XXII JORNADAS DE AVANCES EN HEPATOLOGIA

Málaga, 18-19 de Mayo de 2023

“DETECCIÓN DE FIBROSIS HEPÁTICA EN LA POBLACIÓN GENERAL: HA LLEGADO EL MOMENTO?”

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Barcelona

No conflictos de interés

AGENDA

What is screening. General concepts

Screening for liver diseases. Rationale and tools

Where are we now?

Are we ready for screening?

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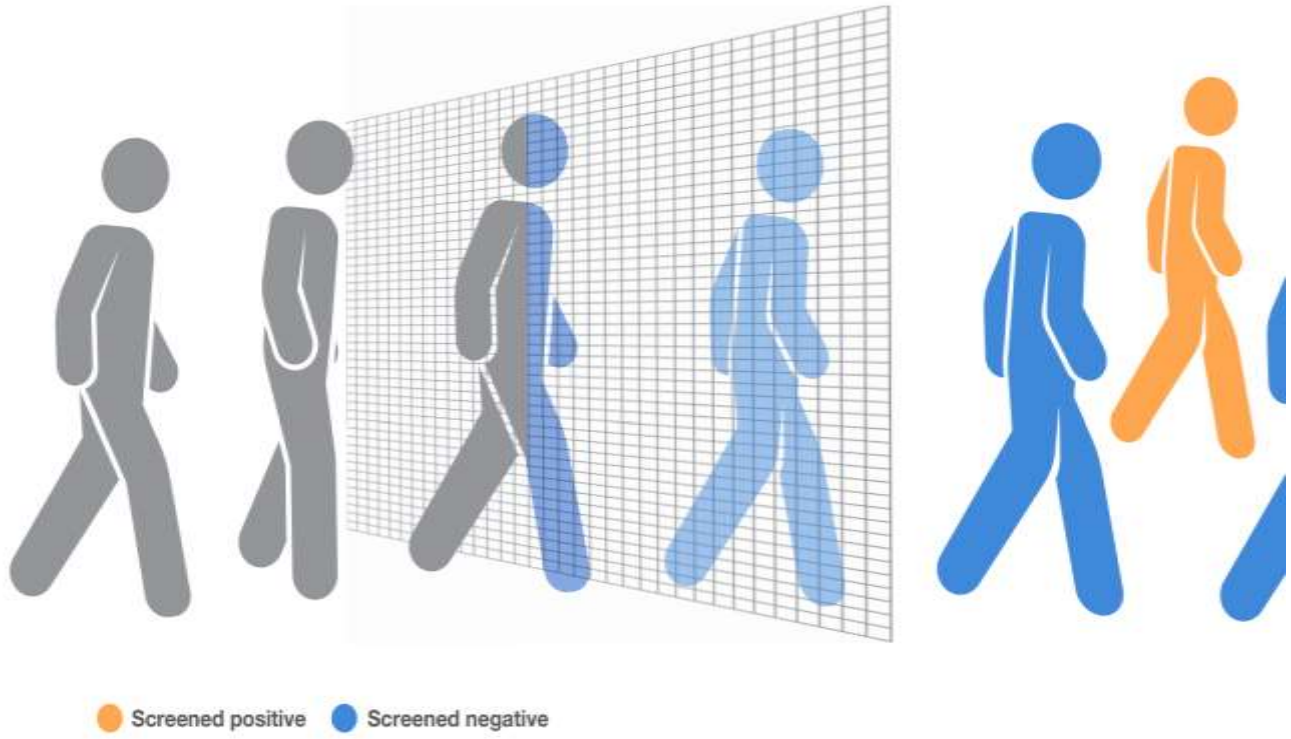
WHAT IS SCREENING?



The purpose of screening is to identify people in an apparently healthy population who are at higher risk of a health problem, so that an early intervention or treatment can be offered. This may lead to better health outcomes for some of the screened individuals

WHO Regional Office for Europe

TYPES OF SCREENING

Organized Screening

Specified age categories, method and interval for screening

Defined target population

Specific teams for implementation, decisions and care

Quality assurance structure

Opportunistic screening / Case finding

Outside of an organized programme

During episodes of care for unrelated problems. Low efficiency!

EXAMPLES OF ORGANIZED SCREENING

Colorectal cancer screening

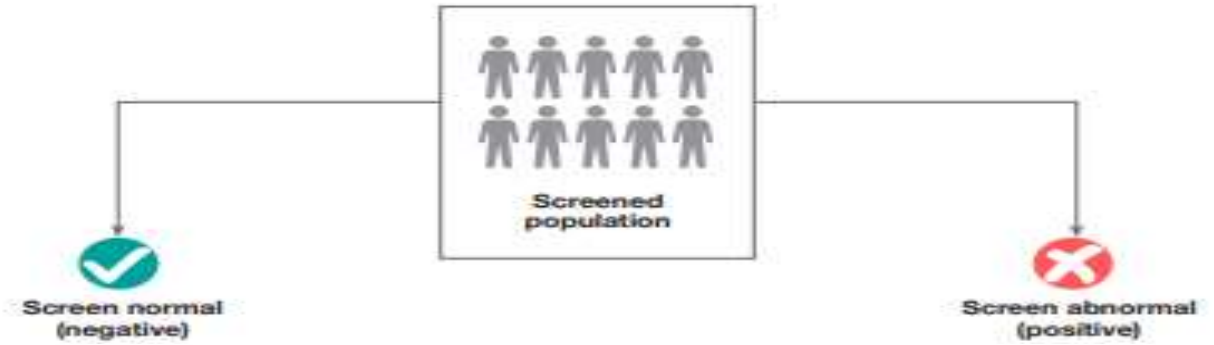
Lung cancer screening

Cervical cancer screening

Newborn screening

Source, Johns Hopkins Medicine

POSSIBLE OUTCOMES OF A SCREENING PROGRAMME



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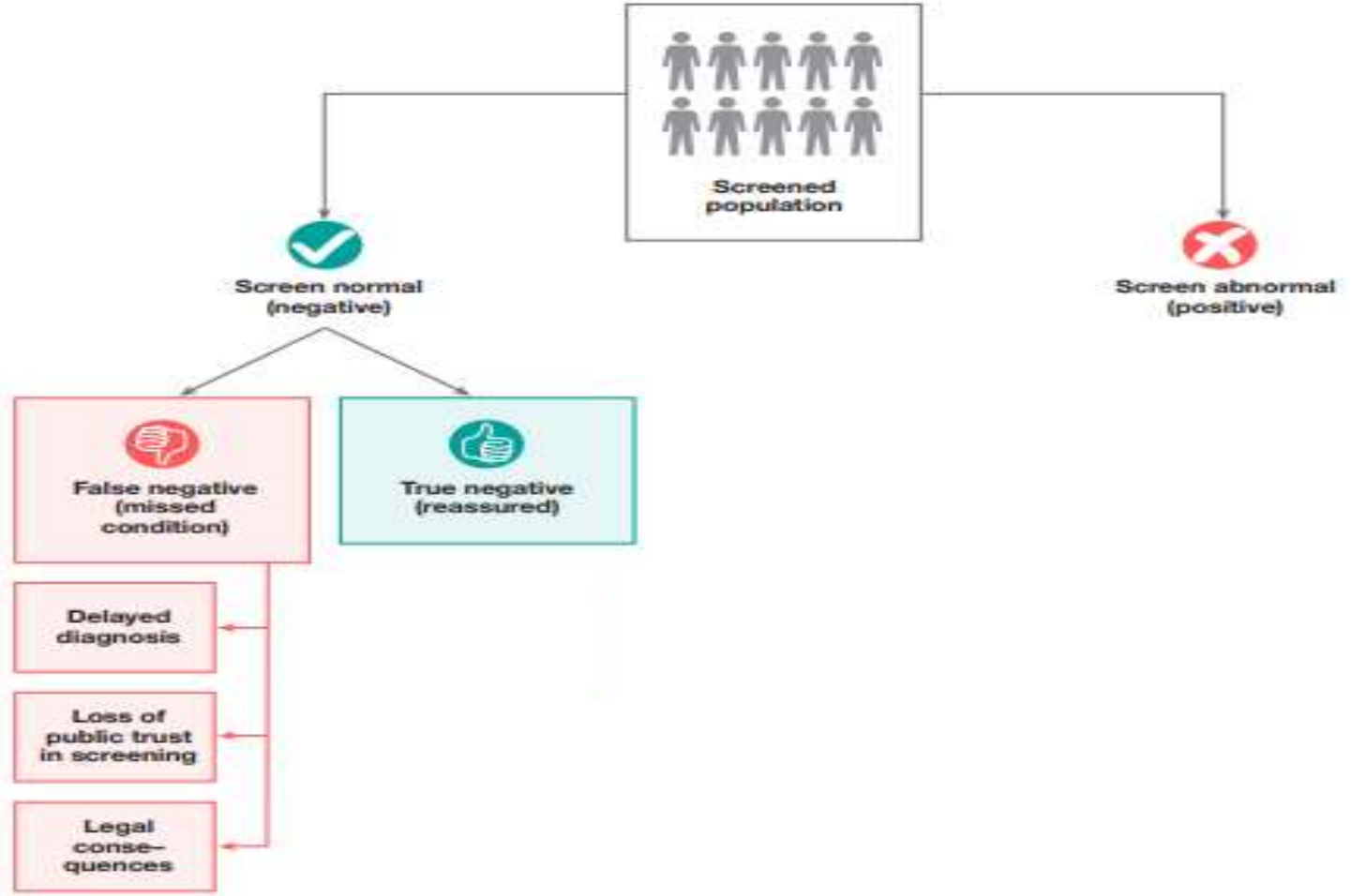
POSSIBLE OUTCOMES OF A SCREENING PROGRAMME



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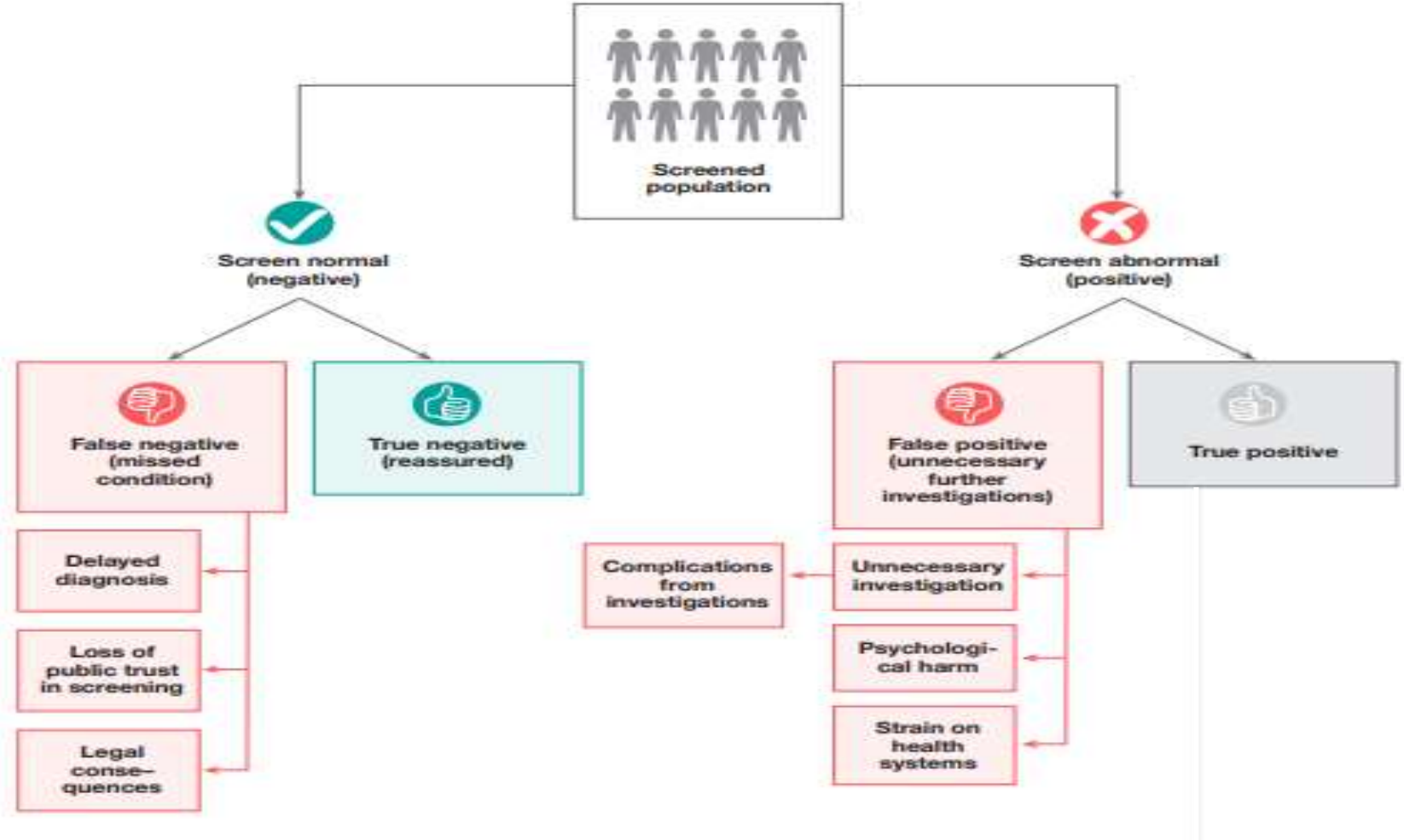
POSSIBLE OUTCOMES OF A SCREENING PROGRAMME



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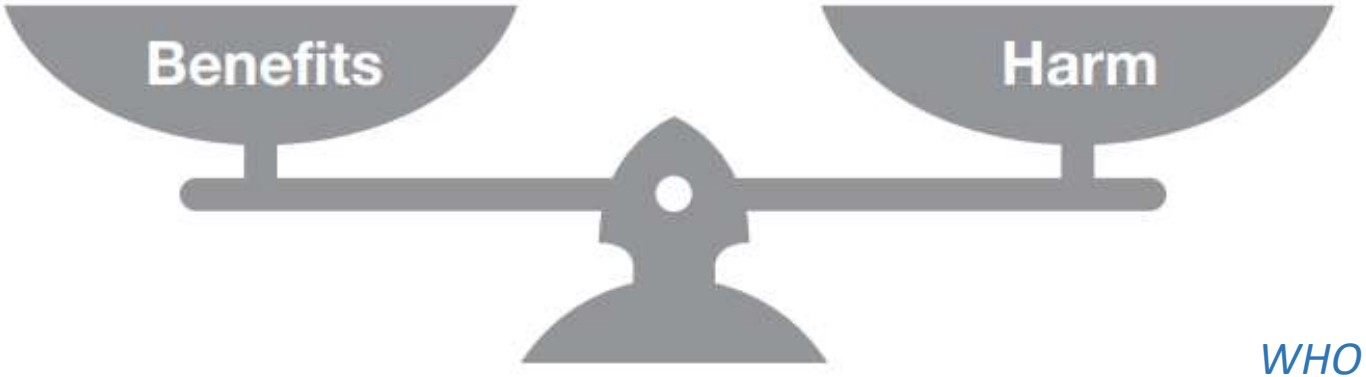
SCREENING: BALANCING BENEFITS AND HARM



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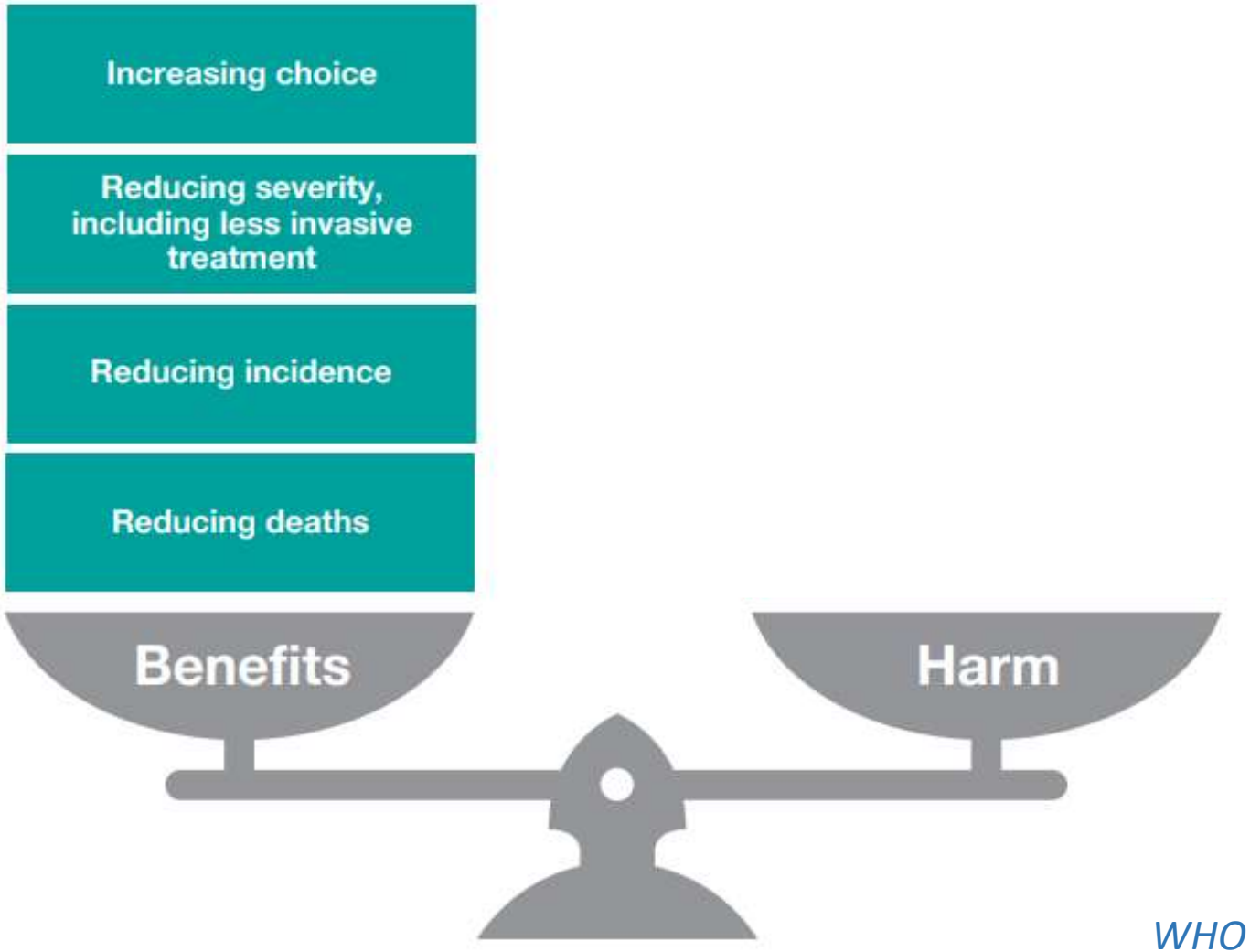
SCREENING: BALANCING BENEFITS AND HARM



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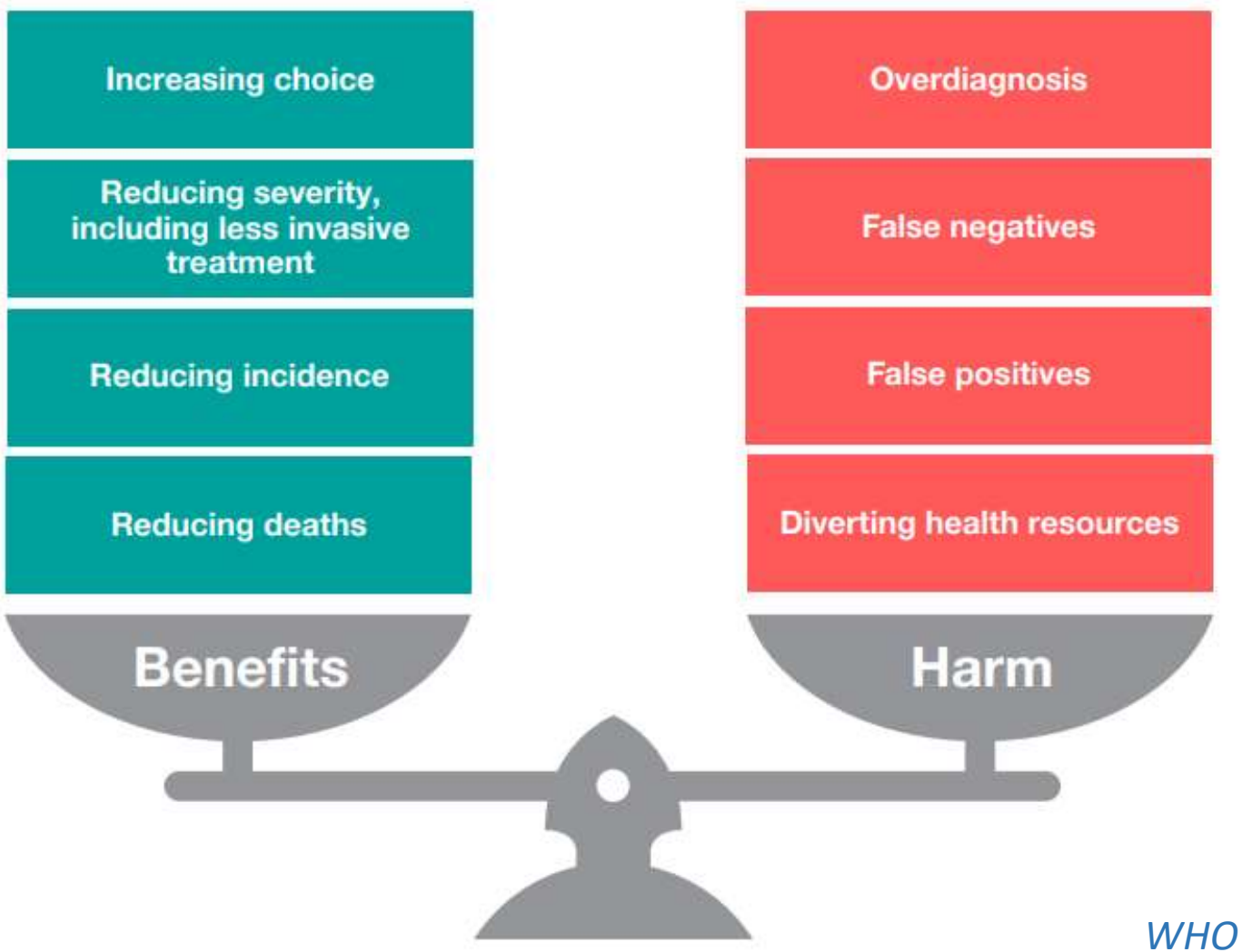
SCREENING: BALANCING BENEFITS AND HARM



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STEPS IN A SIMPLIFIED SCREENING PATHWAY

Identify the population eligible for screening

Invitation and Information

Testing

Referral of screen positives and reporting of screen negatives results

Diagnosis

Intervention, treatment and follow-up

Reporting of outcomes

Source, Johns Hopkins Medicine

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RATIONALE FOR SCREENING OF LIVER FIBROSIS

High prevalence of chronic liver diseases

High mortality from liver cirrhosis and liver cancer worldwide

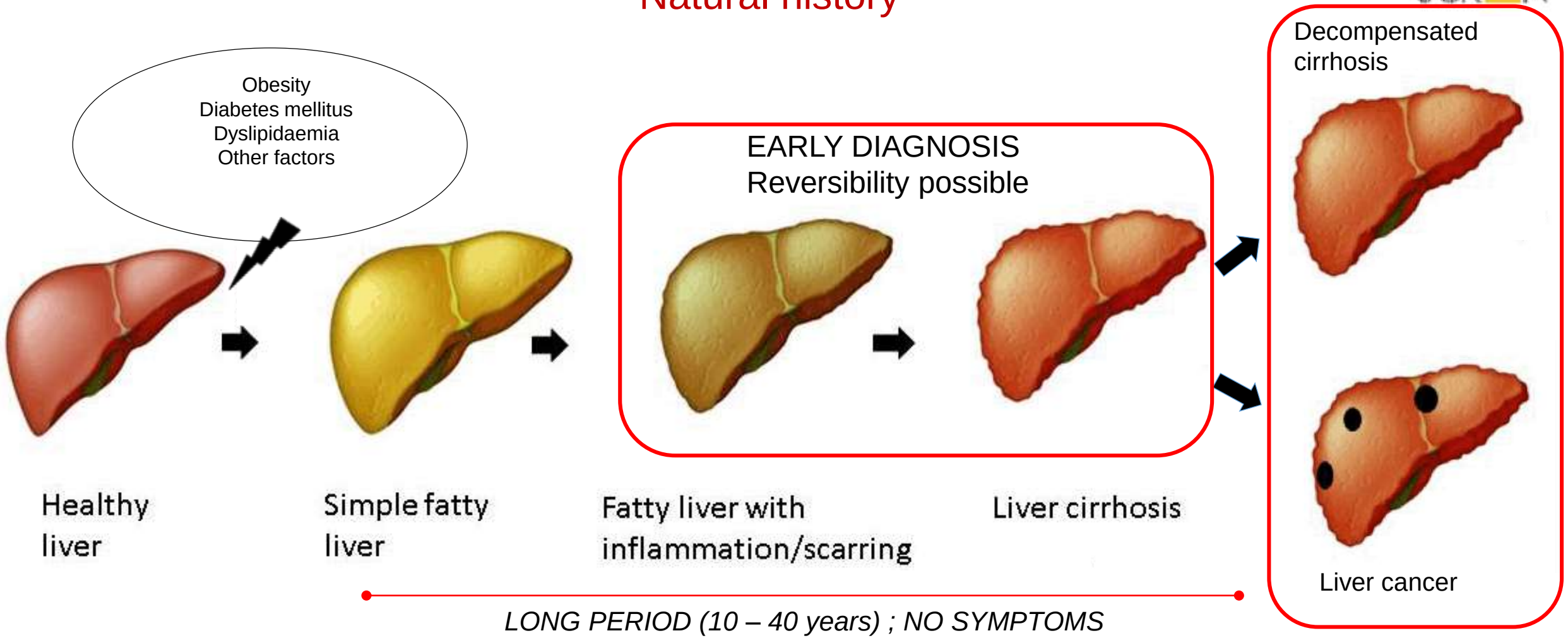
Mortality predicted to increase due to increased prevalence of obesity and alcohol consumption

Cirrhosis is one of the main causes of years of life lost

Current diagnosis frequently made at late stages with advanced cirrhosis or cancer

NON-ALCOHOLIC FATTY LIVER DISEASE

Natural history

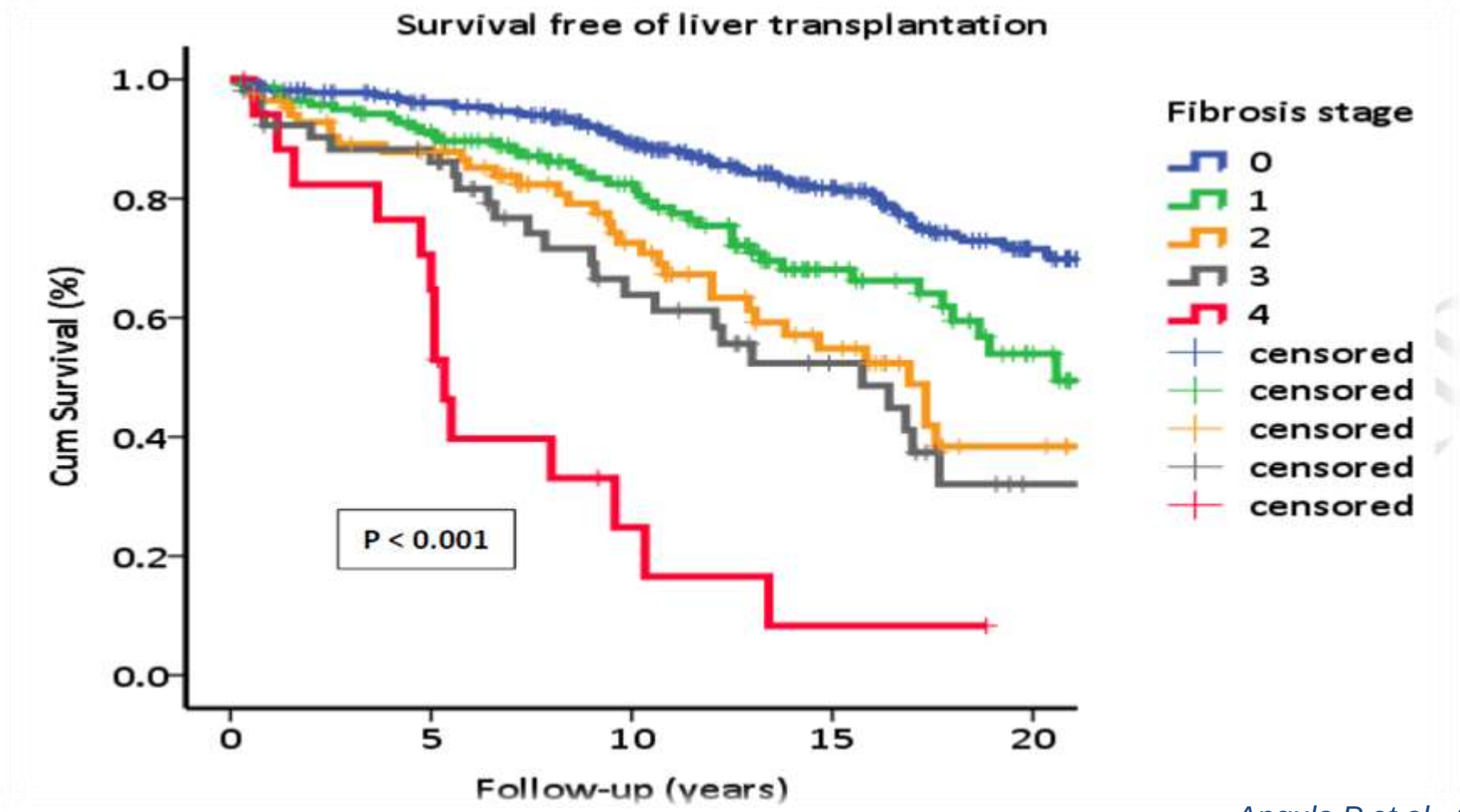


LONG PERIOD (10 – 40 years) ; NO SYMPTOMS
Liver biopsy or non-invasive tests of fibrosis for early diagnosis

Ginès P. unpublised

NON-ALCOHOLIC FATTY LIVER DISEASE

Relevance of liver fibrosis severity in long-term survival



Angulo P et al., Gastroenterology 2015

NON-INVASIVE FIBROSIS TESTS

	Components	Cutoff	Sensitivity	Specificity	NPV
NFS	Age, BMI, type 2 diabetes, AST, ALT, PLT, albumin	−1·455, 0·676	0·80	0·66	0·98
Fibrosis-4	AST, ALT, age, PLT	1·30, 2·67	0·84	0·74	0·98
ELF	Hyaluronic acid, PIIINP, TIMP-1	10·3	0·80	0·90	0·99
FibroTest	α-2-macroglobulin, haptoglobin, apo-A1, bilirubin, GGT, γ-globulin	0·3, 0·7	0·88	0·73	0·99
FibroScan	Imaging modality	8·1–9·8 KPa	0·82	0·82	0·99
ARFI	Imaging modality	1·2–1·3 m/s	0·81	0·78	0·99

Advanced fibrosis categorised as stage 3 in the non-alcoholic steatohepatitis Clinical Research Network classification. The negative predictive value (NPV) is based on a prevalence of advanced fibrosis of 5%. The diagnostic accuracy data are derived from Crossan and colleagues.[37] NFS=NAFLD Fibrosis Score. BMI=body-mass index. AST=aspartate aminotransferase. ALT=alanine aminotransferase. PLT=platelet count. ELF=Enhanced Liver Fibrosis test. PIIINP=amino-terminal propeptide of type III collagen. TIMP-1=metalloproteinase inhibitor 1. apo-A1=apolipoprotein A1. GGT=glutathione hydrolase 5 proenzyme. ARFI=acoustic radiation force impulse.

Table 1: Most widely available non-invasive fibrosis tests for advanced fibrosis in patients with non-alcoholic fatty liver disease (NAFLD)

Tsochatzis E. Lancet Gastroenterol Hepatol.2018

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SOME SCREENING STRATEGIES IN THE WORLD

The CIRRUS project in the UK

BMJ Open 2021

The SEAL project in Germany

J Hepatol 2022

The LIVERSCREEN project in Europe

www.liverscreen.eu

LIVERSCREEN PROJECT: POPULATION-BASED STUDY ACROSS EUROPEAN COUNTRIES

THE LIVERSCREEN PROJECT

Letter

Phone call

Walking in

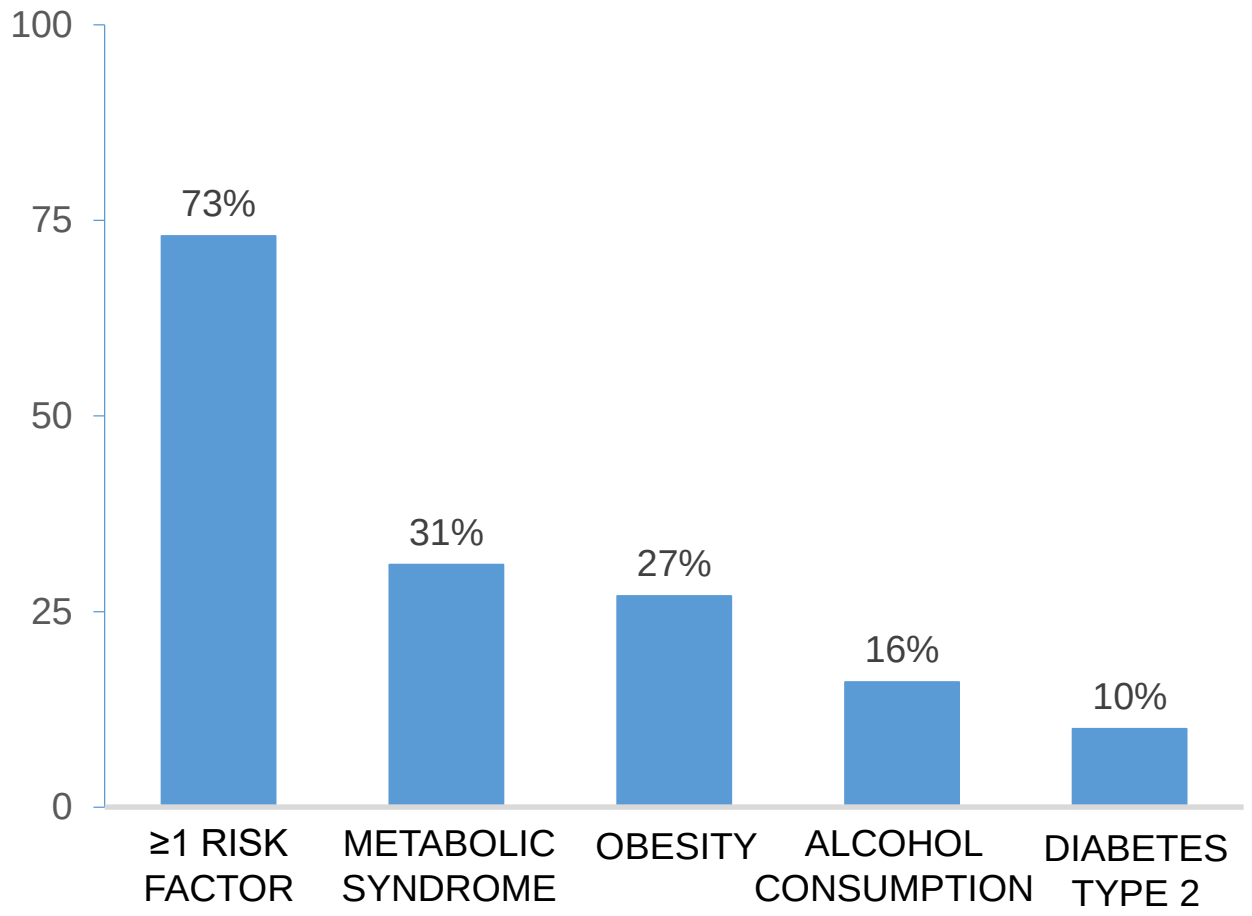
Visit 1

Primary Care Center

Visit 2

Hospital

CHRONIC LIVER DISEASES IN EUROPE
Dimension of the problem: Risk factors

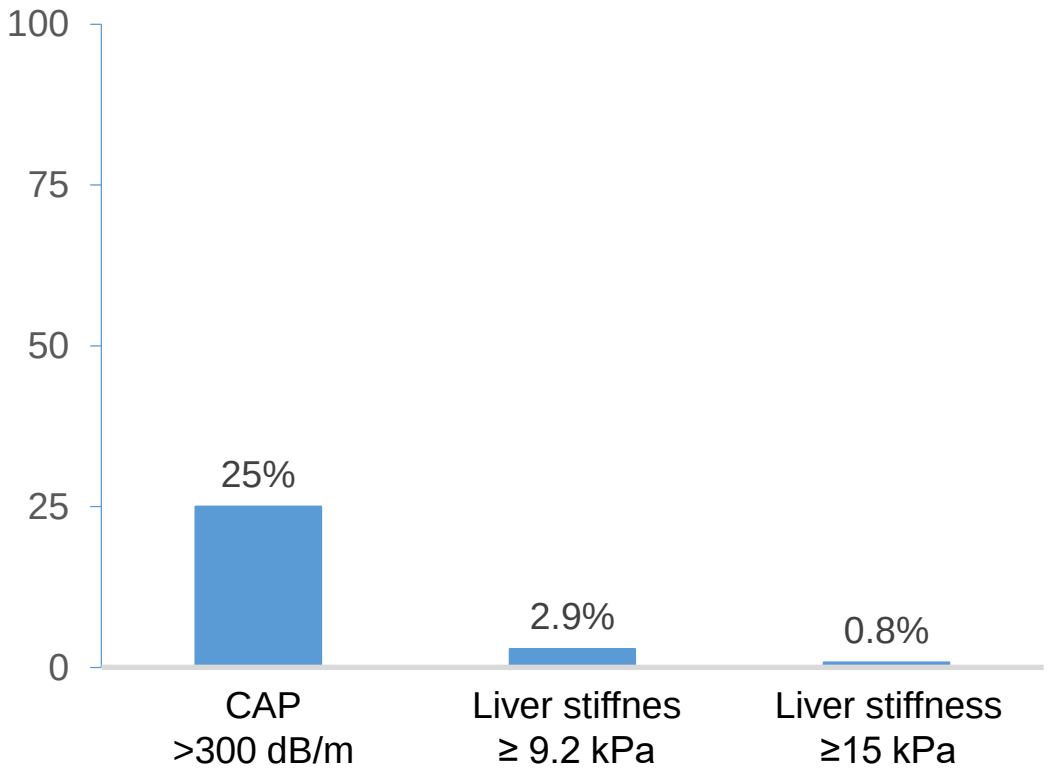


n=17,256

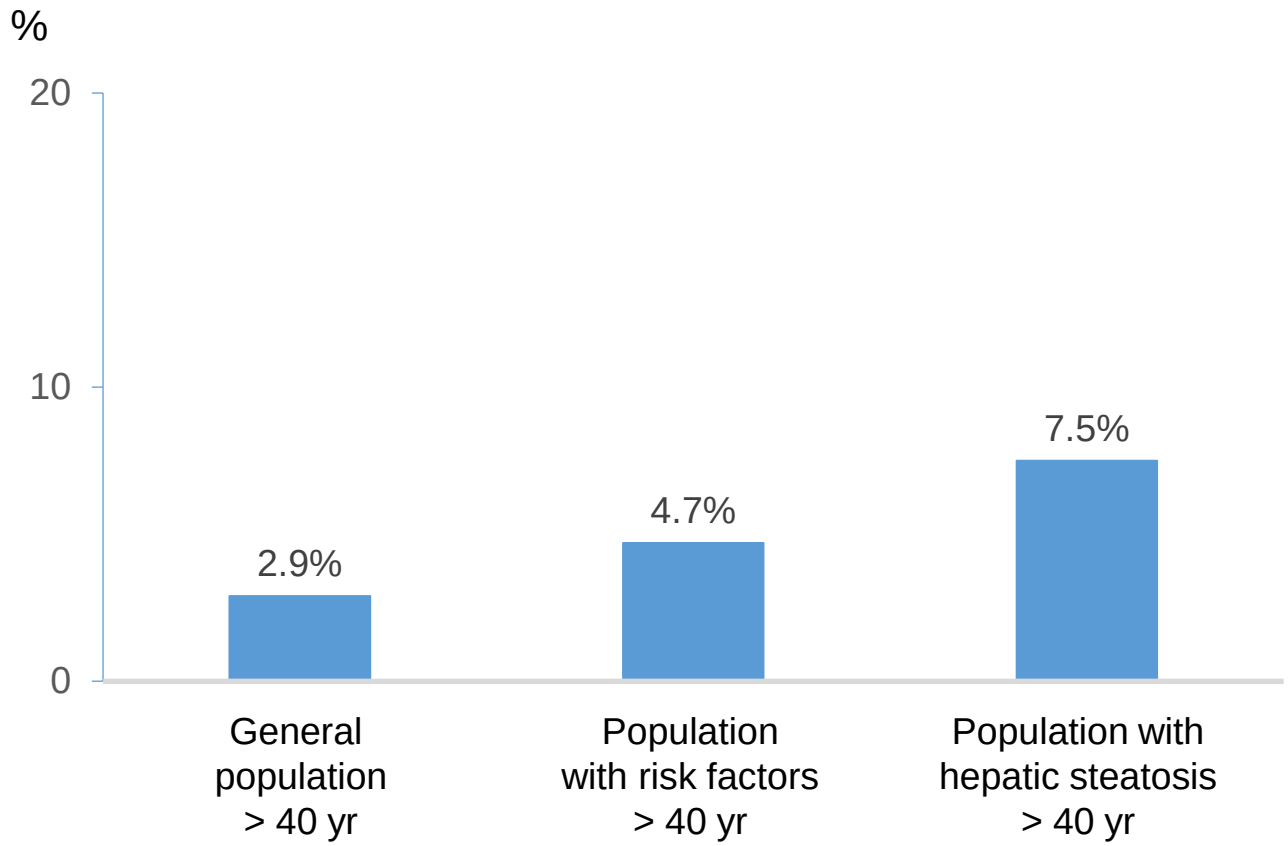
From Liverscreen, unpublished

LIVER FIBROSIS IN EUROPE
Dimension of the problem: Chronic liver disease

TRANSIENT ELASTOGRAPHY VALUES



Liver stiffness ≥ 9.2 kPa



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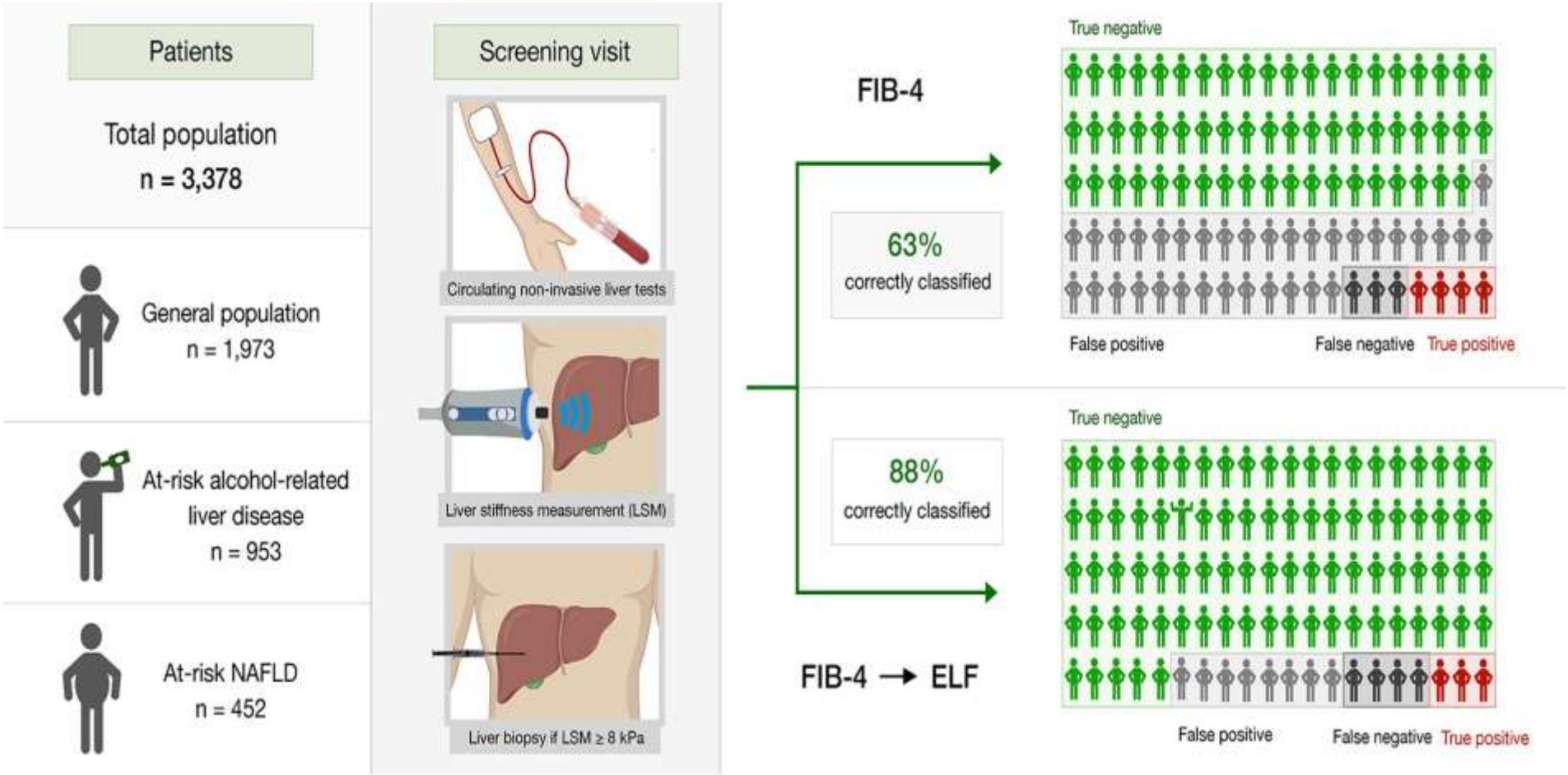
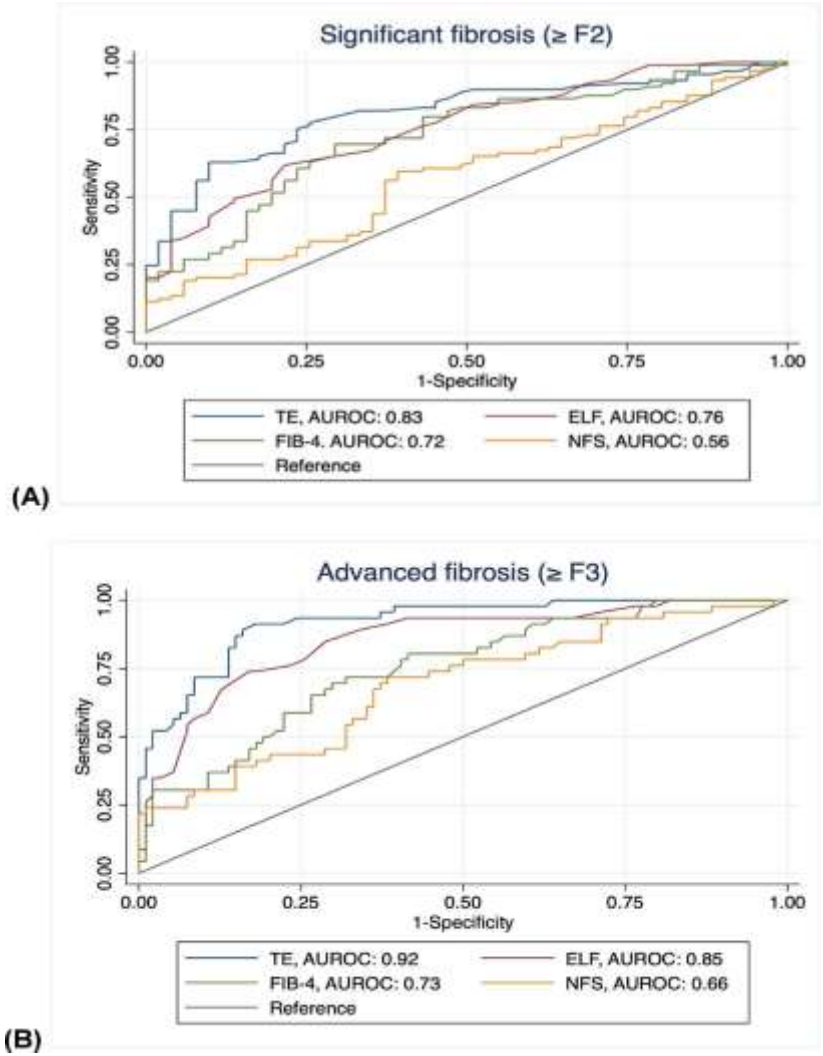
SCREEENING FOR LIVER FIBROSIS IN THE POPULATION



Kjaergaard et al. JHepatol. 2023

SCREENING FOR LIVER FIBROSIS IN THE POPULATION



Kjaergaard et al. JHepatol. 2023

LIVERSCREEN
Population cohorts

First cohort: 30,000 adult subjects randomly selected from 8 countries, with collection of demographic, clinical, and biochemical data, transient elastography, and biobank samples. Follow-up clinical data at 5 and 10 years. **Objectives: prevalence, risk factors, and markers**

Second cohort: 4,000 subjects from 3 different countries from previous cross-sectional studies with phenotype data as well as transient elastography that will be studied after +5 years of follow-up. **Objective: fibrosis progression**

Implementation cohort: 40,000 subjects from 4 different countries randomly selected to evaluate screening strategies. **Objective: strategies for screening**

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A PARADIGM SHIFT IN HEPATOLOGY
Screening for liver fibrosis

Development of cirrhosis takes many years but diagnosis is usually made at very advanced stages with high mortality

A paradigm shift is urgently needed to diagnose the disease early when treatment and reversibility is still possible.

This paradigm shift will likely occur as a result of population screening for liver fibrosis. Studies about implementation strategies of screening are needed to prove the cost-effectiveness of screening for liver fibrosis.

LIVERSCREEN PROJECT PARTNERS

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OPEN
Odense Patient data Explorative Network

GENESIS Biomed

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

1917–2017
100 Years of School of Medicine, University of Zagreb

UIMH

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The University of Nottingham
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European Liver Patients' Association

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