

Optimisation of linkage to care for hepatitis B/C infected ethnic minorities in Belgium.

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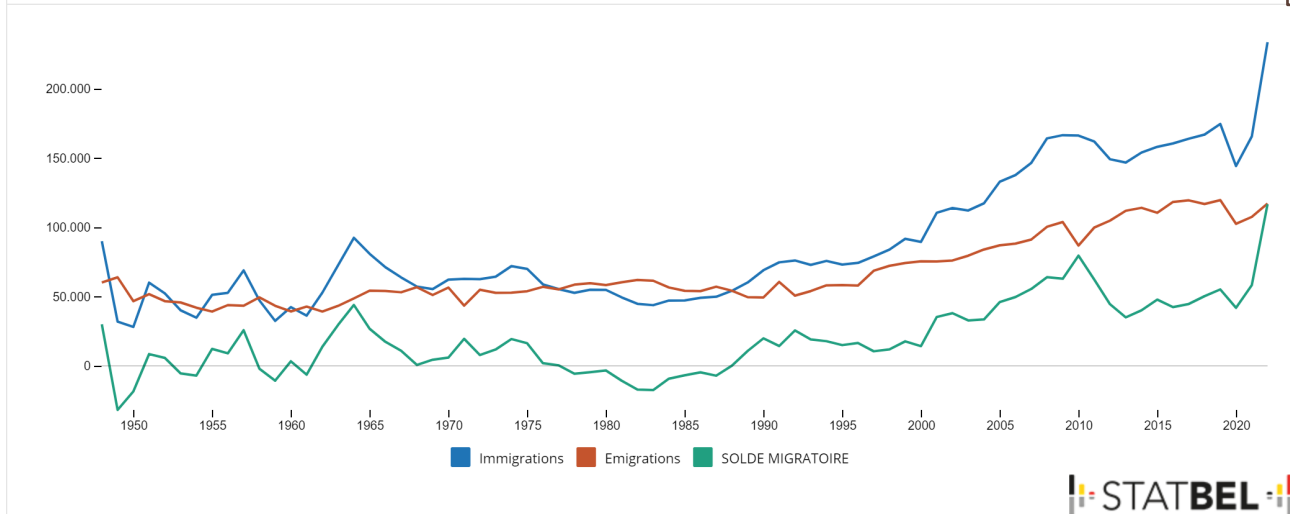
Belgium population and migration

Belgian population (11,697,557)

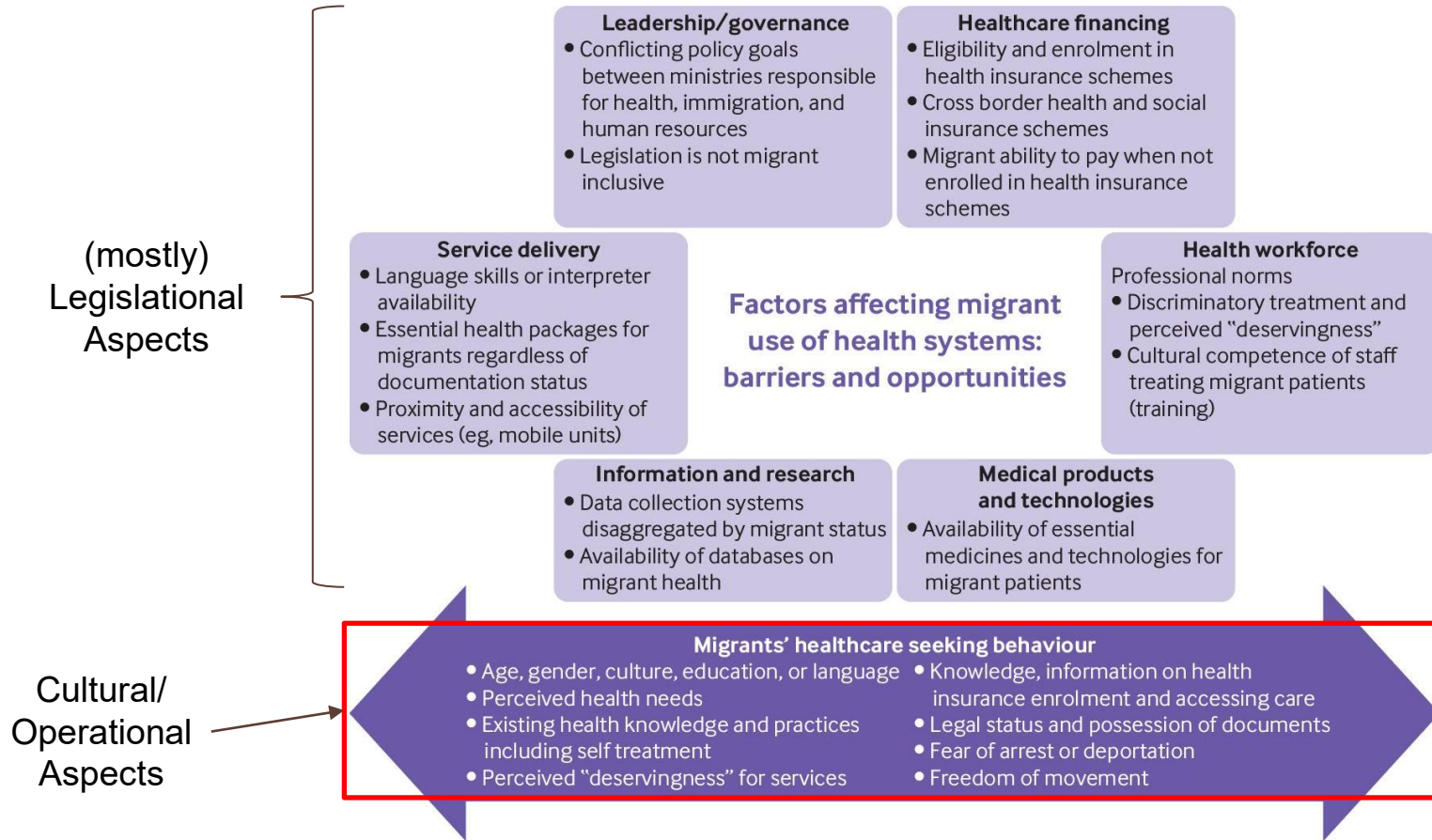
- Belgians with a Belgian background: 7,665,100 (65.5%)
- Belgians with a foreign background: 2,459,184 (21.0%)
- non-Belgians: 1,573,273 (13.4%)

Nord-Africa:	699.296
Sub-Sahara Africa:	358.268
West-Asia	245.880
East-Asia	102.735
Latin-America	89.342
Nord-America	23.828

Total international migration (Belgian and stranger)



Barriers in Hepatitis Care for Migrants



Linkage to Care of Ethnic minorities

▪ Hepatitis Testing and Linkage to Care (HepTLC) project (US-CDC)

- 7 US states, Oct 2012-Sept 2014
- Foreign-born people in health-care centers and community-based organisations
- N=23,144 tested for HBsAg and anti-HBc
- 1,317 HBsAg+ (5.7%)
- Linkage to care: n=606 (46%)
 - Gender: ♂ (49%) > ♀ (41%) (P<0.001)
 - Age: young (50%) > older (20%) (P<0.001)
 - Race/Ethnicity (P=NS)

▪ Hepatitis Outreach Network 2012

- Mount Sinai School of Medicine, the NYC Department of Health and Mental Hygiene, and community-based organizations
- N=1,603 screened foreign-born persons
- 76 HBsAg+ (4.7%) → linkage to care: 57%
- 75 HCV RNA+ (4.7%) → linkage to care: 64%

- Strategies are needed to improve linkage to care for foreignborn individuals living with chronic viral hepatitis

Hepatitis B in Belgium

- Belgium = low endemic country
2003 HBsAg seroprevalence 0.66%
(95% CI 0.51-0.84)
- Cost-effective HBsAg screening in migrants in low endemic countries
- Migrants from Chinese descent in Europe:
Highest HBsAg+ (6.2%–8.7%)

Table 2. Results of the prevalence study performed in 1993 (serum, hospital-based population) and 2003 (saliva, population-based), in Flanders, Belgium

	1993	2003
Prevalence (%)		
HAV	55,1(95% CI 53.5–56.7)	20,2 (95% CI 19.43–21.08)
HBsAg	0,7 (95% CI 0.5–1.0)	0,66 (95% CI 0.51–0.84)
HCV	0,87 (95% CI 0.5–1.1)	0,12 (95% CI 0.09–0.39)

Quoilin Eur. J Epidemiol 2007.22(3):195-202

Hahne. BMC Infect Dis. 2013; 13: 181.

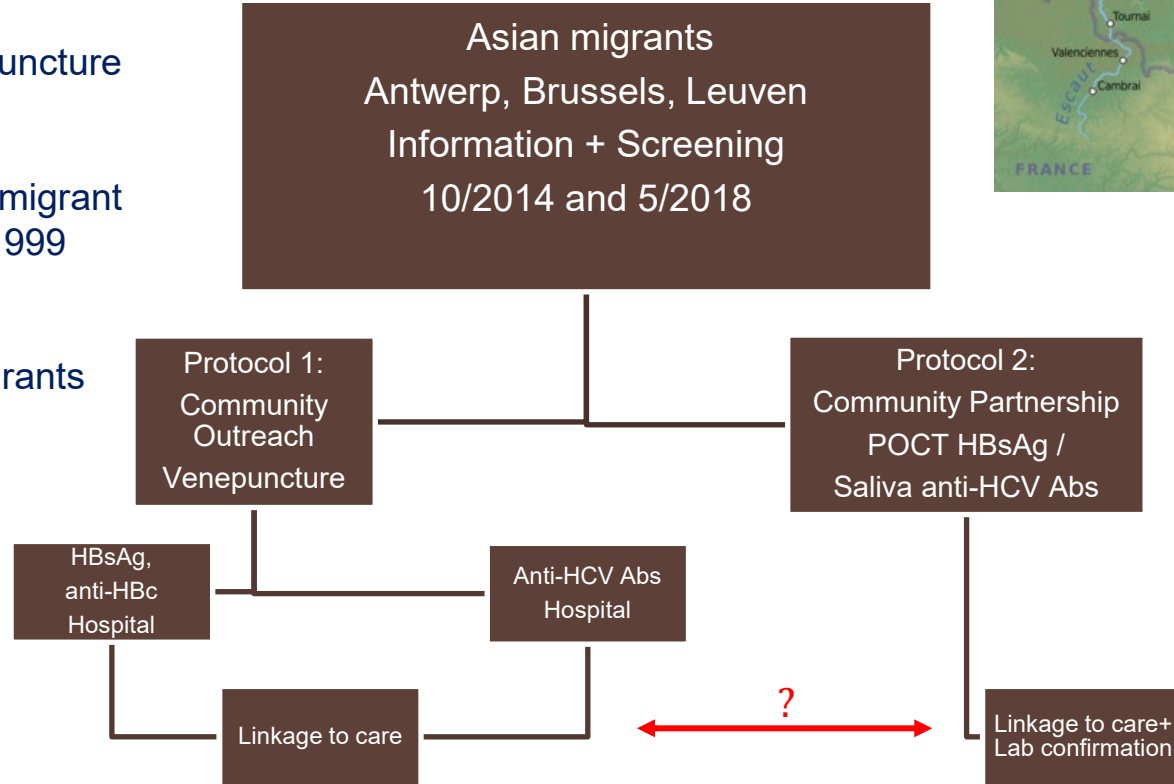
Suijkerbuijk AWM. PLoS One. 2018 Nov 8;13(11):e0207037

Perumalswami J Hepatol. 2013 May;58(5):890-7.

China on the Scheldt project



- Compare POCT vs venepuncture
- Inclusion:
 - Asian descent
 - 1st/2nd generation migrant
 - birth date before 1999
- Exclusion:
 - <18 years old
 - 3rd generation migrants
- Linkage to Care
 - Specialist care
 - Viral load
 - Abd ultrasound
- Cost of screening



China on the Scheldt project-Protocol 1

- Chinese Community Leaders (journalist/priest)/Chinese organisations
- Questionnaire in Chinese to determine optimal location, date and timing of outreach screenings
- 7 screening dates, 4 locations (Churches, Buddhist Temple and Library)
- Complex logistics:
 - 3 desks with doctors + translator (ICF), 1 nursing, 1 administrative support
 - Local centrifugation, transport to hospital
 - Information of results by phone and letter



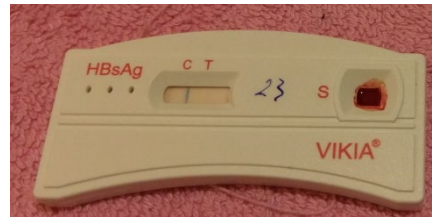
China on the Scheldt project-Protocol 1-Results

- HBsAg: 32/456 (7,0%)
 - 50% (16/32) aware of HBsAg+ status
 - 34% (11/32) linked to care
- Anti-HBc Ab: 244/456 (53,5%)
- Anti-HCV: 0/456 (0%)

China on the Scheldt project-Protocol 2

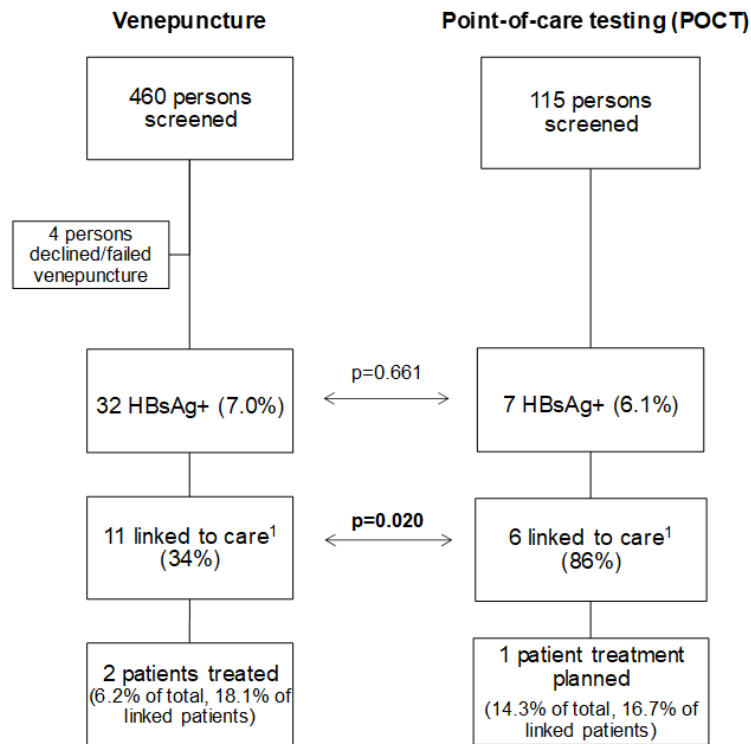


- “Community partnership” (opportunistic) screening: collaboration with established community based organizations/governmental structures
 - + Decrease manpower/workload (1 scientific collaborator/nurse)
 - + Sustainable
 - - Lower number of participants/session
 - - More screening sessions to reach sample size
- Location: Atlas Integration & Citizenship classes (City Council Antwerp)
- Target populations:
 - New migrants following obligatory classes
 - Chinese massage parlours (in collaboration with City Council Antwerp)
- POCT: Biomérieux Vikia HBsAg (fingerprick); OraSure Oraquick HCV (Saliva)



China on the Scheldt project-Protocol 2-Results-Comparison

- N=115
- 12 sessions
- Information about healthcare organization/viral hepatitis
- HBsAg+ n=7 (6.1%)
 - Linked to care: n=6 (86%)
- Anti-HCV+ n=1
 - Linked to care: n=1



¹Linked to care = specialist care follow-up with HBsAg, ALT and HBV DNA test results for HBV, and at least 1 abdominal ultrasound

Figure 1: Overview of linkage to care of community screening using venepuncture and point-of-care testing (POCT)

China on the Scheldt project-Comparison Linkage to Care

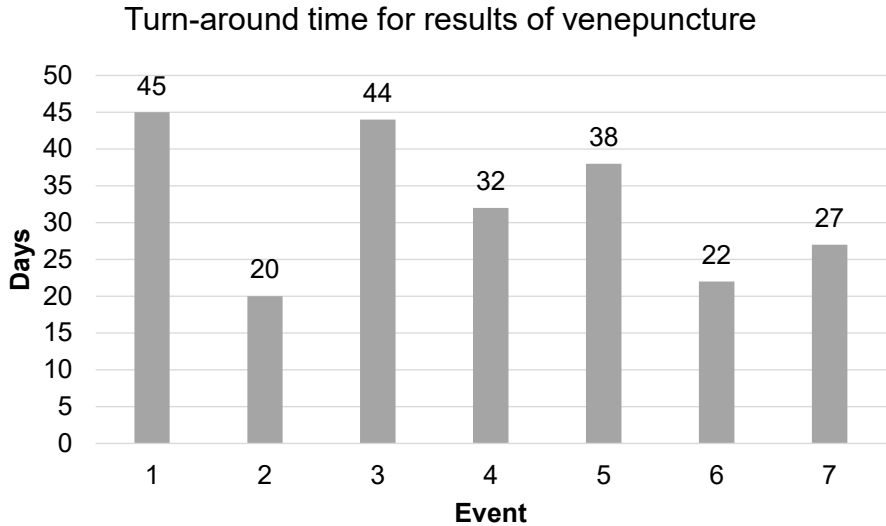
	All (n=39)	Not linked to care ¹ (n=22)	Linked to care (n=17)	p Value
Age (mean, years) ²	45.7	46.8	45.1	0.12
Gender (female, %)	21 (53.8)	12 (54.5)	9 (52.9)	0.92
Country of origin (China, %)	38 (97.4)	22 (100)	16 (94.1)	0.25
Residence (Antwerp, %)	18 (46.2)	10 (45.5)	8 (47.1)	0.92
Type of screening (CP, %)	7 (17.9)	1 (4.3)	6 (85.7)	0.02
HCC surveillance indication (yes, %) ²	17 (47.2)	10 (47.6)	7 (46.7)	0.96
Treatment indication (yes, %) ²	6 (15.4)	3 (13.6)	3 (17.6)	0.73
HBV clinical phase ³	HBsAg+ve (n=38)			
ALT > ULN (%)	8 (22.2)	4 (19.0)	4 (26.7)	0.59
HBV DNA > 2,000 IU/mL (%)	13 (37.1)	7 (33.3)	6 (42.9)	0.57
HBV DNA > 20,000 IU/mL (%)	7 (20.0)	3 (14.3)	4 (28.6)	0.3

¹ Linked to care = specialist care follow-up with HBsAg, ALT and HBV DNA test results for HBV and HCV RNA for HCV, and at least 1 abdominal ultrasound

^{2,3} Data available for 90% and 92% of patients, respectively

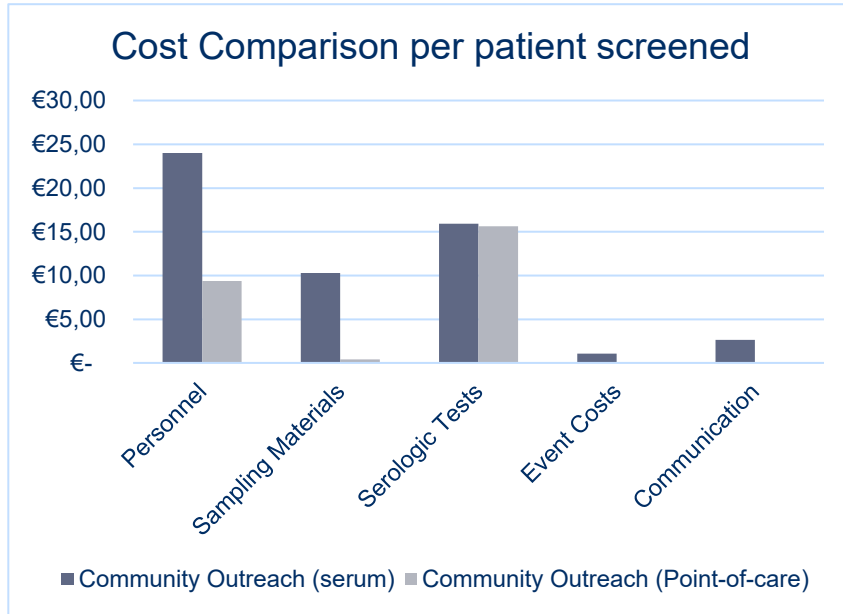
Characteristics of screened persons not linked to care/linked to care

China on the Scheldt project-Comparison Turn-around time



- Protocol 1: Community Outreach-Serum
32 days (20–45 days)
- Protocol 2: Community Partnership-
POCT
Results on-site (15-20')
feedback + appointment for
specialist care

China on the Scheldt project-Comparison Cost



- Protocol 1: Outreach-Serum

€ 24,819 overall

€ 54.0/person screened

- Protocol 2: Partnership-POCT

€ 2,750 overall

€ 11.4/person screened

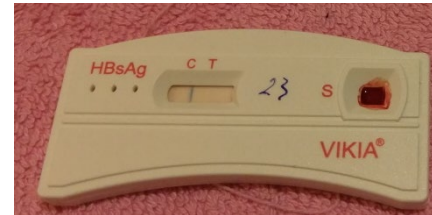
China on the Scheldt project-Conclusion-Discussion

- HBsAg seroprevalence of 6.8% in Asian migrant population in Belgium similar to reported seroprevalence for Chinese migrants in Europe
- HBV screening with POCT in a community partnership setting resulted in:
 - Lower cost per person screened (76.5% lower)
 - Higher linkage to care (2.5 times higher)
- Difference in cohorts: POCT vs venepuncture not randomised at each screening site
 - Only screening method significantly associated with LTC
 - Opportunistic screening generally lower impact/motivation (Robotin et al 2014)
- Impact of ethnicity?
- Impact of location/setting of screening (citizenship vs massage parlours)?

Optimisation linkage to care in ethnic minorities

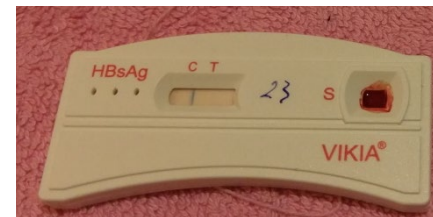


1. To estimate HBsAg seropositivity in different ethnic minorities by opportunistic screening
2. To examine whether the observed improved linkage to care using POCT is influenced by ethnicity using outreach POCT screening among different ethnic groups



Protocol Multi-Ethnic Opportunistic screenings

- **Opportunistic =**
 - “When a healthcare provider takes the opportunity to offer a test to a patient who is presenting with another indication or healthcare need (ECDC)”
- **Integration classes in Atlas School (Antwerp)**
 - 11/2017 - 09/2022 → 69 screenings
- **Ethnicities:** Sub-Saharan, Asian and Middle Eastern migrants
- **POCT**
 - HBsAg (Vikia)
 - Finger prick
- **FU → dedicated nurse**
 - Phone, Whatsapp, home visits
- **Number needed to screen**
 - ~ seroprevalence in country of origin + # migrants arriving/living in Belgium
- **LTC**
 - Medical care hepatologist + lab test + abdominal ultrasound



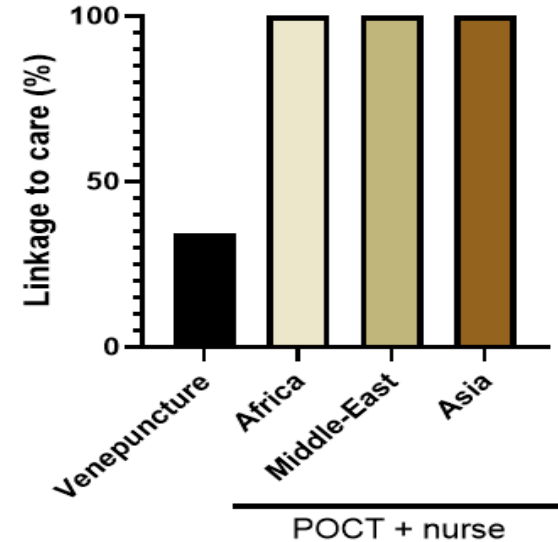
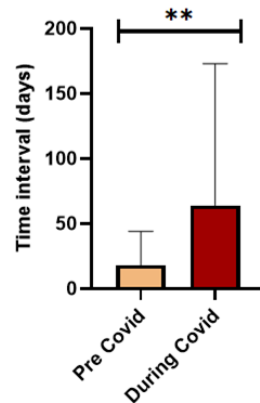
Multi-Ethnic Opportunistic screenings-Results

- N=677
(Asian n=118; SAM n=176, Middle East n=383)

- HBsAg+ n= 23/677 (3.4%) (95% CI 2.2-5.1)
- Linked to care: n=23 (100%)
 - Regular phone calls/whatsapp/home visits

• No impact of Covid crisis on LTC

- Increase in time interval
- Number of screenings
 - Pre Covid → n = 53
 - During Covid → n = 16



Multi-Ethnic Opportunistic screenings-Results

	All (n=23)	Africa (n=6)	Middle-East (n=16)	Asia (n=1)
Demographics				
Age (mean, years)	28.6	31.3	27.4	31
Gender (female, %)	5 (21.7)	0 (0)	5 (31.3)	0 (0)
Country of birth		Somalia: 3 (50%), Eritrea: 3 (50%)	Afghanistan: 16 (100%)	China: 1 (100%)
Lab parameters + fibroscan				
ALT > 40(%)	9 (39.1)	3 (50)	6 (37.5)	0 (0)
HBV DNA > 2000 IU/mL (%)	12 (52.2)	4 (66.7)	8 (50)	0 (0)
HBV DNA > 20 000 IU/mL (%)	4 (17.4)	1 (16.7)	3 (18.8)	0 (0)
HBeAg+ (%)	2 (8.7)	0 (0)	2 (12.5)	0 (0)
HDV IgG+ (yes, %)	4 (17.4)	0 (0)	4 (25)	0 (0)
Fibroscan > 7kPa	3 (13.6) 1 UNK	1 (16.7)	2 (13.3) 1 UNK	0 (0)
Criteria				
Linkage to care (yes, %)	23 (100)	6 (100)	16 (100)	1 (100)
HCC surveillance (yes, %)	6 (26.1)	6 (100)	0 (0)	0 (0)
Transmission risk (yes, %)	22 (100)	6 (100)	15 (100) 1 UNK	1 (100)
Treatment indication (yes, %)	7 (31.8) 1 UNK	2 (33.3)	5 (33.3) 1 UNK	0 (0)
Awareness HBV infection (yes, %)	8 (38.1) 2 UNK	2 (33.3)	6 (40) 1 UNK	1 UNK

Multi-Ethnic Opportunistic screenings-Results

	HBsAg+	%	HBsAg-	%	Total	%	p value
Correctional residence	3/21	14.3	53/565	9.4	56/586	9.6	0.7
IV drug use	0/21	0	5/565	0.9	5/586	0.9	1.0
Tattoos/piercings	4/21	19.1	175/565	31.0	179/586	30.6	0.3
Extramarital unprotected sex	5/21	23.8	94/565	16.6	99/586	16.9	0.6
MSM	0/21	0	9/553	1.6	9/574	1.6	1.0
Previous hospitalization	5/21	23.8	180/565	31.9	185/586	31.6	0.5
Previous dental care	5/21	23.8	208/565	36.8	213/586	36.4	0.3
Previous blood transfusion	0/21	0	41/565	7.3	41/586	7.0	0.4
Healthcare profession	0/21	0	19/565	3.4	19/586	3.2	0.6

Risk factors for HBsAg+ (voluntary questionnaires)

Multi-Ethnic Opportunistic Screening-Conclusion-Discussion

- Screening campaigns in opportunistic settings with POCT and follow-up by a dedicated nurse/collaborator can overcome barriers of linkage to care (despite Covid crisis)
- In a cohort of diverse ethnicity (African, Asian, Middle Eastern) HBsAg seropositivity (3.4%) is higher than the general Flemish population (0.66%)
- Targeted opportunistic screening of ethnic minorities for HBV in Belgium is warranted using POCT with the support of a dedicated nurse/collaborator

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Viral Hepatitis Prevention Board



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