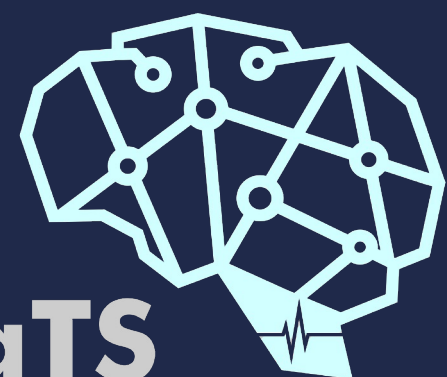# UNIVERSITÀ DEGLI STUDI DI TRIESTE

100
1924 2024

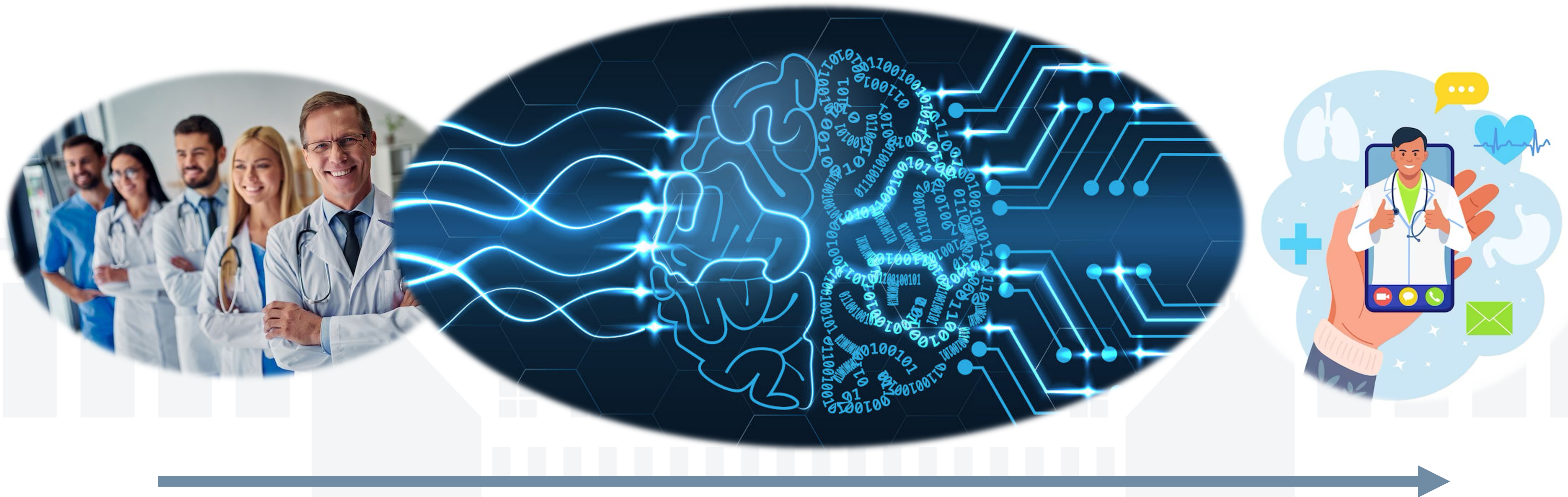**Simone Kresevic,
Ph.D. student at BioingTS**

BioingTS

RESEARCH PROJECT:

Development of diagnostic and predictive models based on deep and machine learning algorithms in the field of chronic liver disease

RESEARCH INTEREST:

Biomedical Image Analysis and Deep Learning, Computer Aided Diagnosis, Ultrasound Liver imaging and Magnetic Resonance Liver imaging Analysis, Biomedical Signal Analysis and Machine Learning, Development and Design of digital platforms for Database data collection and consulting analysis via Mobile App, Clinical Data Analysis, Decision Support Systems, Development of Predictive models, Eye-movement analysis and visual system development and Computer Vision
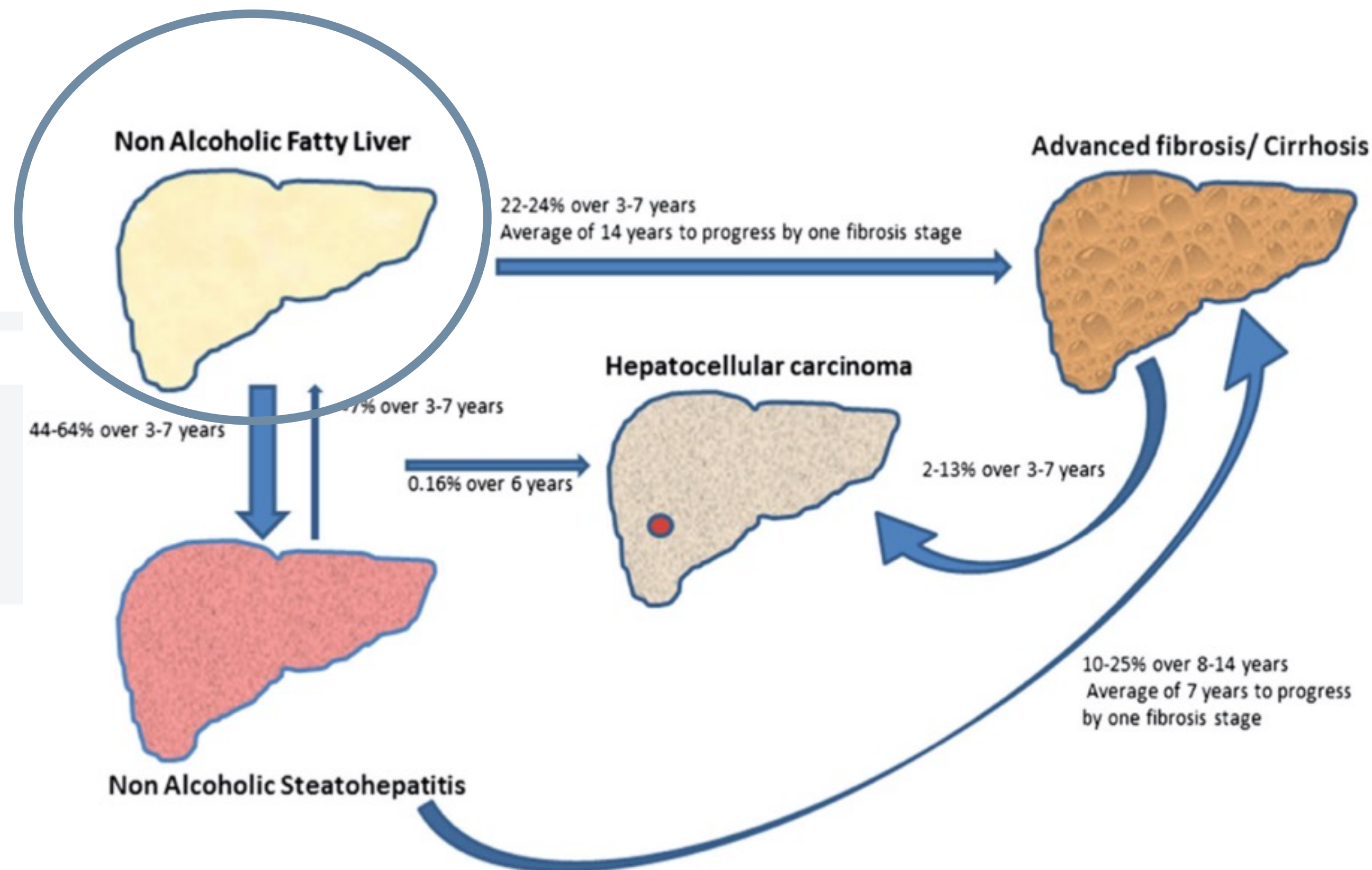
The main aim of the project

Development of a platform that can support the diagnosis of chronic liver diseases and thus provide a means to improve the prevention of these.

NAFLD | Non-Alcoholic Fatty Liver Disease

Non Alcoholic Fatty Liver

22-24% over 3-7 years
Average of 14 years to progress by one fibrosis stage

Advanced fibrosis/ Cirrhosis

44-64% over 3-7 years

7% over 3-7 years

0.16% over 6 years

Hepatocellular carcinoma

2-13% over 3-7 years

10-25% over 8-14 years
Average of 7 years to progress
by one fibrosis stage

Non Alcoholic Steatohepatitis

- Most common chronic liver disease in the world
- First cause of mortality linked to liver disease
- Leading cause of liver cancer
- By 2030 it is expected to become the leading cause of liver transplantation
- Significant impact on health economic expenditure with growth forecast in the coming years
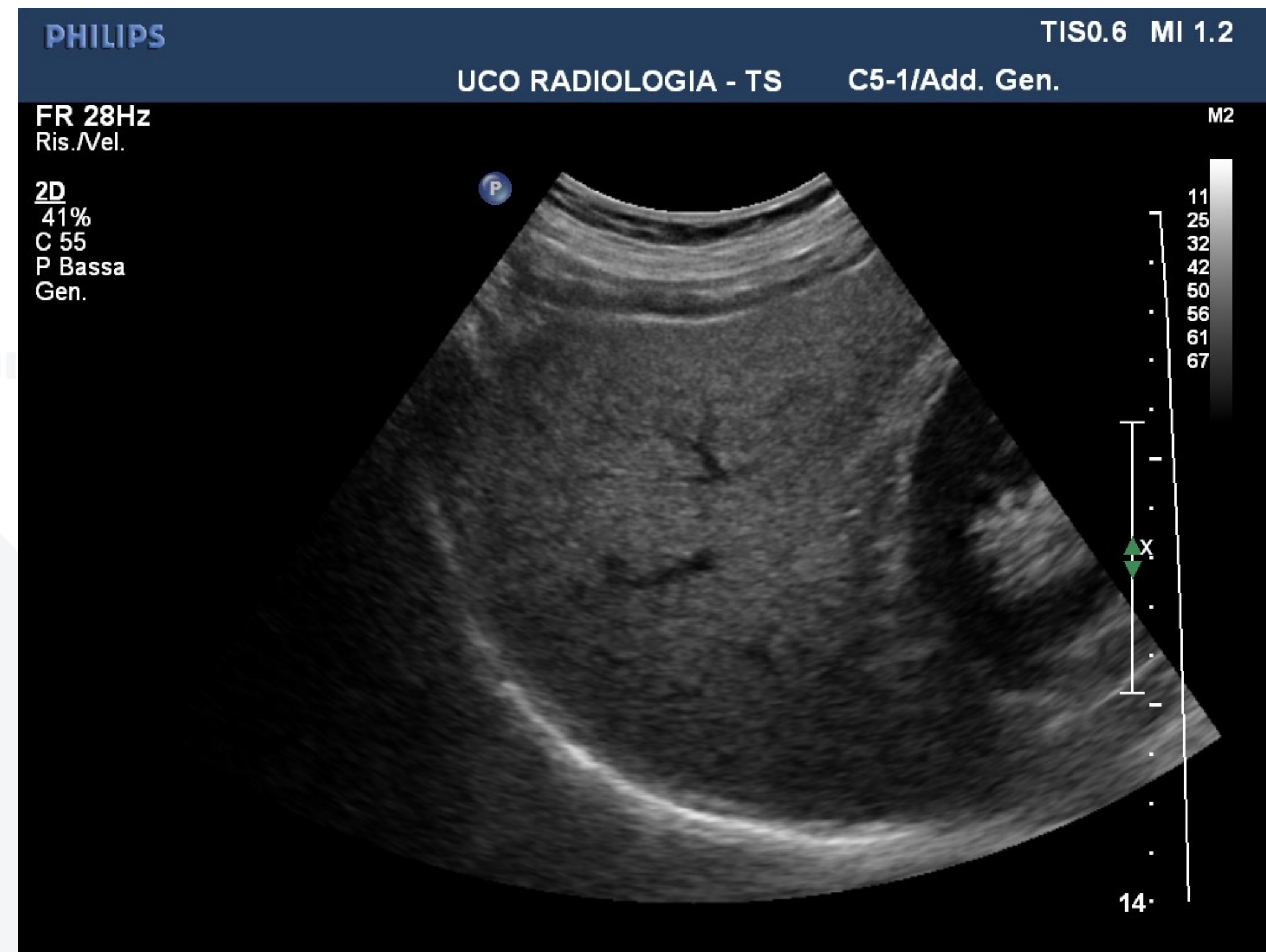
Worldwide health problem

Echography examination recommended by European clinical practice guidelines

Advantages:

- The wide availability of ultrasound machines
- Non-invasive
- The repeatability of the measurement (no exposure to ionizing radiation)
- The low cost of the exam
- Short waiting times
- Increased tolerability by patients

PHILIPS
UCO RADIOLOGIA - TS
TIS0.6 MI 1.2
C5-1/Add. Gen.
M2
FR 28Hz
Ris./Vel.
2D
41%
C 55
P Bassa
Gen.
11
25
32
42
50
56
61
67
14

Disadvantages:

- INTRA- AND INTER-OPERATOR ASSESSMENT ERROR DUE TO THE DOCTOR'S EXPERTISE

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Results

PROVIDE A REPORT TO SUPPORT THE DOCTOR IN DIAGNOSING POPULATION SCREENING AND THUS STAGING NAFLD

DOCTOR'S OFFICE DR. NOWZARADAN
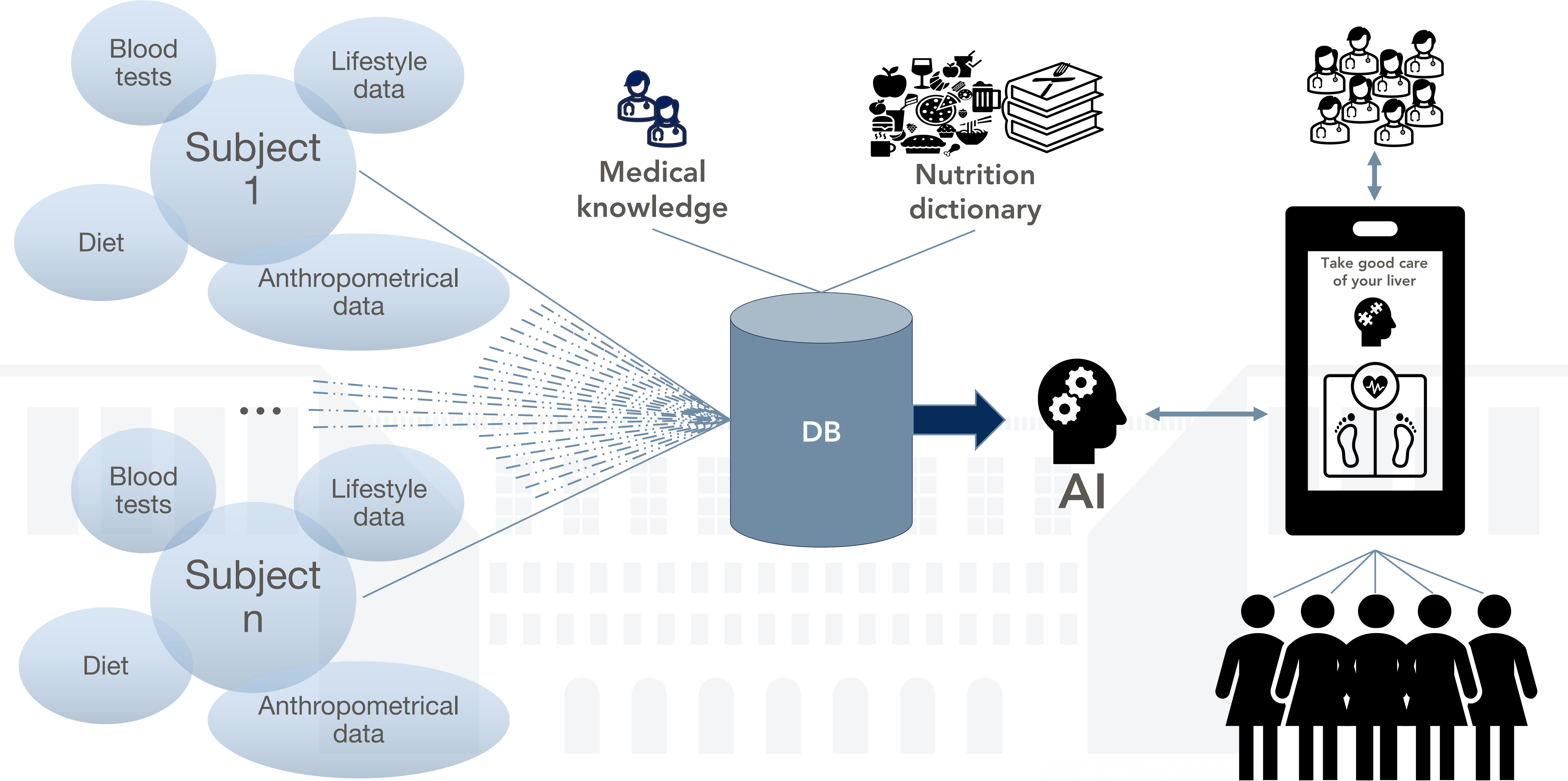
PATIENT: MARCO TARDELLI
BIRTHDAY: 11/07/1982

DEPARTMENT: VITE AL LIMITE
REASON FOR THE VISIT: HEPATIC SCREENING

Prediction of Hamaguchi's score:

sub-score 1:	1
sub-score 2:	0
sub-score 3:	0
score di Hamaguchi:	1

The physician confirms the prediction made by the application

Signature

THANKS FOR YOUR ATTENTION

SCAN ME

SCAN ME

Instagram

... You can (**have to**) follow us on our group to keep in touch with our activity....

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