrument is to be completed, ideally and realistically?
- Does the manual provide the necessary information for health care professionals to complete the instruments correctly?
- Which necessary conditions need to be realized in order to optimize the usability and the implementation of the instruments?

This pilot study will allow to **revise the instruments** based on experiences and expertise of health care professionals in the field. This is a first necessary step to further examine how the instruments support the triage of prisoners for care in prison, and to study the psychometric qualities of the instrument.

A second objective of the study could be to explore the health needs of the prison population of the participating facilities. Whether this will be the case, will be determined by the commissioners of the study. This choice can have an impact on how many assessments the facilities will have to collect, and how much time will have to be provided for data collection (see phase 3 of the protocol below).

The ideal scenario would be to execute the first pilot study in facilities that are interested to become **frontrunners** in the scientific validation of the instrument and to pave the way for a step-by-step national implementation in the Belgian correctional sector (De Almeida Mello et al., 2023). We know from implementation research in health care services that the implementation process of complex health care interventions runs more smoothly when the first implementation studies are executed in facilities that endorse the need for and objectives of the intervention, and therefore propose to participate in the pilot studies (Corazzini et al., 2015; Tansella & Thornicroft, 2009).

A **protocol** for the first pilot study is proposed below. To execute this study, a combination of forensic, interRAI/BelRAI and implementation research expertise is needed.

1. Recruiting the correctional facilities

Ideally, a first pilot study to examine the usability, feasibility and acceptability of the BelRAI Detention Screener and the BelRAI Detention Instrument runs in a Flemish, Walloon and Brussels prison. One way to recruit correctional facilities is to organize an information meeting for managing staff of (the medical services of) correctional facilities who are interested to participate in the study. Based on the information that they receive on the BelRAI Detention Screener, the BelRAI Detention Instrument and the study, they decide whether they will participate in the study and which wards of their facility will be involved. This way of recruiting the facilities increases the chances that facilities interested to become frontrunners on this topic, will participate in the first pilot study. Another way to decide which facilities will participate is that the commissioners of the study assign the participating correctional facilities. In this scenario, an information session will be given to the managing staff of (the medical services of) the assigned facilities.

During this information meeting, the researchers will also receive relevant information from the correctional facilities, that will serve to finalize the protocol of the study. For example: how to organize the inclusion process of the prisoners, which teams and (health) care disciplines need to be included in the pilot study, how many assessments will have to be collected by each facility in order to reach a sufficient number of assessments for the study (depends also on the objectives of the study that are determined in consultation with the commissioners), etc.

2. Preparation phase

In preparation of the pilot study, first, an application to the Ethics Committee of KU Leuven will be submitted in order to receive GDPR and ethical approval for the research protocol. Second, the manual for the screening instrument will be composed. Third, it is recommended to submit the revised BelRAI Detention Screener and Instrument – together with the manual - to the experts of the feasibility study, and to some care providers and detainees of the participating prison. Based on their feedback, final adaptations can be made to finalize the pilot BelRAI Detention Screener and BelRAI Detention Instrument. Fourth, a BelRAI training for correctional facilities will be developed. Health care professionals from the recruited facilities will receive this training before they start completing the BelRAI Detention Screener and BelRAI Detention Instrument for persons that enter their facility (see phase 3). During the information session (see phase 2), the option of also training correctional officers can be discussed with the facilities. This might be interesting because correctional officers can provide relevant information to the professionals of the medical services, especially to complete the BelRAI Detention instrument after 4-8 weeks of detention. At the end of this preparation phase, a kick-off meeting will be held with the health care professionals and managing staff of the (medical services of the) participating facilities to explain the details of the pilot study protocol, and to answer questions.

Which software will be used to complete the BelRAI screening instrument during the study will be determined by the commissioners of the study. One option is a BelRAI software environment of the federal government, specifically designed to use for BelRAI research and training (under development). The other option is that the researchers program the BelRAI Detention Screener

and BelRAI Detention Instrument on research software (e.g., Qualtrics). We further elaborate on this issue in the policy recommendations.

3. BelRAI training, collection of BelRAI data & online help-desk

The third phase of the study starts with a BelRAI training for all health care professionals that are involved in the pilot study: both the professionals that will complete the instrument, and the managing staff that coordinates this process in their facility. We know from previous BelRAI research that it is highly recommended to also include managing staff in (part of) the BelRAI training (Hermans et al., 2016; Van Horebeek et al., 2021). That way, they are well aware of what the screening process with the BelRAI instruments entails. This allows managing staff to support the health care professionals with the resources they need during the pilot study.

After one day of training, the health care professionals start with completing the instruments for all persons that enter their facility. The number of assessments that each facility will have to collect, will depend on the objectives of the pilot study: is the main objective to study the usability, feasibility and acceptability of the instrument; or is a second aim to explore the health needs of the prisoners of the participating facilities. In case the second aim also applies, the number of assessments will depend on the number and groups of prisoners that are detained in the participating facilities.

During the data collection phase, the participating health care professionals will receive support from the researchers through three group supervision sessions, and an online help desk that can be reached during working hours.

4. Focus groups with health care professionals

After the data collection phase is finalized, qualitative data on usability, feasibility and acceptability of the instrument will be collected through focus groups with health care professionals that completed the instruments, and with involved managing staff. If three prisons will participate in the pilot study, we expect to run one or two focus groups for this research question.

5. Qualitative and quantitative data analyses

A thematic analysis of the focus groups will result in propositions of professionals from the field, at least on (1) how to revise the screening instrument and the manual, and (2) on necessary conditions that need to be realized before a next step in the validation and implementation research is feasible for the correctional facilities.

Descriptive statistical analyses of the collected BelRAI detention data will be executed. The aim is to *give an illustration* of how BelRAI data can in the future inform managing staff of facilities on (1) the data that are available to the health care professionals in prisons concerning the health and wellbeing of the prisoners (analysis of missing data), and (2) on the (mental) health characteristics of their population. Once this information will be available for a representative sample of a facility or a sector, this information can support managing staff in the process of improving the quality of care within correctional facilities, and to underpin policy recommendations towards the involved governments on necessary conditions to make this quality improvement process feasible.

Important to emphasize is that the quantitative BelRAI data that will result from this pilot study, will not be representative for the care needs of the *entire* Belgian prison population because the sample of this pilot study will not be composed to be representative for the *entire* sector.

6. Revising of the BelRAI detention screening instrument

Based on the results of the qualitative and quantitative analyses, the BelRAI Detention Screener and BelRAI Detention Instrument will be revised. The revision of the instrument will be validated through consultation with an expert panel of professionals that took part in the pilot study.

7. Writing the report

The method and qualitative and quantitative results of the pilot study will be summarized in a report. The report will end with policy recommendations regarding the next steps in validating and facilitating the implementation of the instrument in de Belgian correctional sector.

To execute this pilot study, a few **necessary conditions** need to be realized.

- Before recruiting the participating facilities, a clear communication from the federal government towards the Belgian correctional sector is needed on the aim of the BelRAI Detention Screener and Instrument, and on how they fit into the Belgian reform plan regarding health care in prison. Correctional facilities need this information to be able to decide whether they would like to participate in the study.
- From the perspective of implementation research, executing the pilot study in different types of correctional facilities (jails, prisons and psychiatric annexes) would be the preferred strategy. Such a pilot-study would give the most relevant information on the usability, feasibility and acceptability of the instruments in relation to the entire Belgian correctional sector. Whether this is feasible considering the current staff capacity for (mental) health care in Belgian correctional facilities, needs to be decided in consultation with the sector and the involved federal public services. Another option might be - since more extended medical teams are being installed in some prisons at the moment - to invite these specifically to participate in the study. Getting to know the BelRAI Detention Screener and Instrument might be an opportunity for these care teams, as they are in the starting phase of becoming operational. A disadvantage of this strategy would be that the results of the study regarding usability, feasibility and acceptability will be less relevant in relation to the *entire* Belgian correctional sector. After all, these specific facilities will have a higher staff capacity in the medical teams compared to the other Belgian facilities. To participate in the study, staff capacity will be needed to coordinate the participation of the prison/ward in the study, to follow the BelRAI training and supervision, to complete the screening instrument for all incoming prisoners during the data collection phase, and to participate in one of the focus groups at the end of the study. If it would turn out that it is not possible to have enough staff capacity to execute the pilot study in the near future, another option is to hire a study nurse that will collect the BelRAI data in (some of) the participating facilities. Nevertheless, this last option has major disadvantages: (1) less qualitative data will be collected on the usability of the instrument in the daily practice of the correctional facilities, and (2) less know-how will be built up on the BelRAI instrument in the facilities and how to implement it.

- From the expert panels of this feasibility study, it did not become clear which (health) care disciplines will need access to which sections of the BelRAI Detention Screener and Instrument, taking (shared) professional secrecy into account. The two expert panels had different views on this topic. Consultation with representatives of the correctional sector and with the involved governments will be needed to clear this out.
- A user-friendly software that is easily accessible by the health care professionals within the correctional settings will facilitate their learning process of completing the BelRAI Detention Screener and Instrument during the pilot study. It would be an important advantage if the instrument would be available on the study and training environment of the federal BelRAI application that is specifically designed by the federal government to complete and consult BelRAI instruments. If this is not feasible to realize before the start of the pilot study, researchers will provide the BelRAI Detention Screener and BelRAI Detention Instrument on research software.

This pilot study will be a first step in examining the added-value of a BelRAI Detention Screener and Instrument in the triage-process to identify prisoners who need care in prison focused at certain care needs. As a result, the BelRAI Detention Screener and Instrument will be revised based on the experiences and expertise from health care professionals in the field. In a second pilot study, not only the usability of the revised instrument, but also the process of supporting the triage of prisoners for care in prison, needs to be examined. Whether and how the instrument supports the triage-process will be an important research question. Moreover, this second pilot study needs to focus on the balance between sensitivity (the ability to identify true cases) and specificity (the ability to correctly exclude non-cases) of the BelRAI Detention Screener and BelRAI Detention Instrument (Martin et al., 2013). Subsequently, in a third study, the instrument needs to be tested in a sample that is representative for the entire Belgian prisoner population (convicts, defendants and internees; FPS Justice, 2023) in Belgium. The data of this third study will allow researchers to finalize the test of the psychometric qualities of the instrument, and to develop Collaborative Actions Plans to underpin care planning. Moreover, this larger study will provide representative data on the (mental) health and wellbeing of the entire prison population in Belgium. The correctional facilities, the involved governments and researchers urgently need this high-quality information to improve quality of care within the Belgian correctional sector.

2 Policy recommendations from the research team

In conclusion, we formulate recommendations for policy makers involved in the Belgian correctional sector, to support them in the planning of the research and implementation process of the BelRAI Detention Screener and BelRAI Detention Instrument. InterRAI/BelRAI implementation trajectories in other health care sectors showed that the research and implementation process occurs in a stepwise way, and that – from the start of the implementation process - a few recommendations are relevant to keep in mind (e.g., Carpenter & Hirdes, 2013; De Almeida Mello et al., 2023; De Almeida Mello, 2018; De Stampa et al., 2018; Hermans et al., 2016; Vanlinthout et al., 2022).

1. We recommend policy makers to clearly **communicate** to the Belgian correctional sector the aims of the BelRAI Detention Screener and Instrument, and how it fits into the Belgian reform plan regarding health care in prison. If the federal government decides to roll out a research

and implementation trajectory for the BelRAI Detention Screener and Instrument in the sector during the coming years, this communication is vital in strengthening the motivation of the facilities to participate in this trajectory and to avoid distrust and misunderstandings. We recommend to communicate before the start of the research trajectory. In addition to this communication, the establishment of a combined multi-stakeholder and multi-disciplinary group that supports the research and implementation trajectory, is also recommended. The objective of this **advisory group** is to avoid or tackle challenges that would come up during the implementation process, and to give advice to policy makers regarding communication towards the correctional facilities related to these challenges.

2. The BelRAI Detention Screener and Instrument have the potential to become a tool that supports triage, care planning and care quality management in correctional facilities. Whether BelRAI will be able to support continuity of care within and outside prison will depend on whether and how data-sharing will be realized in this sector (see recommendations below). To study the potential of BelRAI within correctional facilities, a **step-by-step research approach** is recommended. The different functions of the instruments are to be examined in the following order: (1) triage, (2) care planning and (3) care quality management. Clinical value needs to be experienced and shown first, before its potential as a support tool for quality management is to be examined. BelRAI only ensures high-quality data that has the potential to support quality management once that the clinical value of the BelRAI-instrument is established.
3. Before the research trajectory starts, the researchers would like clarity from the policy makers on which **disciplines** will administer the BelRAI instruments and whether and how they will **share BelRAI-data** within their own correctional facility during the studies.
    - Which (health) care providers that work in prison will complete the BelRAI Detention Screener and Instrument to inform the triage process for care in prison? Several disciplines have relevant expertise to complete parts of the instruments: general practitioners, psychiatrists, psychologists, nurses, criminologists, social workers etc. But also the correctional officers may play a role. The disciplines that will be involved in the facilities that participate in the first pilot study will all have to receive the one-day BelRAI training for correctional facilities.
    - How will the principle of (shared) professional secrecy be applied in relation to the use of the BelRAI Detention Screener and Instrument? Which (health) care disciplines will be able to share the BelRAI data with each other within their own correctional facility?
4. We recommend the policy makers to provide a **training and study environment on the federal BelRAI application** to complete the instruments during the research trajectory, instead of having to use research software. It will boost the testing of the usability, feasibility and acceptability of the BelRAI Detention Screener and Instrument. After all, in this scenario, the care professionals would not only learn to use the instruments, but also the software application on which they will complete the instruments in the future, once it will be implemented nationally. Moreover, running the pilot study in this training and study environment would result in relevant information from care providers in the field to optimize the (user-friendliness of) the application.

Being able to share BelRAI data between disciplines on this training and study environment – according to the decided principles (see recommendation above) – will improve the potential of the pilot studies. It can help care professionals to get trust in the software and in the data that are collected: that the platform is safe and that the multidisciplinary use of the electronic screening can contribute to quality of care and to benefits in the care practice in prison.

Already looking forward to a later stadium of the implementation trajectory, it is important to prepare a good **interoperability** between the BelRAI application and the prison registration systems. Compatibility issues make the assessment more time consuming than needed, especially when the BelRAI instruments will overlap with other data collected within the prison registration systems.

5. To strengthen **continuity of care** – one of the UN Standard Minimum Rules for the Treatment of Prisoners (General Assembly United Nations, 2015) – BelRAI-data collected in prison are also highly relevant for the care trajectory of the person once he has left prison. **Data-sharing** between the correctional sector, and the health and social sector outside prison – in both ways - is a complex (juridical) issue. Nevertheless, the development of a data-sharing approach between those sectors by the involved governments is recommended. Establishing linkages and integration between systems will be needed to realize data-sharing. It will improve quality of care both inside prison, and outside prison once a prisoner's sentence has come to an end.

As the stepwise implementation (research) of the BelRAI Detention Screener and Instrument evolves, the process will continuously need a combination of clinical, academic and political expertise to increase quality of care within Belgian correctional facilities according to the "Nelson Mandela Rules" (General Assembly United Nations, 2015).

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ANNEXES

Annex 1: Information letter

Information letter: Participation of expert panels in the feasibility study to develop a pilot study on the possibilities of using a BelRAI detention screening instrument.

Dear Mrs,
Dear Sir or Madam,

We would like to invite you to participate in two expert panels as part of a feasibility study in preparation for a pilot study on the feasibility of using a BelRAI screening instrument in the detention context. The information letter below provides more information about the purpose of this feasibility study. Please read this information carefully before deciding whether or not you would like to participate in these expert panels. Feel free to ask questions if you have any queries or would like more information. If you are willing to participate in these expert panels, you will need to register using the link provided in the invitation letter.

What is the purpose of this study?
On behalf of Federal Public Service of Public Health, Food chain safety and Environment, the Federal Public Service of Justice and the Cabinets of Public Health and Justice, LUCAS KU Leuven - in collaboration with KeFor OPZC Rekem - is conducting a feasibility study in preparation for a pilot study on the feasibility of using a BelRAI screening instrument in the detention context. The aim of this feasibility study is to develop a BelRAI detention screening instrument to screen needs regarding general and mental health (including suicide risk), addiction, and the presence of an intellectual disability.

The feasibility study will be conducted in two phases:

- In phase 1, a literature review will be completed to gain insight into existing screeners already used in prisons in an (inter)national context. As an expert, you will be able to give your input on the possible topics that should be included in this detention screening instrument.
- In phase 2, for the list of topics generated in phase 1, a check is made to see if an existing interRAI/BelRAI item is available to measure this topic. If not, it will be checked whether new BelRAI items can be developed for this purpose. The first draft of the BelRAI instrument will then be presented again to the expert panels (Dutch-speaking and French-speaking). Based on the input from the panels, we will make further adjustments in order to arrive at a pilot version of a BelRAI detention screening instrument. In this second phase, we will also collect information during the expert panel on possible preconditions for the implementation of the BelRAI detention screening instrument in Belgian detention centres. This input will also be used to create a protocol for the first pilot study.

This information letter focuses on both phases of the feasibility study.

Info about the expert panels

You are one of +/- 24 experts who - if you agree - will participate in the expert panels. The experts have chosen to bring their own expertise to the issue of health care in detention. Specifically, in the first expert panel, we will focus on the topics that you think should be included in this tool. In the second expert panel, we will ask you for your feedback on the first draft of a BelRAI detention screening instrument and what preconditions you see for the implementation of this screening tool in Belgian prisons. As a result of the second expert panel, we therefore ask you to look through the first draft of the BelRAI detention screening instrument in advance. If you prefer not to answer a certain question during an expert panel, this is not a problem. Each panel lasts a maximum of 2.5 hours.

Who is responsible for this study?

Prof. dr. Anja Declercq (LUCAS KU Leuven) and prof. dr. dr. Inge Jeandarme (KeFor OPZC Rekem) are the promoters of this research. prof. dr. Petra Habets (KeFor OPZC Rekem), Laura Bex (KeFor OPZC Rekem), dr. Kathleen De Cuyper (LUCAS KU Leuven) and Evelien Moors (LUCAS KU Leuven) are the researchers. If you have any questions about the research before or after an expert panel, you can contact Laura Bex (KeFor OPZC Rekem) or Evelien Moors (LUCAS KU Leuven).

Information about the processing of your personal data

As part of your participation in this feasibility study in preparation for a pilot study on the feasibility of using a BelRAI screening instrument in the context of detention, personal data about you will be collected and processed. This processing will be carried out in accordance with the General Data Protection Regulation (GDPR). We are happy to provide you with more information about the use and storage of this data. During this research, the following personal data will be collected from you: your identification data (name and email address), your position, the organisation you work for and the sector in which you are employed.

Use of your personal data

Only personal data necessary for the purpose of this research will be collected. The main purpose of the research is to develop a BelRAI screening instrument for the detention context. This personal data will allow us to check whether each relevant type of organisation within the sector is sufficiently represented. There will be no further use of the data in the context of future academic research.

In the context of this research, your data will be made into a pseudonym. This means that data that could identify you, such as your name and contact details, will be disconnected from the other data in the study and replaced with a unique, random code. In this way, it is no longer immediately obvious which data comes from which specific person. Only the researcher can link the data back to a specific person using the unique code. This will only happen in exceptional circumstances, such as when you exercise your right to access, rectify or delete your data. You will also not be identified in the scientific outputs of this research, such as publications.

The legal basis for processing your data is public interest. This means that the research will lead to an increase in knowledge and understanding that will benefit society (directly or indirectly).

Your data will be kept by the researchers for 10 years after the end of the research in a secure storage at KU Leuven. After this period, the personal data will be permanently deleted if they are no longer necessary for the conduct of the research.

Your rights

You always have the right to request information about the use of your data. You also have the right to access, rectify and delete your data, provided that this does not make it impossible or seriously impede the aims of the research.

If you wish to exercise any of these rights, you can get in touch with the researchers by using the contact details given at the end of this letter.

Contact details

KU Leuven acts as controller in the context of this research. More specifically, only the researchers Prof. Dr. Inge Jeandarme, Prof. Anja Declercq, Prof. Dr. Petra Habets, Dr. Kathleen De Cuyper, Laura Bex and Evelien Moors will have access to your personal data. In case of specific questions about this research, including the processing of your personal data, you can contact Evelien Moors (LUCAS KU Leuven) evelien.moors@kuleuven.be, Tel: 016 19 40 74 or Laura Bex (KeFor OPZC Rekem) laura.bex @opzcrekem.be, Tel: 089 22 28 01.

For further questions and concerns about the processing of your personal data, please contact Toon Boon, KU Leuven's data protection officer for scientific research (dpo@kuleuven.be). Please clarify which research is involved by stating the title and the names of the researchers.

If, after contacting the data protection officer, you would like to submit a complaint about how your information is being handled, you can contact the Belgian Data Protection Authority.

Do I have to participate?

You are not obliged to take part in this study. Your participation is entirely voluntary. You will be asked to sign a consent form at the start of the first panel. By signing this form, you agree that we may use the data collected during both panels for research purposes. Your name will not be included in the research report. If you decide to take part in the panels, you can withdraw your consent at any time. You do not have to give a reason. You also have the right to withdraw from a panel at any time.

What are the possible disadvantages of my taking part in this research?

The expert panels organised as part of this research do not involve any disadvantages. In preparation for the first expert panel, you will be asked to watch a knowledge clip of maximum 20 minutes about interRAI and BelRAI.

What are the possible benefits of my participation?

No financial compensation is provided for your participation in the study. By participating in the study, you will get the opportunity to share what you know and experience with others. Your input will be fed back (anonymously) in the form of a research report and practical solutions/recommendations to the Belgian detention context and the Federal Government. In this way, your participation will contribute to more attention being paid to the (care) needs of prisoners in Belgian prisons.

If I choose to participate, will this remain confidential?

Any information we collect about you as part of this study will remain confidential. The recordings of the expert panel discussions will only be listened to by the researchers for the purpose of anonymized reporting. This report will be used to process the information collected in an accurate and anonymous manner. The people involved in the research are all bound by confidentiality. There will be no disclosure

or sharing of sensitive information with third parties at any point. It is possible that some of your quotes may be included in the research report. We will ensure that it is not possible for the reader to identify these quotes as coming from you. Once the report has been released by the government, you can have access to the research report.

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Laura Bex
Researcher KeFor OPZC Rekem
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Also on behalf of Prof Dr Inge Jeandarme (KeFor OPZC Rekem) and Prof Anja Declercq (LUCAS KU Leuven), promoters of this study, and the other researchers Prof Dr Petra Habets (KeFor OPZC Rekem) and Dr Kathleen De Cuyper (LUCAS KU Leuven).

Annex 2: Guideline questions expert panels phase 1

Introduction (20 min)

- Short introduction of the participants:
- In what capacity are you all involved in the penitentiary process of detainees? Please provide a brief explanation.
    - Name
    - Function
    - Organisation
    - Experience

Key questions

- **Identifying care needs**
    - What do you believe are the common care needs of detainees?
    - Which care needs are easily overlooked in detainees?
        - How are these eventually detected?
        - Why would it be useful to identify these specific care needs more quickly?
        - How could we detect these care needs more quickly?
- Which care needs in a detention context should be included in the inventory, according to your perspective?
- How are these care needs currently being identified in your experience within the detention context?
    - Are there specific questions that you use for this purpose? (directly or indirectly)
    - How did you come up with those questions and why is it important to ask them?
    - In practicing your profession, you may have experienced things that you have learned from when it comes to the care of detainees. Are there things that you would have liked to know in advance based on these experiences?
- Development of a BelRAI screening instrument for the detention context
    - The government has mandated the inclusion of specific topics in the assessment of detainees' care needs. These topics include general and mental health, with a particular focus on suicide risk, addiction, and the presence of intellectual disability.
        - Would you include these as the most important topics in a BelRAI detention screening instrument?
        - Are there topics that need to be added?
        - Are any of the topics unnecessary to include?
        - How do you see the implementation of these topics?

- Use of a screening tool in the detention context
  - What opportunities do you see in using a screening questionnaire that maps out the care needs of detainees?
  - What pitfalls do you see in using a screening questionnaire that maps out the care needs of detainees?

Conclusion

- Are there any elements that we have not yet discussed, but that you would like to discuss regarding the development of a screening tool for the detention context?
- With what sentiment are you leaving this expert panel?
- Have we missed important data subjects to involve in this focus group?

Annex 3: Guideline questions expert panels phase 2

Introduction (15 min)

- Introducing participants
- Explanation of the research objectives and additional information

Key questions

- **Content - Does the BelRAI detention screening instrument measure the relevant care needs?**
  - *Items/themes/sections*
    - Does the BelRAI screen address the care needs that need to be inventoried in the prison context?
      - Which items/themes/sections should be added?
      - Which items/themes/sections are not necessary to know?
      - Which items are unclear?
      - Which items/themes/sections definitely need to be changed?
    - What do you think of the order in which the items are presented?
  - *Explanation of the items*
    - Is the additional explanation for the items clearly formulated?
    - Are there any points that need additional explanation?
    - Are the examples included in the items specific enough for the detention context?
  - *Structure*
    - What do you think of the length of the instrument?
- **Target group short and extended BelRAI detention screening instrument**
  - For which group of detainees is the extended BelRAI detention screening instrument useful?
  - How soon after detention is it (a) necessary and (b) feasible to complete the extended BelRAI detention screening instrument?
- **Identification of the preconditions for the pilot study of the BelRAI detention screening instrument**
  - Which types of organisations (max. 3) should be involved in the pilot study?
  - Which (health)care professionals within these prisons should be trained as a minimum?
  - Are there any data that cannot be shared due to medical confidentiality?
  - Which facilitators can support completing the BelRAI detention screening instrument in prison during the pilot study?

- Which challenges could be a barrier to the implementation of the BelRAI detention screening instrument during the pilot study?

Concluding question

- Are there any matters issues related to the BelRAI detention screening instrument that we have not yet discussed, but that you would like to address?

Annex 4: Draft version of the BelRAI detention screening instrument

The draft version of the BelRAI detention screening instrument can be requested from the research team.

Annex 5: Pilot version of the BelRAI Detention Screener and the BelRAI Detention Instrument - EN

The English version of the BelRAI Detention Screener and BelRAI Detention Instrument can be requested from the research team.

Annex 6: Pilot version of the BelRAI Detention Screener and the BelRAI Detention Instrument - NL

The Dutch version of the BelRAI Detention Screener and BelRAI Detention Instrument can be requested from the research team.

Annex 7: Pilot version of the BelRAI Detention Screener and the BelRAI Detention Instrument - FR

The French version of the BelRAI Detention Screener and BelRAI Detention Instrument can be requested from the research team.