Science Summit at UNGA 78 - New York, 26 September 2023

Credit: Sara Otter

New Horizons for Cardiovascular Health

a personalised approach to preventing the preventable by using digitalisation and health data

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FH Europe Foundation

Trustee and Chair of the Policy and Innovation Advisory Committee

FH Europe Foundation

CVDs in numbers - personal, familial, societal and economic impact

- **17.9 million** people died from CVDs in 2019 – the major cause of mortality and morbidity globally
- **85%** of death due to heart attack and stroke
- **more than 75%** deaths in LMICs
- **EUR 210 billion** per year in Europe – the cost of CVDs

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CVDs prevention, early detection and screening: insufficient and/or inefficient

- **health systems design** - hospital-centric, prioritising the diagnostic and treatment
- **misconceptions** around CVDs prevention and development (“lifestyle disease”)
- **low awareness rate** at population level on methods to promote and preserve CVH
- **low interest** of relevant stakeholders in the implementation of evidence-based screening and early detection (**FH screening, Lp(a) testing**)
- low awareness of **non-modifiable factors such as genetic** factors in CVDs pathogenesis
- **low integration** of all cardiovascular health determinants (social, economic, demographic, environmental and behavioral factors)

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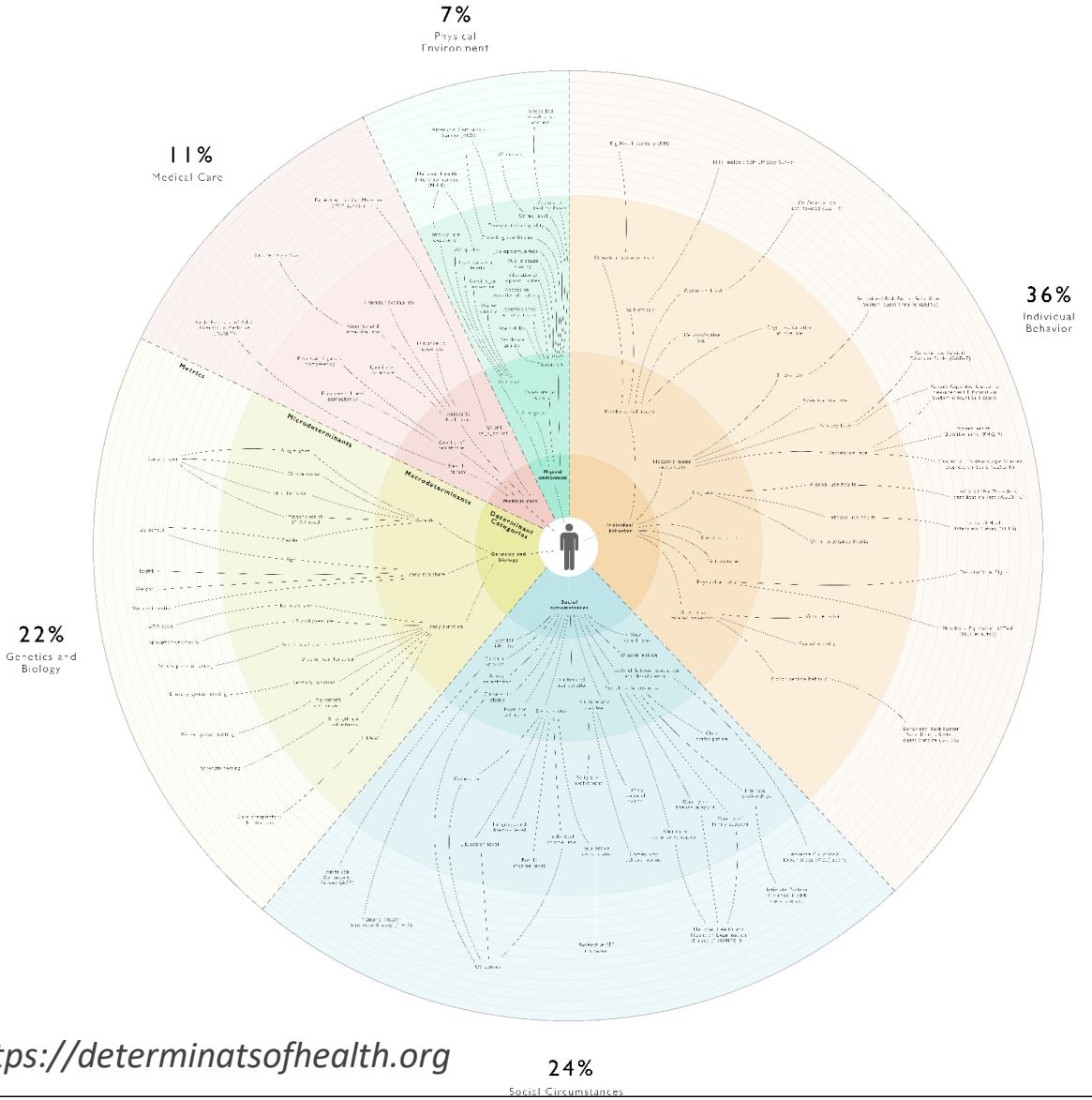
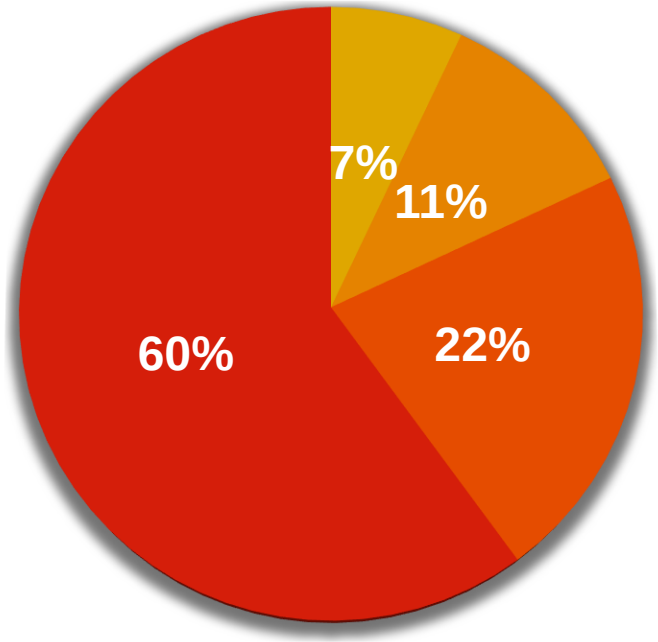
Determinants of HEALTH

Model of all factors correlated with health outcomes for an individual





- Psysical environment
- Health system
- Biologic, genetic factors
- Socio-Individual

Source: https://determinatsofhealth.org

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Familial Hypercholesteroleamia
The world's most common and non-modifiable CVD risk factor

- **Genetically determined**, dangerously high level of LDL cholesterol in the blood
- **2 forms:** heterozygous (common) and homozygous (very rare and very severe)
- Undetected and untreated/unmanaged, leads to early heart attacks, heart disease and **even deaths, as early as 4 years of age (HoFH).**

- **1 in 300** people have FH
- **50%** is the risk of inheriting FH from a parent with FH
- **Every minute a child with FH is born** somewhere in the world
- **Every day a child with HoFH is born** somewhere in the world
- **1 in 17** heart attacks is due to FH, which could have been prevented
- **Less than 10%** of people with FH are diagnosed and adequately treated
- Over **30 million people worldwide** have FH, and **90% still do not know it!!!!**

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Familial Hypercholesteroleamia
The world's most common and non-modifiable CVD risk factor

Therefore, a combination of screening methods - universal paediatric screening, (reverse) cascade screening – family screening members (parents, siblings, children) of index cases, and opportunistic screening – is essential.

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Digitalization and health data
Key pillar in advocacy for CVD prevention

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Role of patients in advocacy for implementation
Innovation through multidisciplinary collaboration

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High lipoprotein (a)
An independent CVD risk factor

- Lp(a) level is **genetically** determined
- Every person reaches the lifetime level of circulating Lp(a) already in **early childhood**
- LP(a) levels are independent of **lifestyle**
- High levels of Lp(a) affect **1 in 5 people**, this means est. **1.4 billion people globally**
- If one of the parents has elevated Lp(a), there is a greater chance of inheriting this risk factor
- **Males and females are equally** likely to have the genetic high levels of Lp(a).

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Lp(a) International Initiative

Credit: Sara Otter

Vision
of the International Lp(a) Initiative

Lp(a) measurement is the norm globally, and elevated Lp(a) is managed efficiently and equitably, to contribute towards the prevention of premature cardiovascular disease and related deaths.

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Members of the Lp(a) International Task Force

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Goals

1

To raise awareness about Lp(a)

as an independent and a major inherited CVD risk factor and how this can be effectively managed, among policy makers, health care professionals, patients and the public.

2

To demonstrate the cost-effectiveness of CVD prevention

through the diagnosis of high levels of Lp(a) as a strategy towards CVD prevention.

3

To test personalised prevention models in health systems

focussing on implementation science in the field of Lp(a).

4

To utilise effectively digital transformation and health data

to support research and sound decision-making in the context of Lp(a).

5

To devise a forward-looking research and policy agenda in Lp(a)

anticipating trends and critical issues, in collaboration with social futurists.

In parallel, a process will be outlined to establish national task forces in the three key countries (Canada, China and Japan) to enable implementation.

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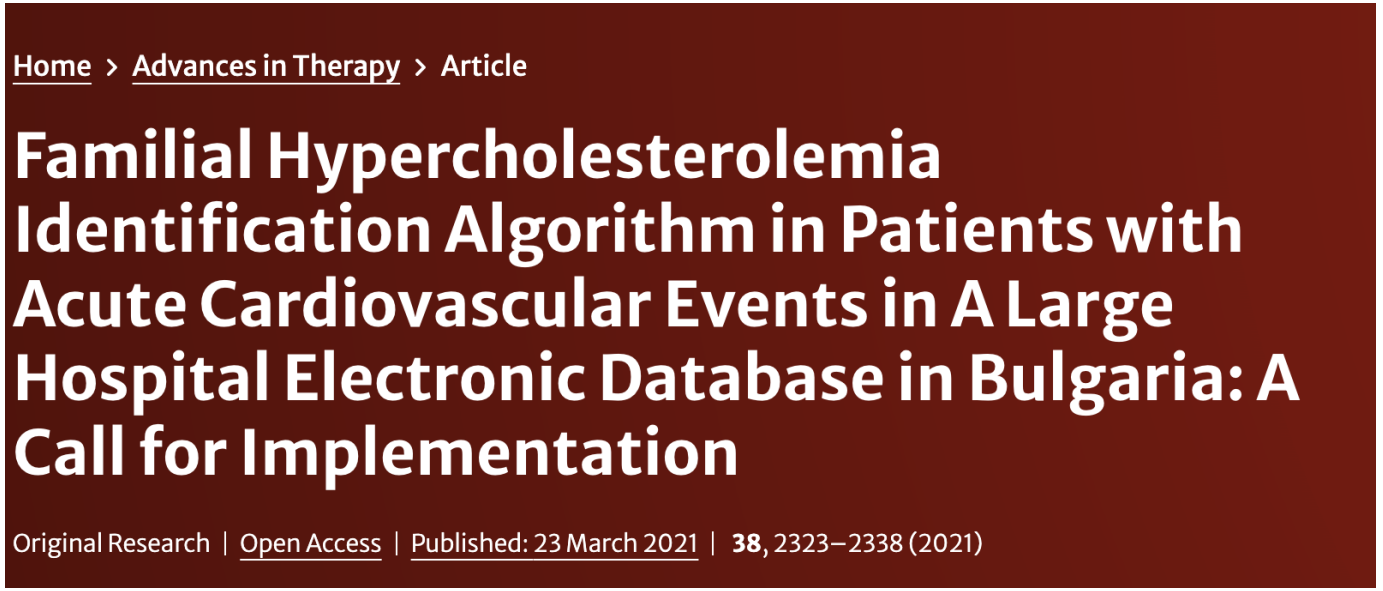
Data and digitalization
enabling PERSONALISED PREVENTION of CVD – digital screening

- Hospital information systems
- EHRs
- Registries



*Source: Petrov, I., Postadzhiyan, A., Vasilev, D. et al. Familial Hypercholesterolemia Identification Algorithm in Patients with Acute Cardiovascular Events in A Large Hospital Electronic Database in Bulgaria: A Call for Implementation. Adv Ther **38**, 2323–2338 (2021). https://doi.org/10.1007/s12325-020-01608-3*

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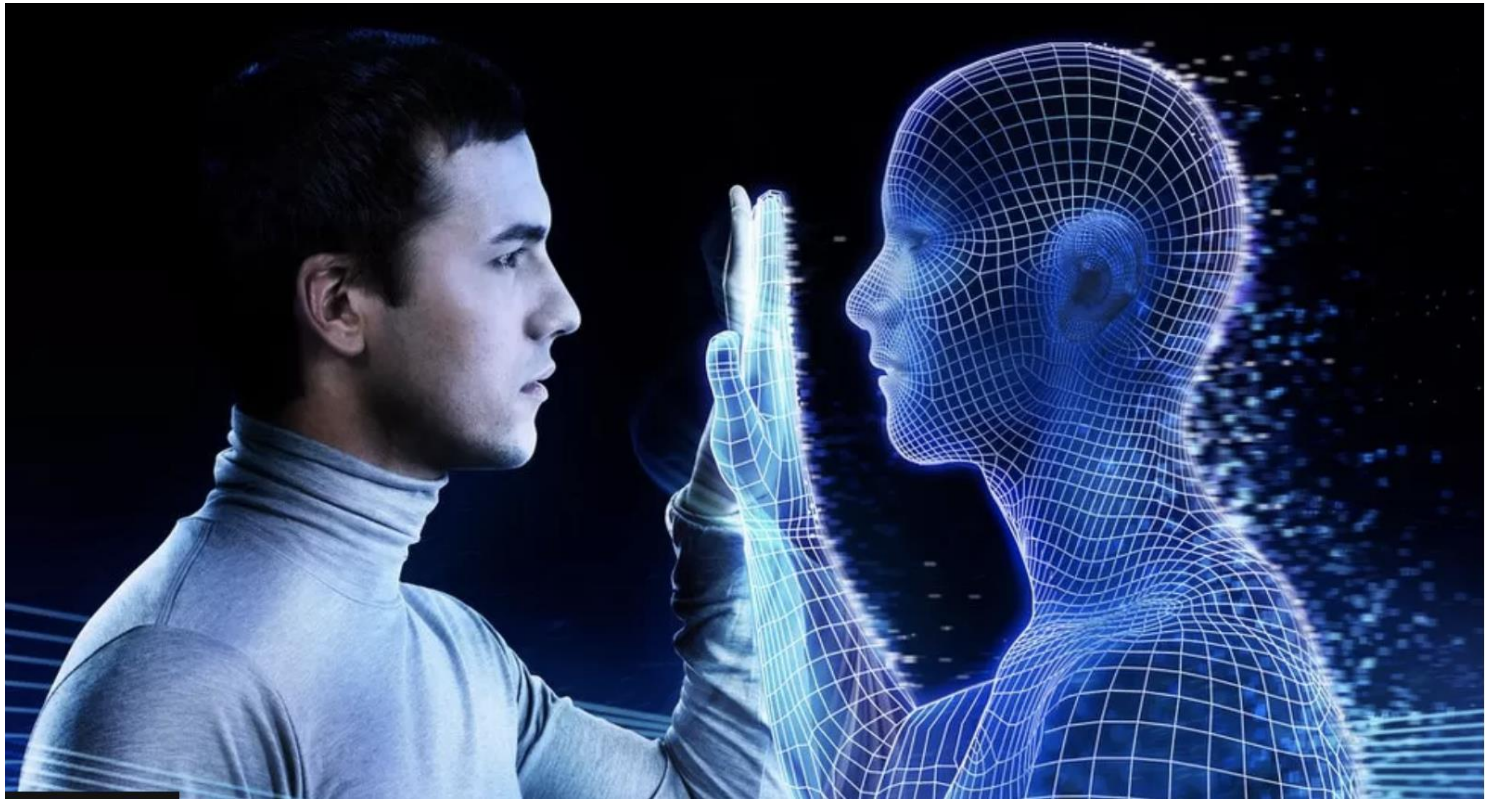
Next BIG thing:
patient's and citizen's generated data

- Medical data
- Lifestyle data
- Behavioural data
- Socio-economic data
- Environmental data



- **Virtual Twin**

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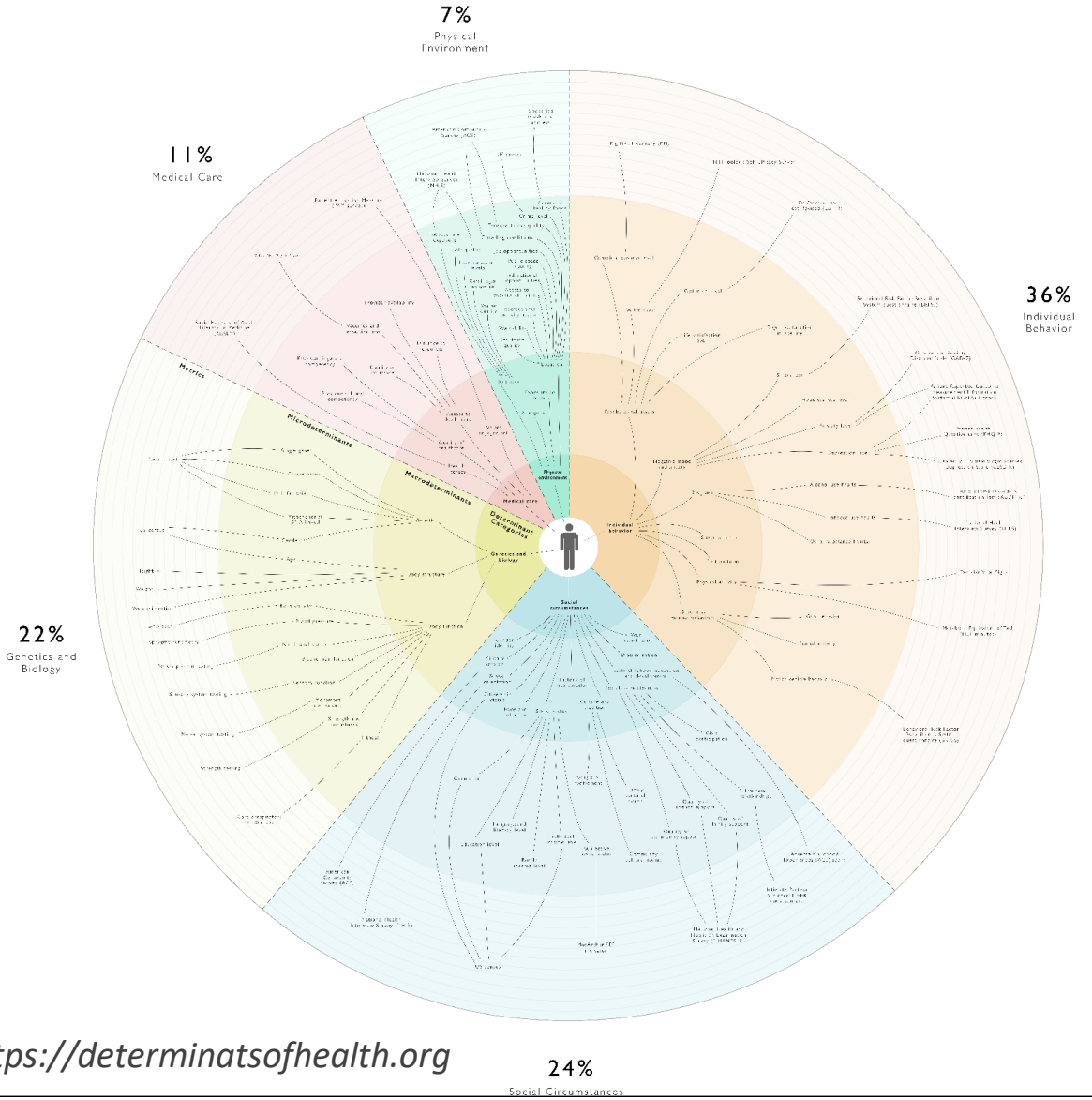

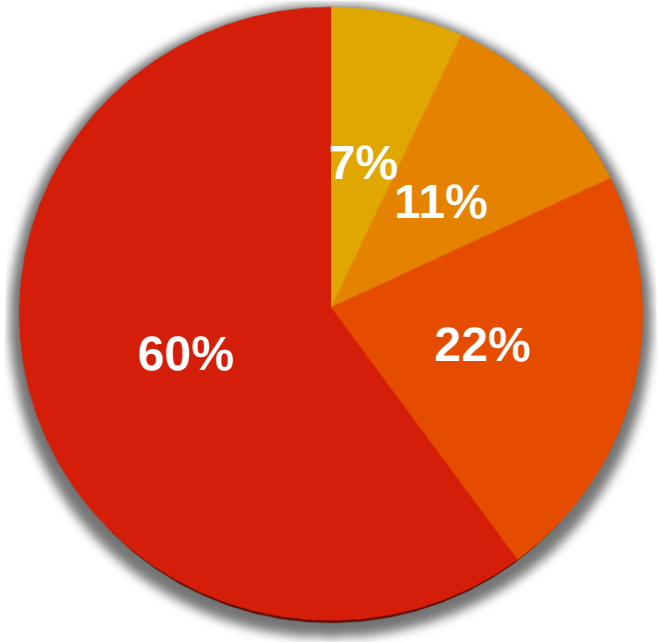

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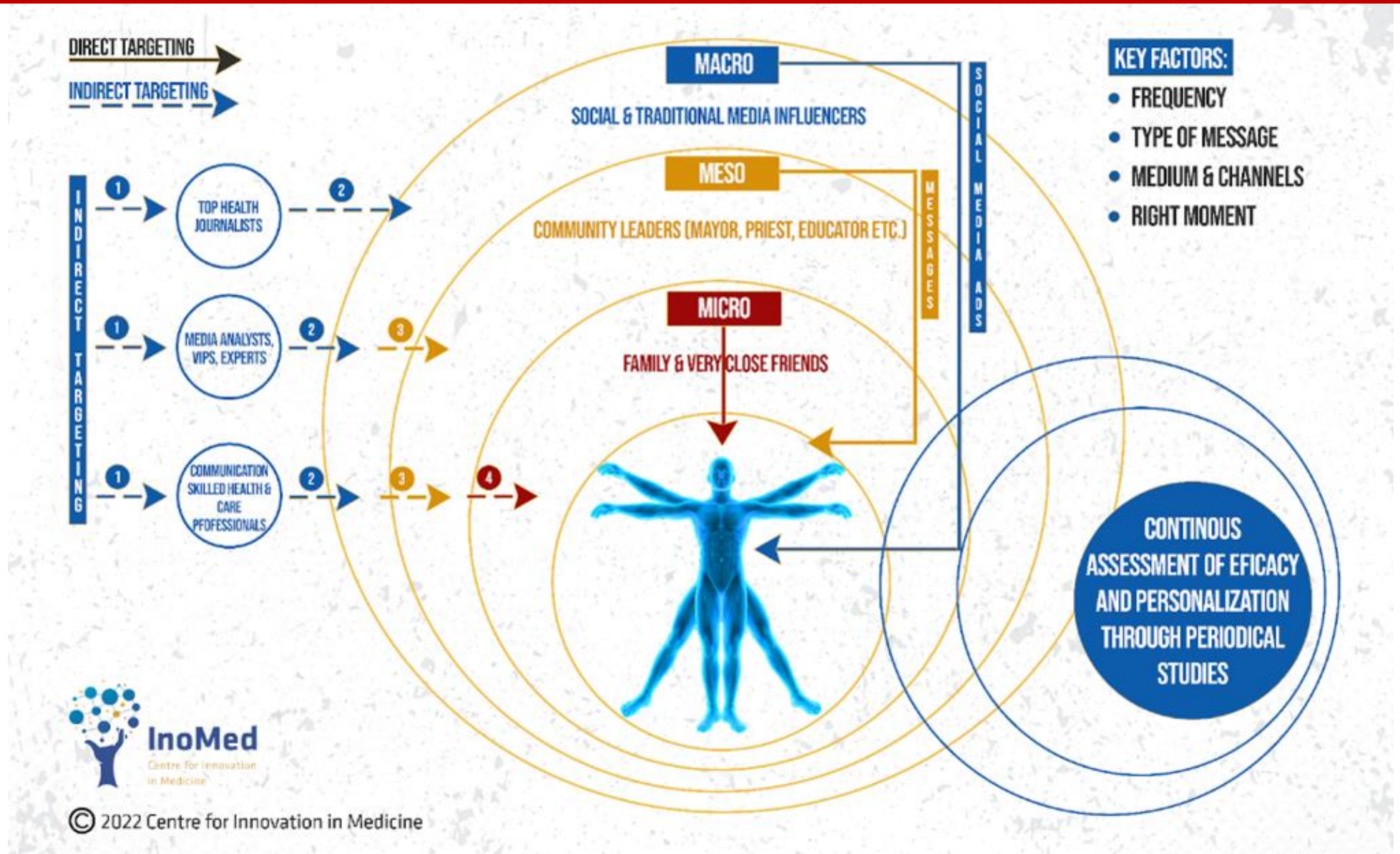
Personalised Communication Models Concept – Citizen Matrix based



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Towards a new model
shift from CVD to CVH

- Human-centric, data-driven
- “Whole of society” approach
- Top-down and bottom-up
- Distributed leadership
- Incorporating innovations coming from biotech revolution (genomics, RNA-based therapies, gene editing, gene therapies etc)

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“The electric light did not come from the continuous improvement of candles” – (Oren Harari)

Call to Action: A Global Code for Cardiovascular HEALTH

- co-creation process involving key stakeholders (traditional and non-traditional)
- evidence-based recommendations to promote and to preserve CVH
- frameworks for implementation in real life settings
- policy recommendations aiming to increase the uptake of the Code for CVH

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THANK YOU

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