



Infezioni trasmissibili con la trasfusione:
*fattori di rischio, comunicazione e counselling
con il donatore positivo*

Epidemiologia e fattori di rischio dei virus dell'epatite B e C

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Il sottoscritto, in qualità di Relatore
dichiara che

nell'esercizio della Sua funzione e per l'evento in oggetto, NON È in alcun modo portatore di interessi commerciali propri o di terzi; e che gli eventuali rapporti avuti negli ultimi due anni con soggetti portatori di interessi commerciali non sono tali da permettere a tali soggetti di influenzare le mie funzioni al fine di trarne vantaggio.



Hepatitis Epidemiology: Handle with care!

- Data collection on liver diseases across regions is limited due to the absence of comprehensive studies.
- Current knowledge is fragmented and may be influenced by potential biases in pharmaceutical-sponsored reports.
- Different methodologies and inconsistent reporting across countries reduce data reliability and comparability.
- Many local surveys are outdated, failing to reflect recent trends, which affects decision-making and health policy.

Outline

- Natural history and treatment opportunities
- The WHO Plan
- Epidemiology and risk factors
 - In Europe
 - In Italy
- Conclusions

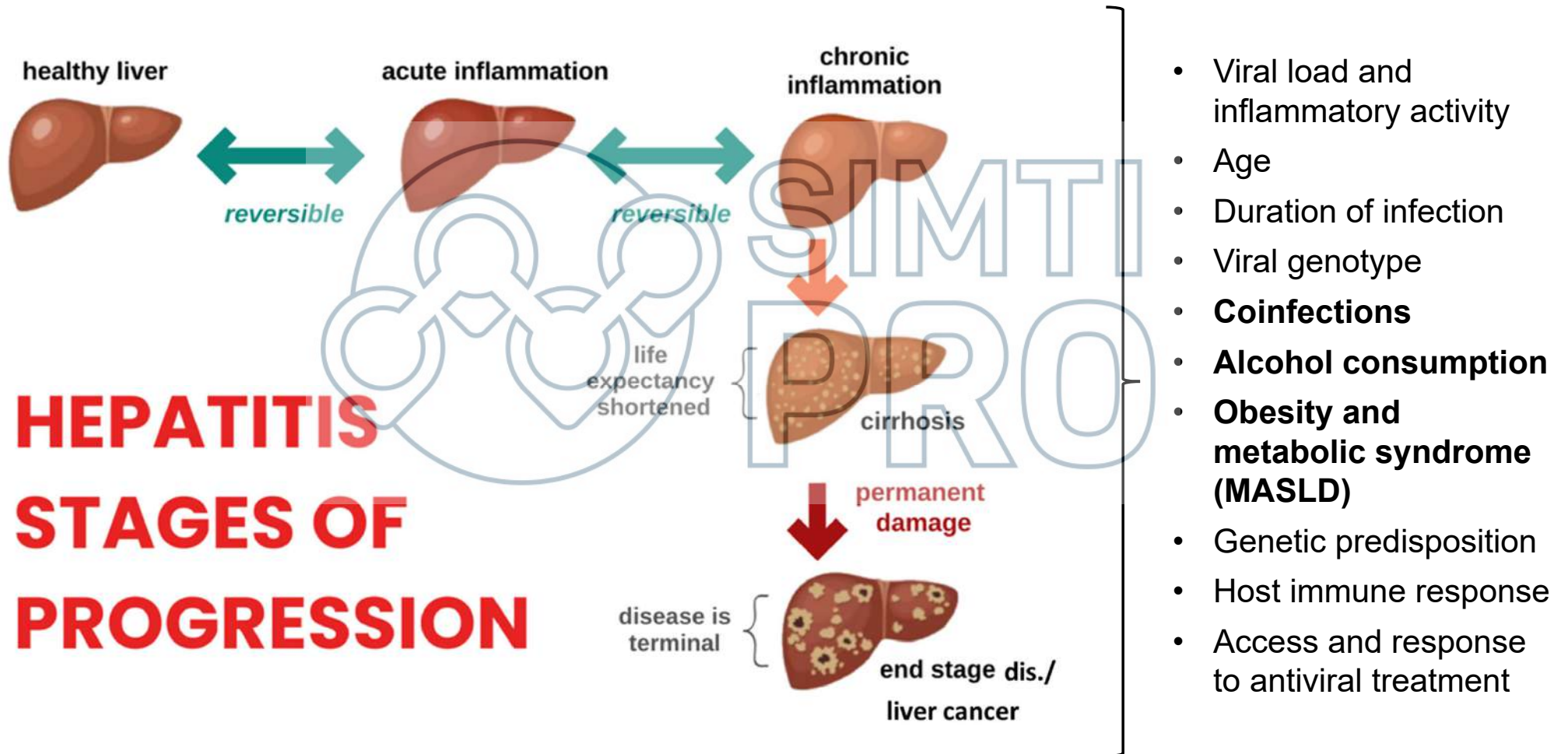


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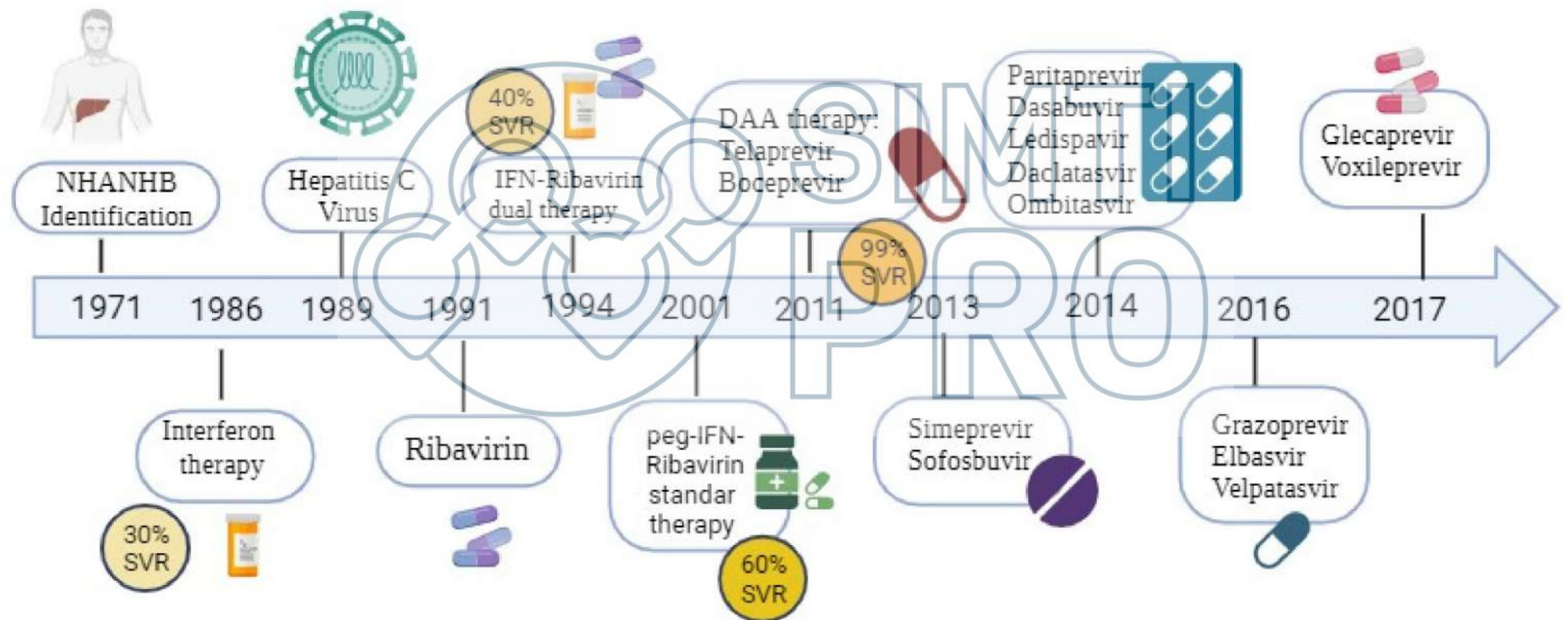
Natural history of viral hepatitis B and C



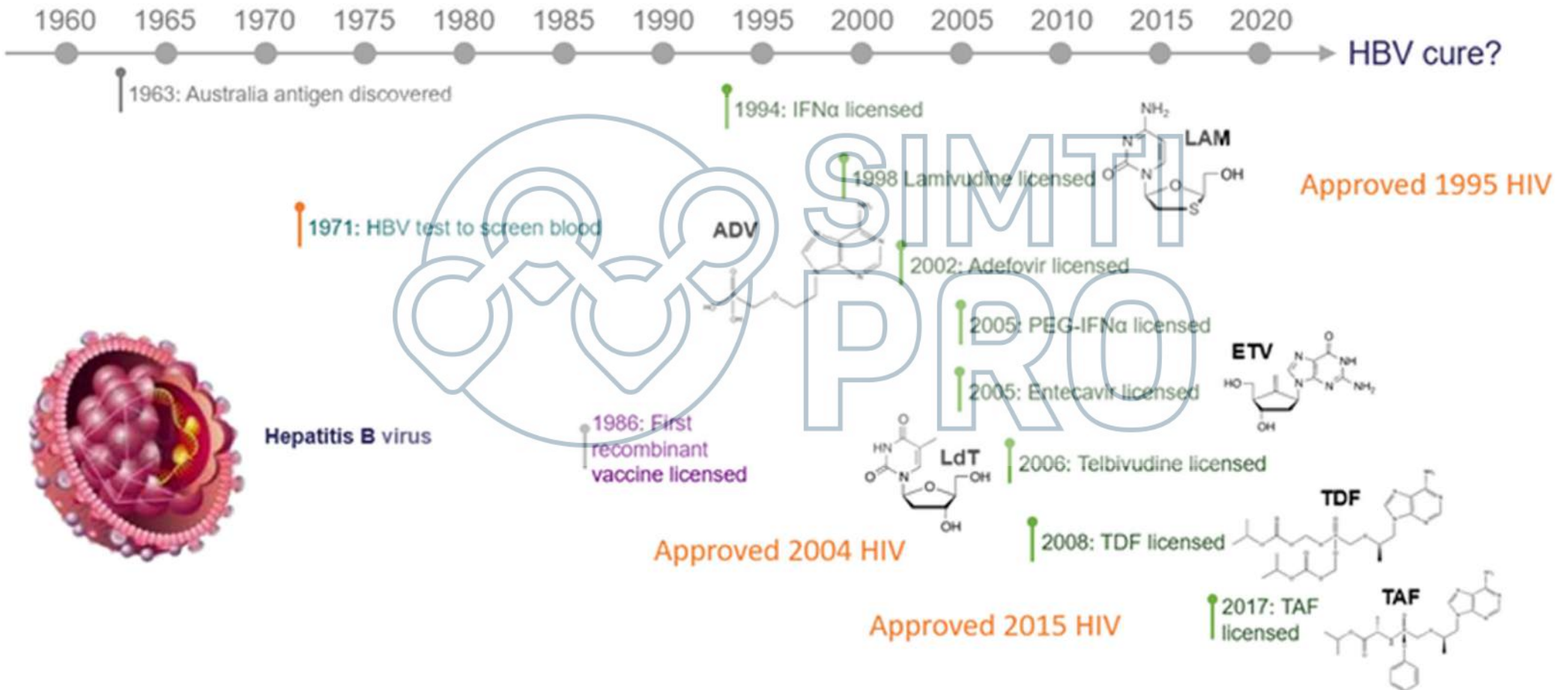
HBV and HCV infection

- Both HBV and HCV remain leading causes of death and disability, worldwide.
- Transmission of both infections can be prevented.
- Both infections can be identified through screening
- Hepatitis B is treatable.
- Hepatitis C is curable.

History of advances in treatment of chronic HCV infection and evolution of sustained viral response.



Timeline of the development of HBV treatment.

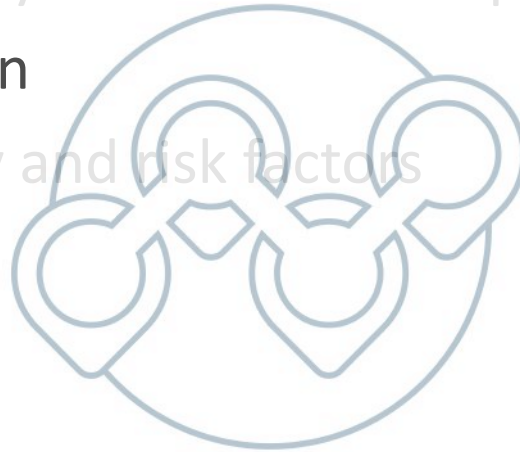


Roediger R et al., *Antiviral Therapy* 2022

ADV: adefovir; ETV: entecavir; IFNα: interferon alpha; LAM: lamivudine; LdT: telbivudine; TAF: tenofovir alafenamide fumarate; TDF: tenofovir disoproxil fumarate

Outline

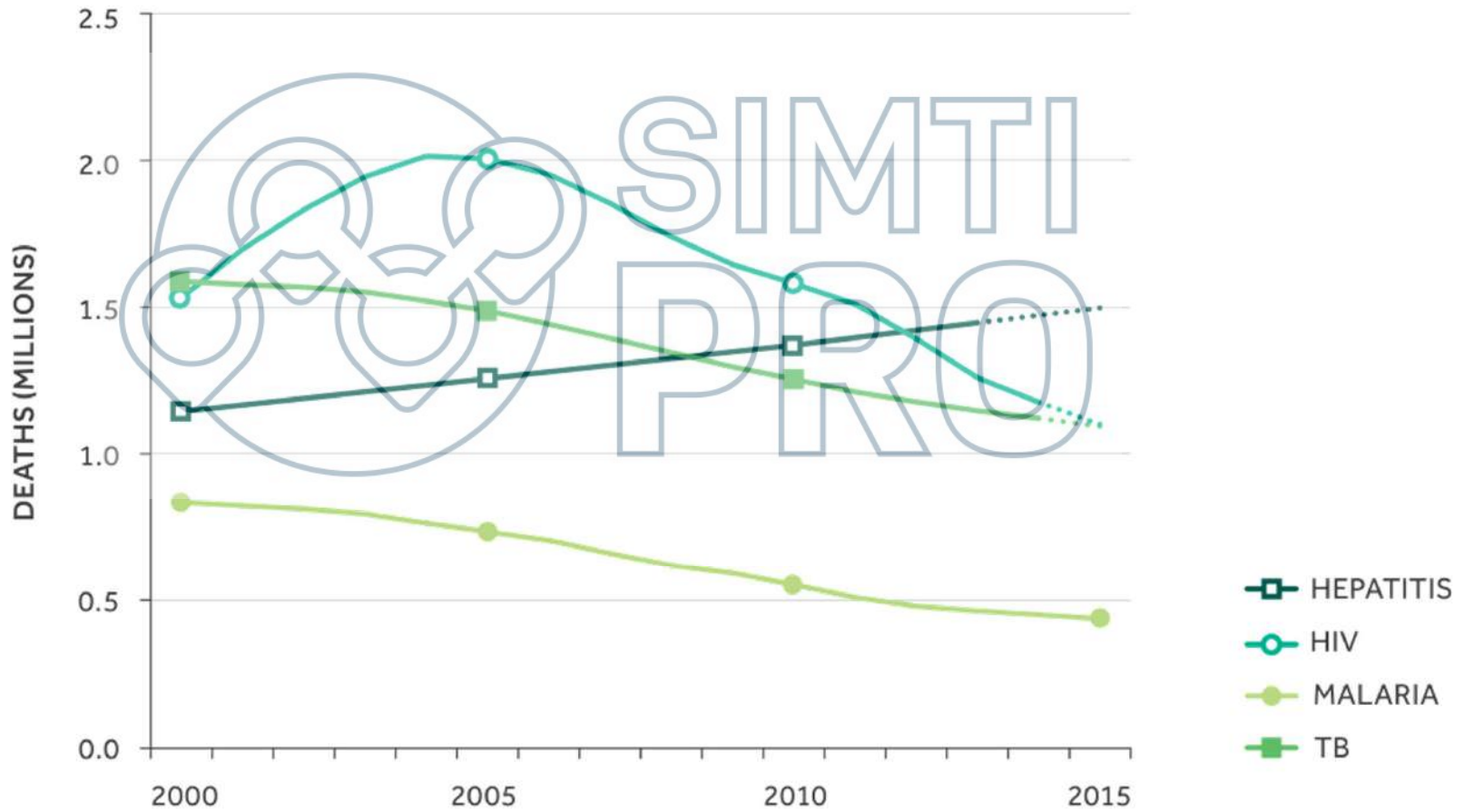
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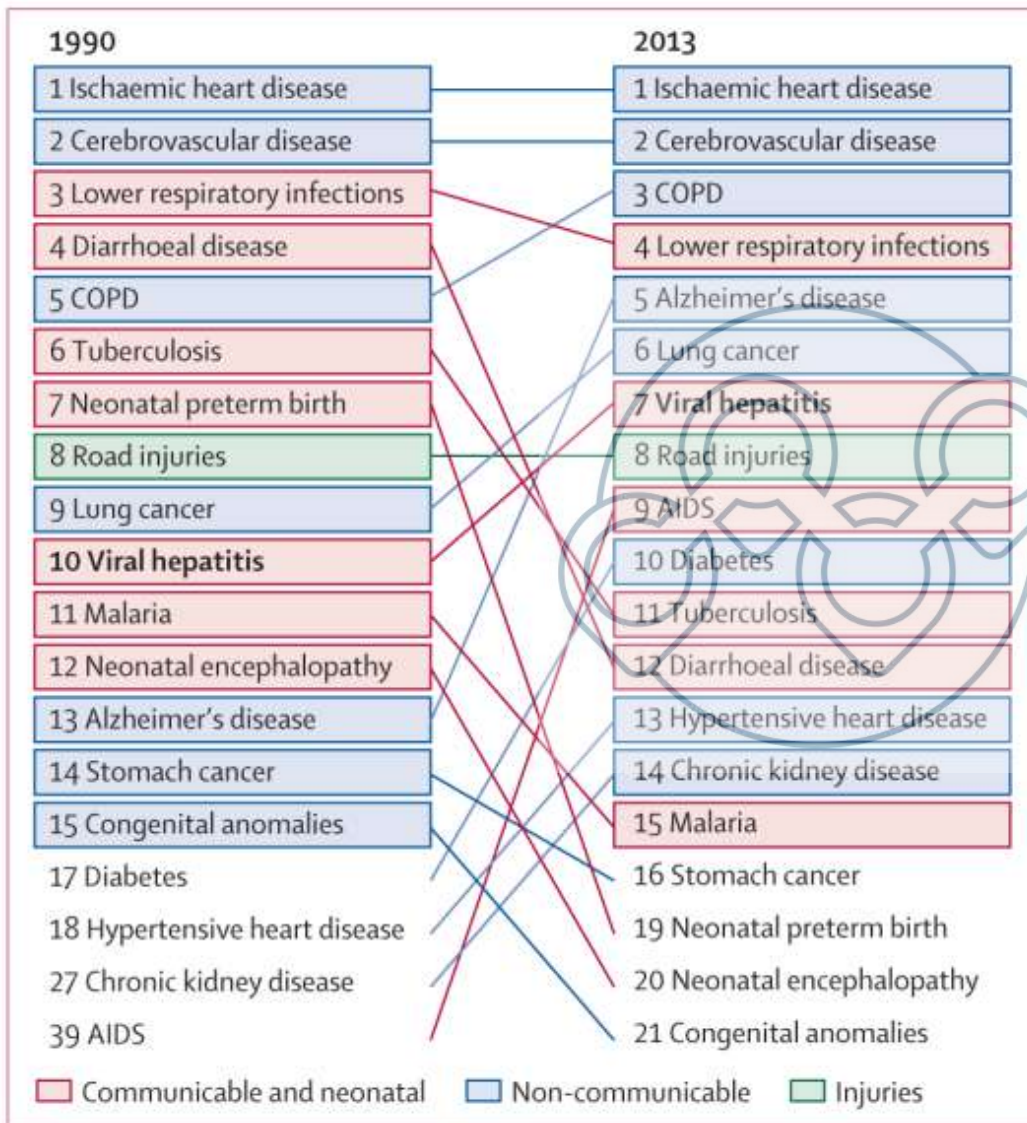
SIMTI
PRO

GLOBAL HEALTH SECTOR STRATEGY ON
VIRAL HEPATITIS
2016-2021

Figure 2. Estimated global number of deaths due to viral hepatitis, HIV, malaria and TB, 2000–2015



Leading causes of mortality and trends, 1990–2013



The global burden of viral hepatitis from 1990 to 2013: findings from the Global Burden of Disease Study 2013

Jeffrey D Stanaway, Abraham D Flaxman, Mohsen Naghavi, Christina Fitzmaurice, Theo Vos, Ibrahim Abubakar, Laith J Abu-Raddad, Reza Assadi, Neeraj Bhal, Benjamin Cowie, Mohammad H Forouzanfour, Justina Groeger, Khayriyyah Mohd Hanafiah, Kathryn H Jacobsen, Spencer L James, Jennifer MacLachlan, Reza Malekzadeh, Natasha K Martin, Ali A Mokdad, Ali H Mokdad, Christopher J L Murray, Dietrich Plass, Saleem Rana, David B Rein, Jan Hendrik Richardus, Juan Sanabria, Mete Saylan, Saeid Shahrz, Samuel So, Vasily V Vlassov, Elisabete Weiderpass, Steven T Wiersma, Mustafa Younis, Chuanhua Yu, Maysaa El Sayed Zaki, Graham S Cooke

- L'epatite virale contribuisce in modo significativo alla mortalità e morbilità a livello globale.
- Il numero di decessi annuali causati dall'epatite virale è pari o superiore a quello della tubercolosi, dell'AIDS o della malaria.
- A differenza di molte altre malattie trasmissibili, l'importanza dell'epatite è aumentata dal primo studio Global Burden of Disease (GBD) del 1990.
- L'Organizzazione Mondiale della Sanità (OMS), nel riconoscere l'importanza critica di ridurre l'impatto delle epatiti virali sulla salute globale, ha deciso di lanciare un piano strategico per i prossimi anni.



WHO Global Health Sector Strategy on Viral Hepatitis 2016–2021



28 May 2016: The first of its kind, WHO publishes a global strategy aiming for elimination of viral hepatitis as a public health threat by 2030

Source: WHO Global Health Sector Strategy on viral hepatitis. Available at: http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_32-en.pdf?ua=1 (Accessed August 2016)

HEPATITIS STRATEGY, 2016: ELIMINATION BY 2030

	Interventions	2030 targets
1. Service coverage	1. Three dose hepatitis B vaccine	90%
	2. HBV prevention of mother to child transmission	90%
	3. Blood and injection safety	100 % screened donations
		90% reuse-prevention devices
	4. Harm reduction	300 injection sets/PWID/yr
	5. Treatment	90% diagnosed
80% eligible treated		
2. Impact	A. Incidence reduction	90%
	B. Mortality reduction	65%

A che punto
siamo?



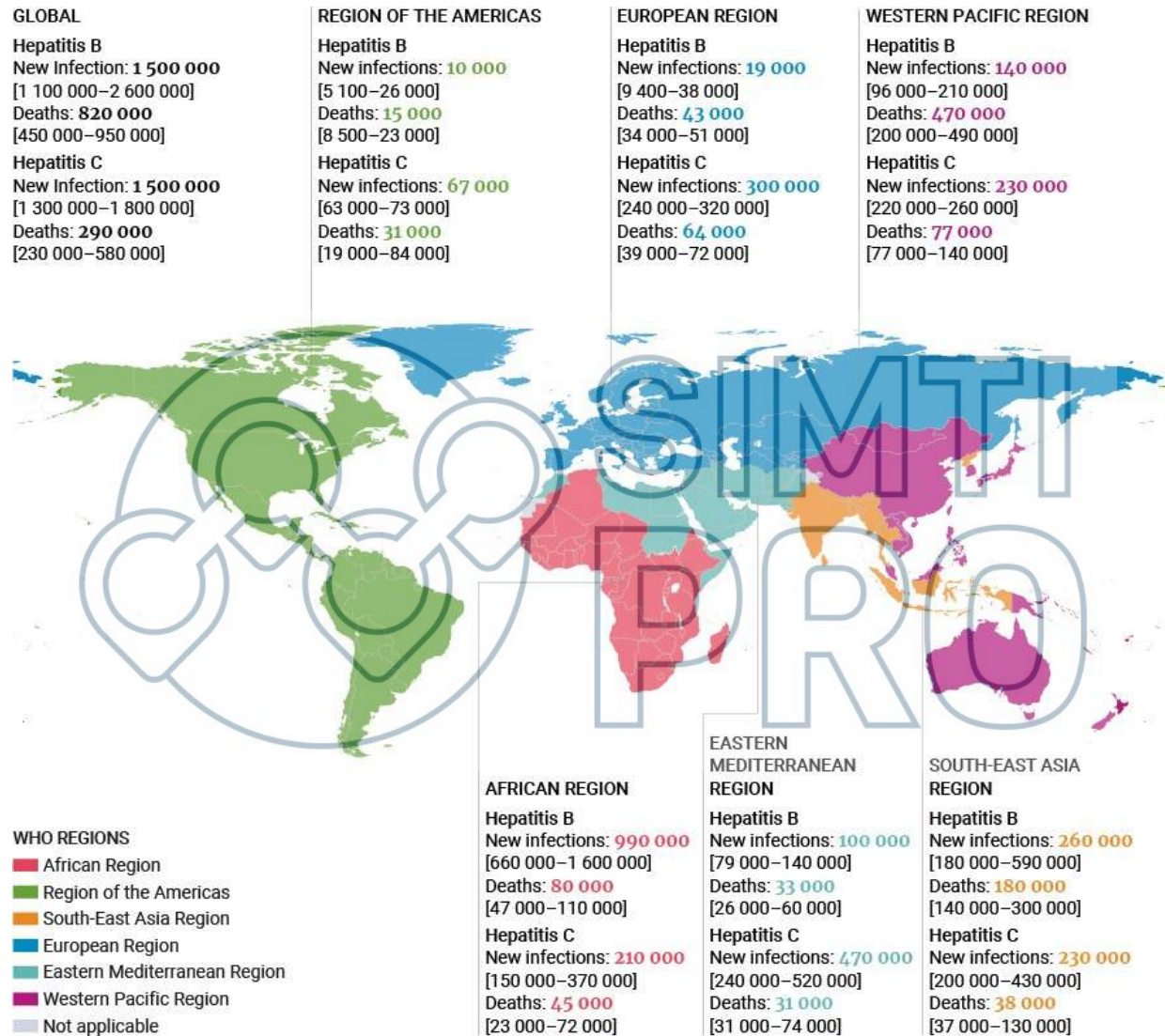
Key Facts on Hepatitis B & C (2022 vs.2019)



09 April 2024

- **Hepatitis B:** 254 million people (previously 296 million);
- **Hepatitis C:** 50 million (previously 58 million).
- **Undiagnosed:** 87% for hepatitis B (previously 90%); 64% for hepatitis C (previously 80%).
- **New infections annually:** 1.2 million for hepatitis B and 1 million for hepatitis C (both down from 1.5 million).
- **Deaths:** 1.3 million (up from 1.1 million), mainly from liver cancer and cirrhosis.
- **Treatment gaps:** Many remain untreated despite advances, especially for hepatitis C.
- **Urgent action:** Necessary to improve diagnosis, prevention, and treatment to meet 2030 goals, particularly in low- and middle-income countries.

Hepatitis B and C new infections and mortality by WHO region, 2019

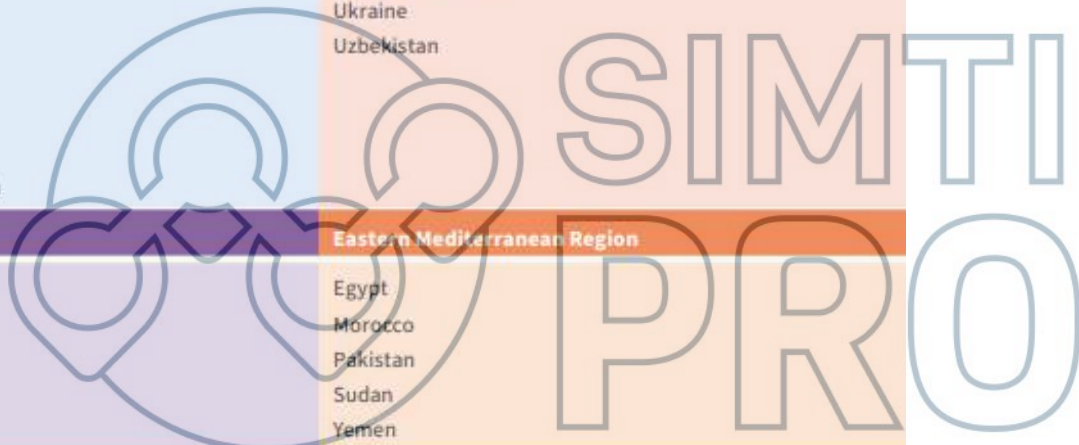


WHO focus countries for the viral hepatitis response, by WHO region



09 April 2024

African Region	European Region
Cameroon	Georgia
Côte d'Ivoire	Kyrgyzstan
Democratic Republic of the Congo	Republic of Moldova
Ethiopia	Russian Federation
Ghana	Ukraine
Nigeria	Uzbekistan
Rwanda	
South Africa	
Uganda	
United Republic of Tanzania	
Region of the Americas	Eastern Mediterranean Region
Brazil	Egypt
Colombia	Morocco
Mexico	Pakistan
Peru	Sudan
	Yemen
South-East Asia Region	Western Pacific Region
Bangladesh	Cambodia
India	China
Indonesia	Lao People's Democratic Republic
Myanmar	Mongolia
Thailand	Niue
	Philippines
	Vanuatu
	Viet Nam



Coinfections and comorbidities related to HIV and viral hepatitis

Diseases	Summary of the evidence
HIV and viral hepatitis	<p>2.7 million people are coinfecting with HIV and hepatitis B virus (2015) (5).</p> <p>2.3 million people are coinfecting with HIV and hepatitis C virus (2015) (5).</p>
HIV and viral hepatitis	<p>Among people living with HIV, untreated hepatitis coinfection promotes more rapid progression of hepatitis B- and/or C-related liver disease, hepatocellular cancer and untimely death, undermining the gains of effective HIV treatment.</p> <p>HIV coinfection doubles the risk of mother-to-child transmission of viral hepatitis (5).</p> <p>More than half of all people coinfecting with HIV and hepatitis C are people who inject drugs.</p> <p>Men living with HIV who have sex with men are at substantially higher risk of hepatitis C infection (17).</p>

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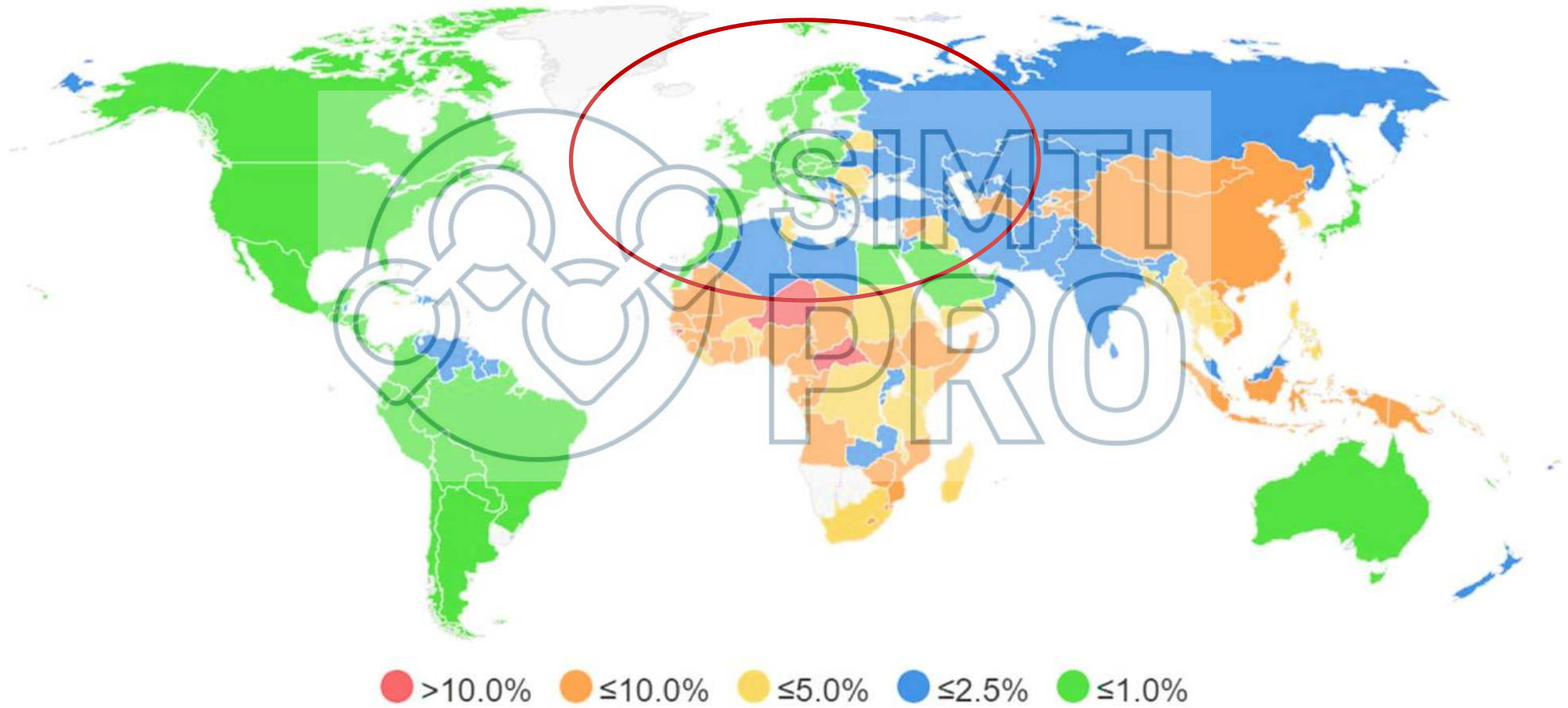
The burden of viral hepatitis B and C in the EU/EEA

Estimated numbers with chronic infection



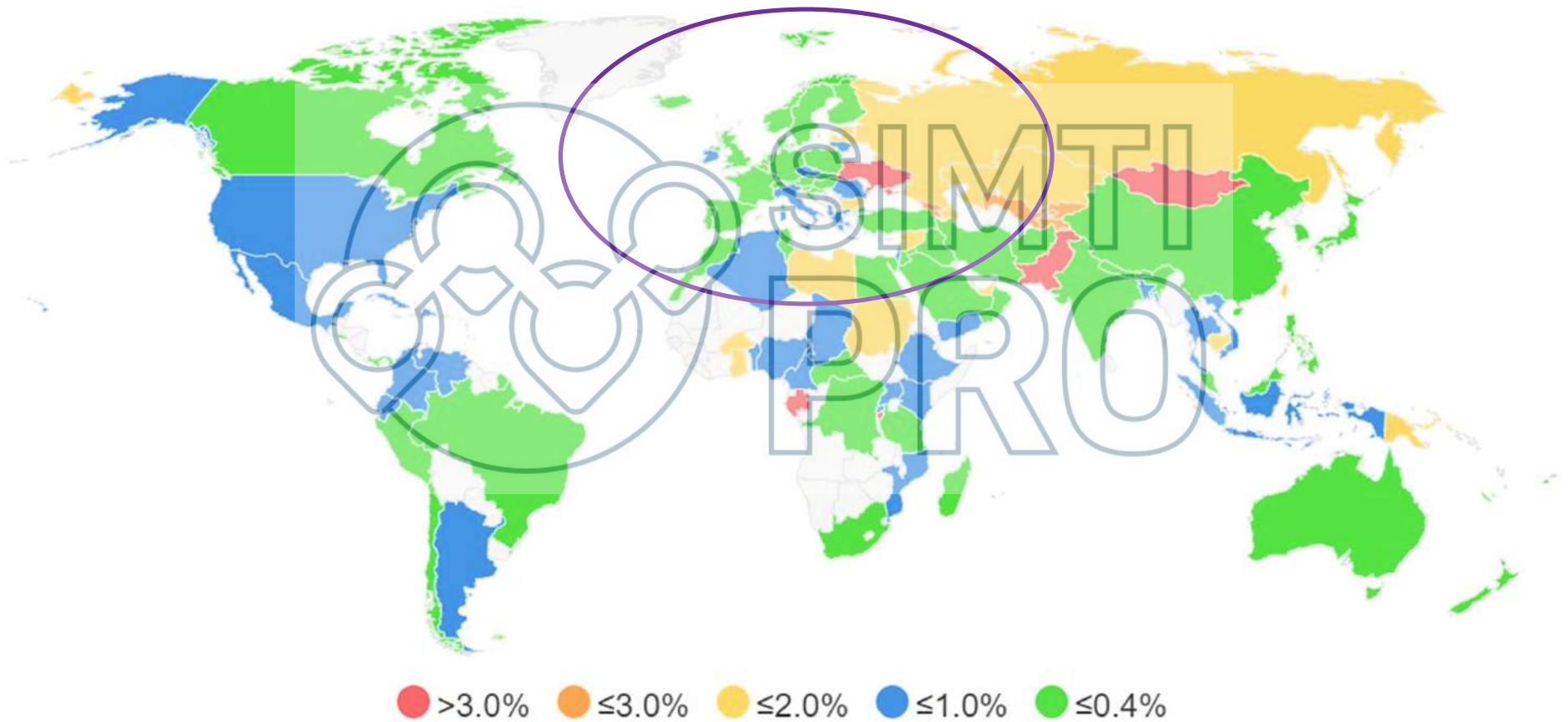
Variation in disease burden across countries and between different population groups

HBsAg Prevalence — 2022



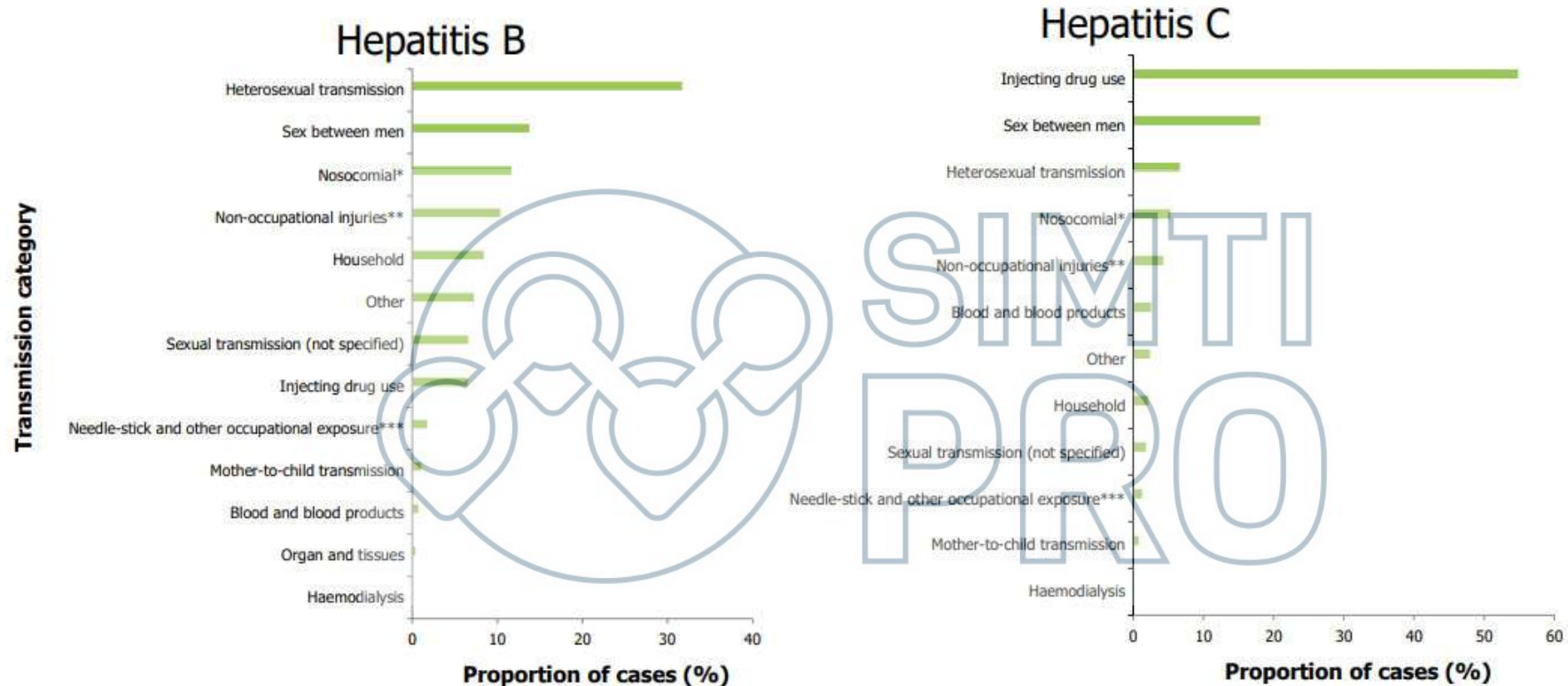
From the Polaris Observatory (<https://cdfound.org/polaris/>)

Hepatitis C Viremic Prevalence — 2022



From the Polaris Observatory (<https://cdafound.org/polaris/>)

Transmission category of acute hepatitis B and C cases, EU/EEA, 2020



Source: European Centre for Disease Prevention and Control (ECDC). Hepatitis B: Annual Epidemiological Report for 2020; European Centre for Disease Prevention and Control (ECDC). Hepatitis C: Annual Epidemiological Report for 2020.

* Nosocomial refers here to patient infections in healthcare settings

** 'Non-occupational injuries' include needle sticks that occur outside a health care setting, bites, tattoos, piercings

*** Occupational exposure includes needle-stick and other occupational injuries

Prevalence of hepatitis B and C in different population groups



Hepatitis B (HBsAg prevalence)	Hepatitis C (anti-HCV)
Migrant populations 0.9 - 31.7%	People who inject drugs 15.4 – 96.8% (RNA prevalence 15.0 – 64.2%)
People who inject drugs 0 - 16.9%	People in prison 2.3 – 82.6%
People in prison 0.3 - 8.3%	Migrant populations 0 – 16.8%
Men who have sex with men 2.3 - 4.3%	Men who have sex with men 0.6 – 4.8%

Source: Bivegete S TA, et al. Estimates of hepatitis B virus prevalence among general population and key risk groups in EU/EEA/UK countries: a systematic review. Submitted for peer review publication 2022; ECDC HCV MPES modelling work – publication pending; EMCDDA Viral Hepatitis Elimination Barometer https://www.emcdda.europa.eu/publications/html/viral-hepatitis-elimination-barometer_en; ECDC hepatitis C prevalence data base <https://www.ecdc.europa.eu/en/infectious-disease-topics/z-disease-list/hepatitis-c/tools/hepatitis-c-prevalence-database>; Nakitanda et al. Hepatitis C virus infection in EU/EEA and United Kingdom prison: opportunities and challenges for action https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7650151/pdf/12889_2020_Article_9515.pdf.

Hepatitis B and C in Europe: an update from the Global Burden of Disease Study 2019

*GBD 2019 Europe Hepatitis B & C Collaborators**

- **Cirrosi e cancro al fegato legati all'HBV:** I tassi di cirrosi sono diminuiti (2010-2019), ma il cancro al fegato HBV-correlato è rimasto costante nel tempo, indicando difficoltà nel controllo della malattia.
- **Dinamiche dell'HCV:** Leggera riduzione dei casi acuti di HCV (-3,24%) e significativa riduzione della mortalità (-35,73%); tuttavia i casi di cirrosi sono solo in lieve decremento (-6,37%) e si osserva aumento dei casi di cancro al fegato (+16,41%), evidenziando la necessità di intensificare gli sforzi verso HCV.
- **DALY (Anni di vita persi, aggiustati per la disabilità):** Diminuzione sia per HBV che per HCV, con progressi migliori per l'HBV, dimostrando l'efficacia delle misure di controllo e gli effetti a lungo termine della vaccinazione .
- **Implicazioni per la salute pubblica:** I dati suggeriscono la necessità di migliorare la sorveglianza, la vaccinazione, l'accesso alle cure e di adattare le politiche sanitarie per affrontare in modo adeguato l'aumento dei casi di cancro al fegato

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Epidemiological and clinical aspects of hepatitis B virus infection in Italy over the last 50 years

World J Gastroenterol 2022 July 14; 28(26): 3081-3091

Caterina Sagnelli, Antonello Sica, Massimiliano Creta, Armando Calogero, Massimo Ciccozzi, Evangelista Sagnelli

1. Current Statistics

- HBV chronic carrier prevalence: 0.8%.
- Acute HBV incidence: 0.21 per 100,000 (higher among males, age 41+).

2. Major Factors for Decline of HBV Infection (Last 50 Years)

- Improved socio-economic and hygiene conditions.
- Educational campaigns and HBV vaccination since 1991.
- Reduction in HBV risk factors (vertical transmission, household contacts).
- Mandatory blood screening and better sterilization practices.

3. Transmission Trends

- Sexual transmission is now the main mode of HBV spread due to low condom use.

4. Migrant Population

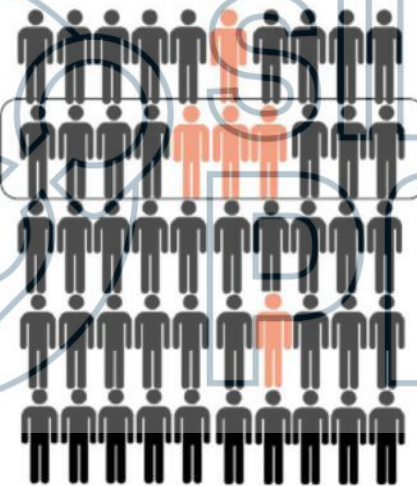
- Higher HBV risk in migrants; WHO recommends vaccination for unvaccinated individuals.

HCV Screening: Different Approaches Lead to Different Results

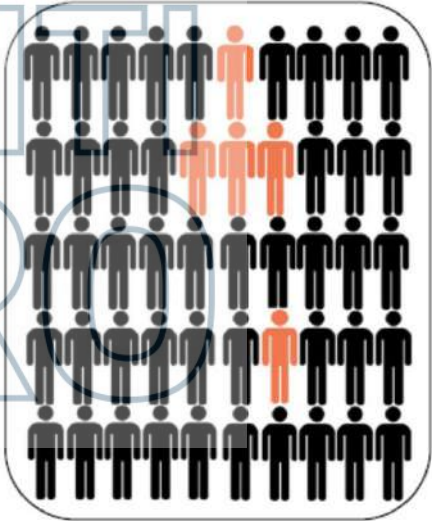
Risk factors-based screening



Age cohort-based screening



Universal screening



 HCV+



Ministero della Salute

Lo screening nazionale gratuito per l'HCV Risultati preliminari – Rendicontazione al 31/12/2022

Popolazione generale '69-89

ESTENSIONE = INVITATI/ TARGET	COPERTURA = TESTATI/ TARGET	ADESIONE = TESTATI/ INVITATI	POSITIVI test ricerca Ab (%)	ADESIONE AL TEST DI CONFERMA (%)	POSITIVI test di conferma (%)	DETECTION RATE (%) = INE. ATTIVA/ TESTATI*1000	SOGG. CON INF. ATTIVA AVVIATI AL TRATTAMENTO (%)
18,0	4,1	22,9	0,7	86,2	29,1	1,8	32,7

Identificati n. 892 soggetti con infezione attiva da HCV

Totale soggetti screenati: 488.571

~0.18%



Ministero della Salute

Lo screening nazionale gratuito per l'HCV Risultati preliminari – Rendicontazione al 31/12/2022

Utenti SerD

ESTENSIONE = INVITATI/ TARGET	COPERTURA = TESTATI/ TARGET	ADESIONE = TESTATI/ INVITATI	POSITIVI test ricerca Ab (%)	ADESIONE AL TEST DI CONFERMA (%)	POSITIVI test di conferma (%)	DETECTION RATE (%) = INF. ATTIVA/ TESTATI*1000	SOGG. CON INF. ATTIVA AVVIATI AL TRATTAMENTO (%)
57,4	34,0	59,3	25,4	95,2	44,8	108,3	54,1

Identificati n. 5.439 soggetti con infezione attiva da HCV

Totale soggetti screenati: 50.205

~ 11%



Ministero della Salute

Lo screening nazionale gratuito per l'HCV Risultati preliminari – Rendicontazione al 31/12/2022

Detenuti in carcere

ESTENSIONE = INVITATI/ TARGET	COPERTURA = TESTATI/ TARGET	ADESIONE = TESTATI/ INVITATI	POSITIVI test ricerca Ab (%)	ADESIONE AL TEST DI CONFERMA (%)	POSITIVI test di conferma (%)	DETECTION RATE (%) = INF. ATTIVA/ TESTATI*1000	SOGG. CON INF. ATTIVA AVVIATI AL TRATTAMENTO (%)
72,2	55,6	77,0	9,6	92,6	61,5	53,9	52,6

Identificati n. 1.324 soggetti con infezione attiva da HCV

Totale soggetti screenati: 24.571

~ 5.4%

HCV Screening in Italy: Updated Figures

"Nel complesso lo **#screening** nazionale gratuito per l'infezione da **#HCV** ha finora permesso di testare quasi **#1milione** di persone e di identificare quasi **#10000** casi di **#infezione** attiva, permettendo l'avvio alla cura dei **#pazienti**", questi i dati presentati dalla drssa Valle, **#Ministerodellasalute**

Il prof. **Francesco Saverio Mennini, PhD** ha ribadito quanto lo **#screening** sia **#costsaving** per il **#ssn**

ACE - Alleanza contro le Epatiti e le **#Regioni** **#Toscana** **#Lombardia** **#Puglia** **#Piemonte** intervenute in tavola rotonda hanno sottolineato l'importanza della **#proroga** e dell' **#ampliamento** dello **#screening**



HCV, scoperte oltre 10.000 infezioni attive. ACE prorogare e allargare fascia screening

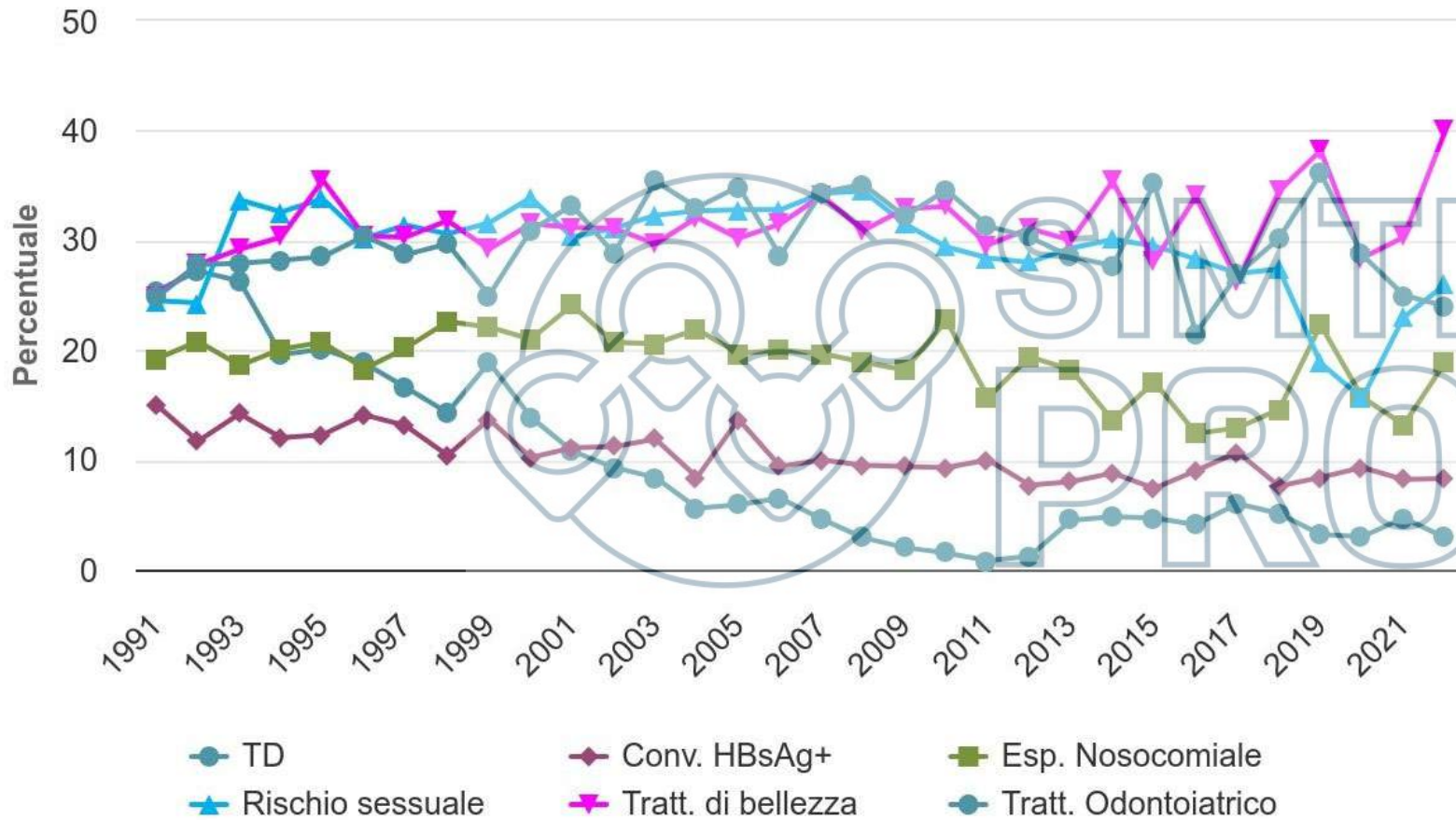
SANITA

22 Novembre 2023

AP Da redazione

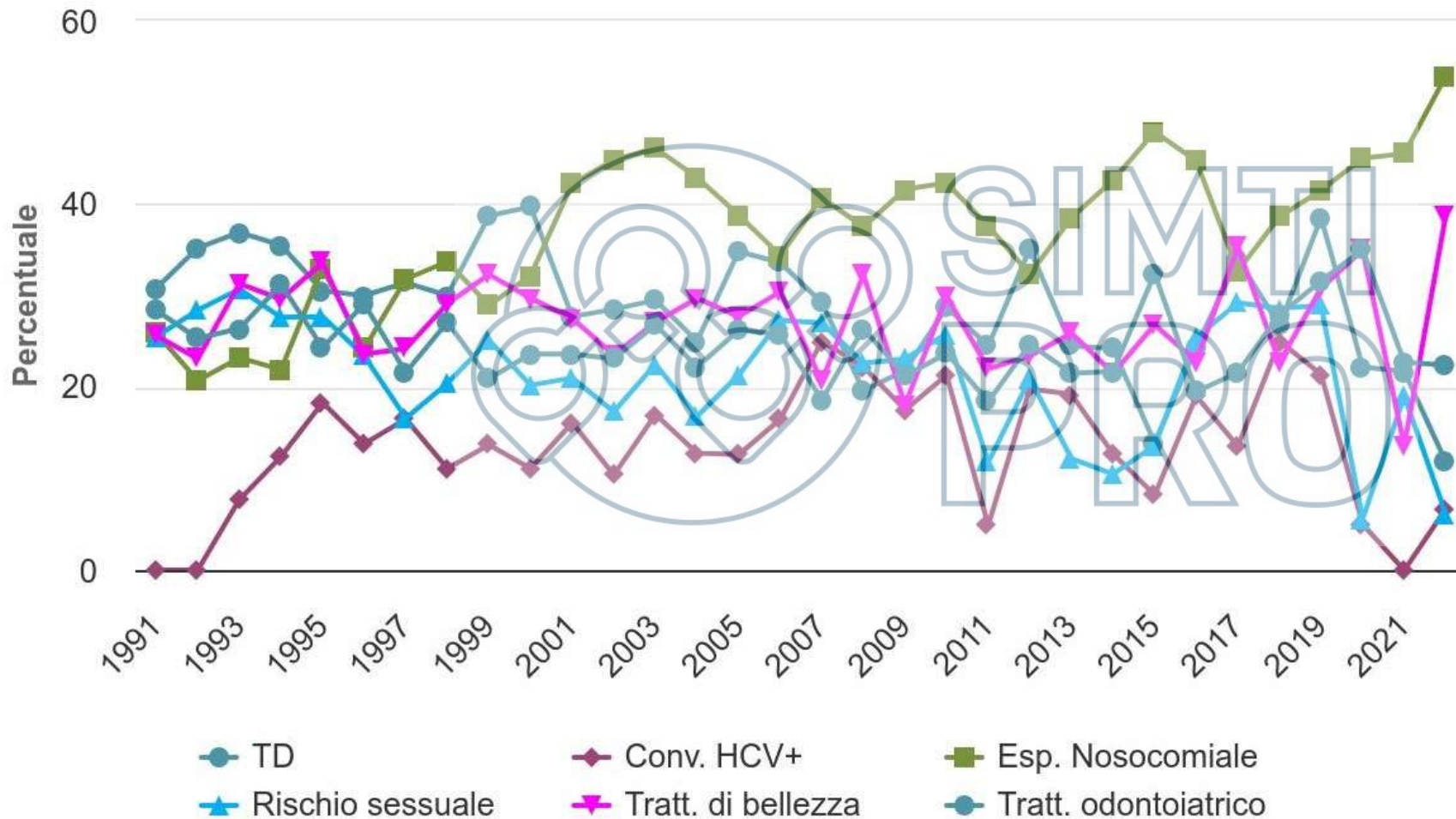


Casi di epatite B acuta per fattore di rischio (2022)



- Manicure, pedicure, piercing e tatuaggi: 40%↑
- Comportamenti sessuali promiscui: 26,0%↑
- Rischio di trasmissione nosocomiale: 18,9%↑

Casi di epatite C acuta per fattore di rischio (2022)



- Esposizione nosocomiale: 54,0%↑
- Trattamenti estetici (manicure, piercing, tatuaggi): 38,8% dei casi
- Esposizione sessuale andamento altalenante, con un calo nel periodo pandemico.

The Incidence and Risk Factors of Community-Acquired Hepatitis C in a Cohort of Italian Blood Donors

DANIELE PRATI,¹ CARMEN CAPELLI,¹ CARLA SILVANI,¹ CLAUDIA DE MATTEI,¹ PATRIZIA BOSONI,¹ MARCO PAPPALLETTERA,¹ FULVIO MOZZI,¹ MASSIMO COLOMBO,² ALBERTO ZANELLA,³ AND GIROLAMO SIRCHIA¹

The incidence of hepatitis C virus (HCV) infection in a cohort of Italian blood donors at low risk for blood-borne diseases was 1 per 10,000 person-years, with nosocomial exposure being a significant risk factor.

TABLE I. Biochemical, Virological, and Clinical Data of the Subjects Showing Anti-HCV Seroconversion During the Study Period

Case	Sex	Age (yr)	No. of Donations*	ALT (U/L)			HCV RNA			HCV Type	Liver Histology	Risk Factors
				Presero-conversion	At Onset	During Follow-up†	Presero-conversion	At Onset	During Follow-up			
1	M	24	7	9	15	64 (20-118)	pos	pos	pos	1b	Chronic persistent hepatitis	Minor surgery
2	M	59	26	13	23	22 (15-44)	neg	pos	neg‡	2a	Not done	Frequent venipuncture
3	M	32	8	10	1,246	273 (38-1,430)	neg	pos	pos	2a	Mild chronic active hepatitis	Major surgery
4	M	55	20	11	71	59 (28-122)	neg	pos	pos	2a	Chronic persistent hepatitis	Minor surgery
5	F	27	9	19	44	47 (32-73)	neg	pos	pos	3a	Chronic persistent hepatitis	HCV-infected partner

Digestive Endoscopy Is Not a Major Risk Factor for Transmitting Hepatitis C Virus

Alessia Ciancio, MD, PhD; Paola Manzini, MD; Franco Castagno, MD; Sergio D'Antico, MD; Paolo Reynaudo, MD; Laura Coucourde, MD; Giovannino Ciccone, MD; Mario Del Piano, MD; Marco Ballarè, MD; Sergio Peyre, MD; Roberto Rizzi, MD; Claudio Barletti, MD; Mauro Bruno, MD; Stefania Caronna, MD; Patrizia Carucci, MD; Wilma De Bernardi Venon, MD; Claudio De Angelis, MD; Anna Morgando, MD; Alessandro Musso, MD; Alessandro Repici, MD; Mario Rizzetto, MD; and Giorgio Saracco, MD

- Studio prospettico condotto su 9.188 pazienti sottoposti a endoscopia digestiva in tre unità endoscopiche e 51.230 donatori di sangue nel Nord Italia, con un follow-up di 6 mesi per i pazienti sottoposti a endoscopia e di 2,49 anni in media per i donatori di sangue.
- I risultati indicano che l'endoscopia digestiva, se eseguita seguendo le corrette procedure di disinfezione e sterilizzazione, non rappresenta un rischio significativo per la trasmissione del virus dell'epatite C.

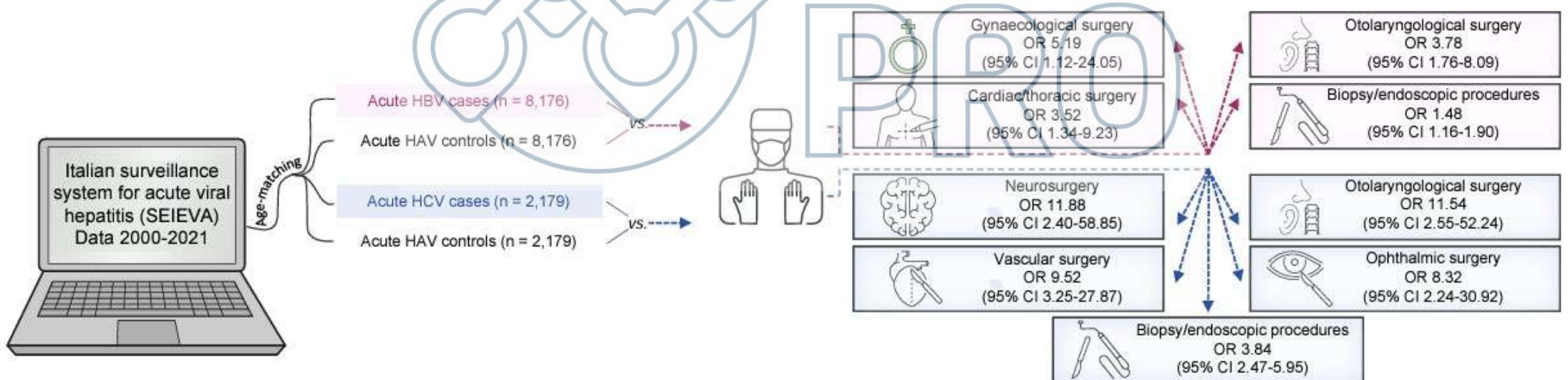
Risk of parenterally transmitted hepatitis following exposure to invasive procedures in Italy: SEIEVA surveillance 2000-2021

Susanna Caminada¹, Annamaria Mele^{1,2}, Luigina Ferrigno³, Valeria Alfonsi⁴, Simonetta Crateri³, Giuseppina Iantosca³, Marise Sabato¹, Maria Elena Tosti^{3,*}, the SEIEVA Collaborating Group[†]

Journal of Hepatology 2023. vol. 79 | 61–68

Overview:

Utilizing data from SEIEVA surveillance, this study investigates the association between specific types of invasive procedures and the risk of acute HBV and HCV infections in Italy.



Risk of parenterally transmitted hepatitis following exposure to invasive procedures in Italy: SEIEVA surveillance 2000-2021

Susanna Caminada¹, Annamaria Mele^{1,2}, Luigina Ferrigno³, Valeria Alfonsi⁴, Simonetta Crateri³, Giuseppina Iantosca³, Marise Sabato¹, Maria Elena Tosti^{3*}, the SEIEVA Collaborating Group[†]

Journal of Hepatology 2023. vol. 79 | 61–68

Key Findings

- Significant risk of acquiring hepatitis B and C following exposure to invasive procedures.
- Strongest associations for HBV linked to gynecological, otolaryngological, and cardiac/thoracic surgeries.
- Highest risks for HCV found in neurosurgery, otolaryngological surgery, and vascular surgery.
- Minor surgeries, biopsy, and endoscopy also showed a significant association with both HBV and HCV infections.

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Conclusioni

- HBV e HCV continuano a costituire una minaccia per la salute pubblica globale, con milioni di persone infette e un elevato numero di decessi ogni anno.
- Nonostante i progressi terapeutici, soprattutto per l'HCV, la persistenza di nuove infezioni evidenzia la necessità di migliorare le strategie di vaccinazione (per l'HBV), prevenzione, diagnosi e cura (per entrambi i virus).
- Raggiungere l'obiettivo dell'OMS di eliminare l'epatite virale richiede una risposta globale più rapida e coordinata, con politiche sanitarie adattate ai contesti locali, una migliore sorveglianza e un maggiore accesso a servizi di prevenzione e trattamento.
- I dati provenienti dall'Italia sottolineano l'importanza di strategie specifiche, poiché la diffusione continua a causa di fattori prevenibili, come le infezioni nosocomiali e i rapporti sessuali non protetti.

Credits

- WHO (https://www.who.int/health-topics/hepatitis#tab=tab_1)
- ECDC (<https://www.ecdc.europa.eu/en/viral-hepatitis>)
- Polaris Observatory (<https://cdafound.org/polaris/>)
- SEIEVA (<https://www.epicentro.iss.it/epatite/seieva>)
- **Prof. Alessio Aghemo, Humanitas University, Milan**