

A **blueprint** for **health system sustainability**

A consensus position paper by
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November 2018

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Towards a bottom-up solution to
the impending health and care crisis





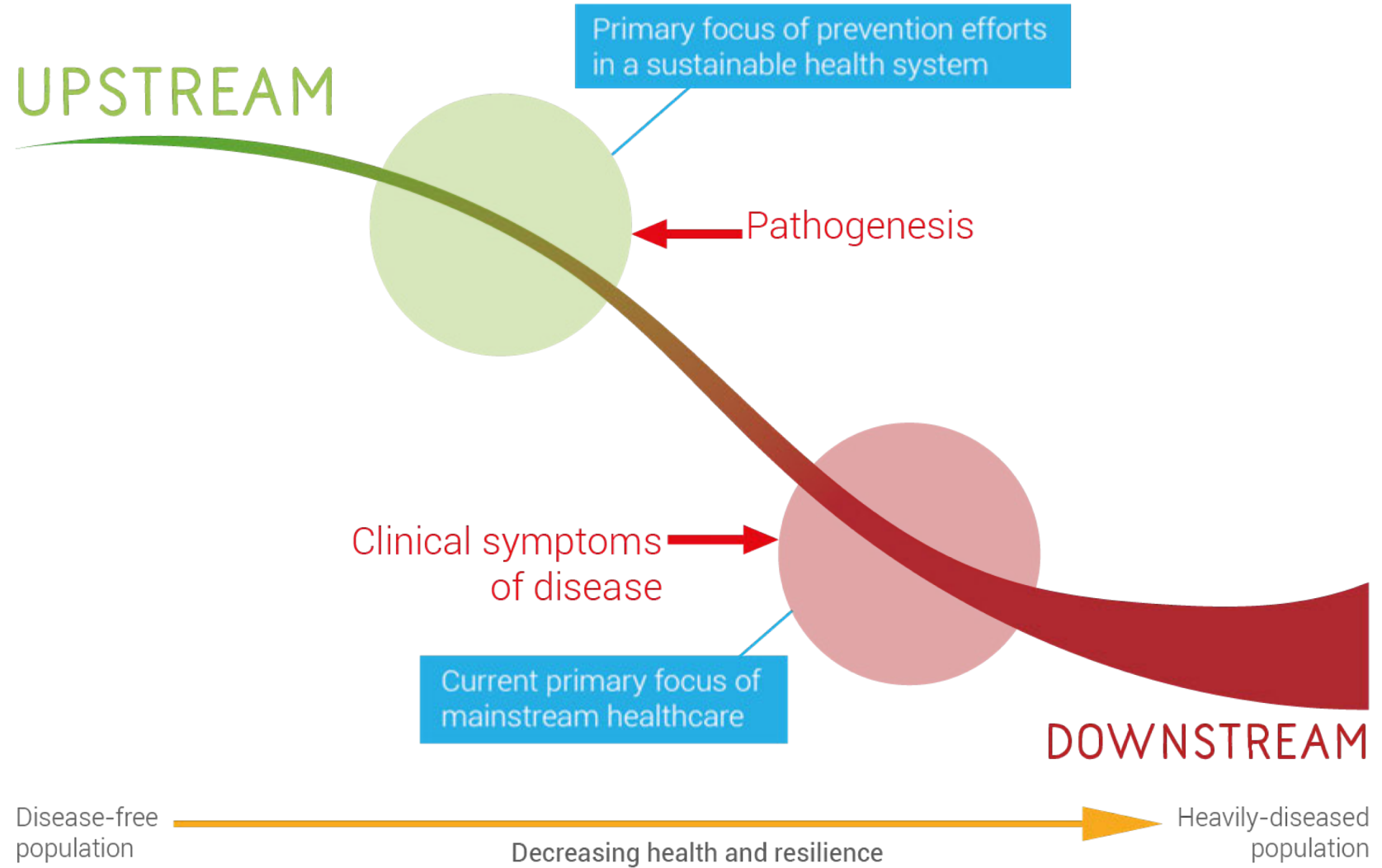
... the aim [of the 'blueprint'] is to propose the basis for a universal approach ('language') applicable to an upstream model that includes the evaluation of whole body, multi-system health and resilience through an ecological lens.

The health system as we know it is at breaking point

- 'Health systems' will soon begin to fail given the rapidly increasing burden of from preventable chronic and autoimmune diseases
- Current 'health systems' are largely disease management systems based on the delivery of products and services
- Most health 'care' targeting chronic diseases aims at treating symptoms not causes of disease
- Levels of morbidity in the adult population are increasing, while quality of life is decreasing
- The single greatest burden is the array of diseases linked to metabolic dysregulation (obesity, type 2 diabetes, coronary heart disease and many form of cancer) associated with modern lifestyles
- Stress-related conditions such as anxiety and depression are escalating rapidly. Depression is the leading cause of disability as measured by Years Lived with Disability (YLDs) and the fourth leading contributor to the global burden of disease (World Health Organization)



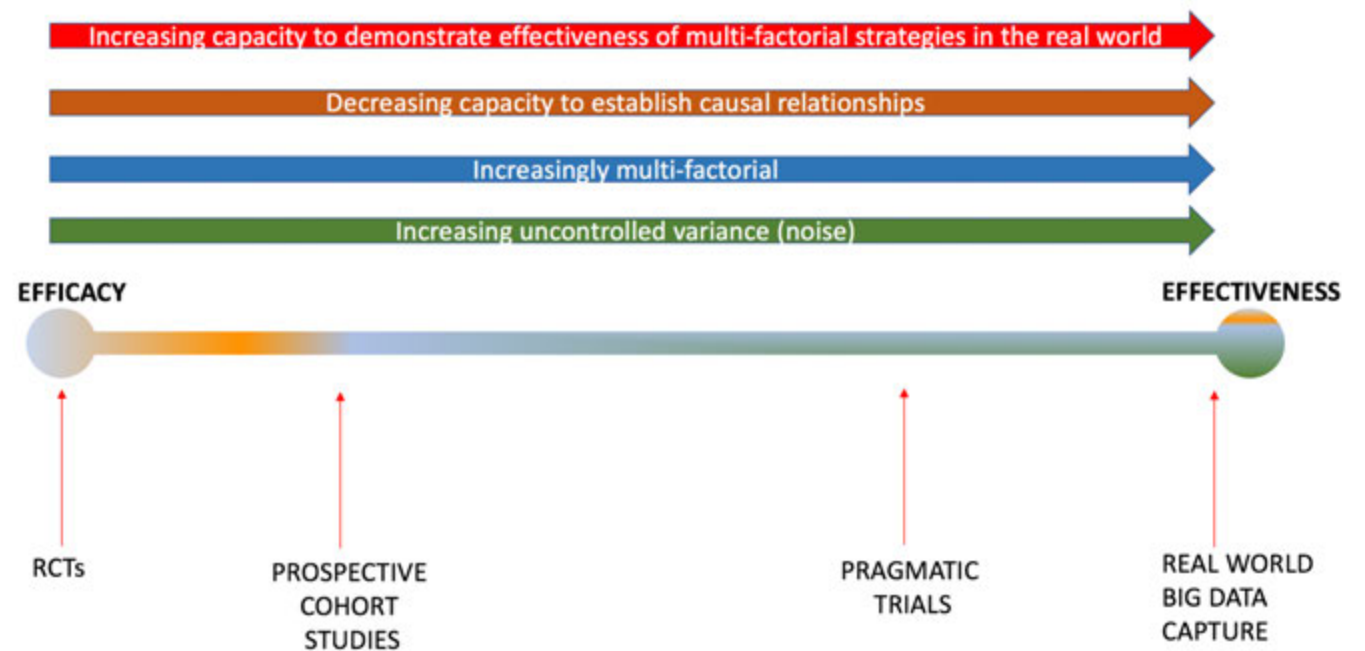
Mainstream,
'downstream'
focused health
care is not
sustainable



Health status and resilience is the result of complex, multifactorial human-gene-environment interactions

THE EFFICACY-EFFECTIVENESS CONTINUUM

[After Witt C, et al. *J Altern Complement Med.* 2014 Nov 1; 20(11): 874–880]



A common 'language' is required between individuals and health & fitness professionals, regardless of region, ethnicity or background

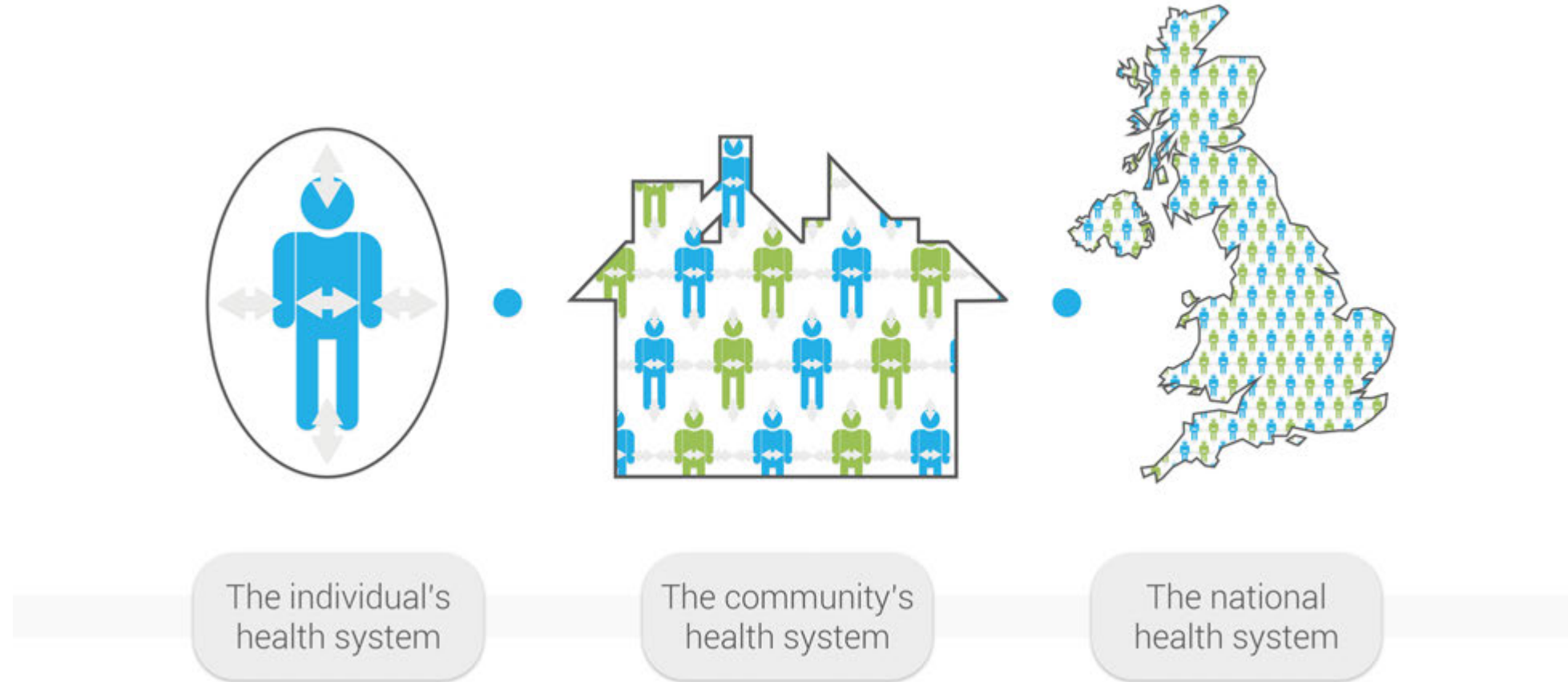


That common language = ecology and systems biology

A sustainable health system is one that is 'upstream' in nature and focuses on health creation, regeneration and optimisation



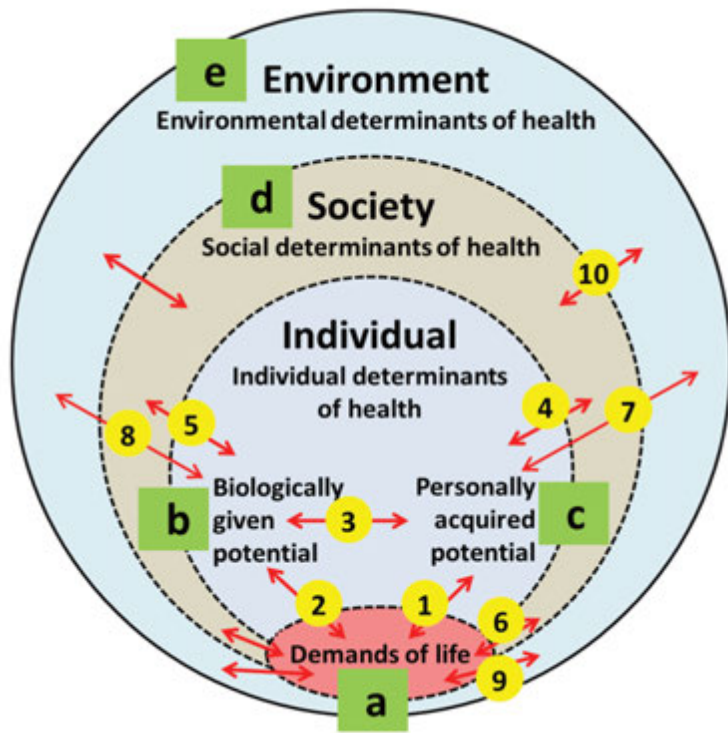
The smallest unit of a 'health system' involves a single individual and those internal and external interactions that influence health & resilience



A 'health system' should not be confused with a 'healthcare delivery system'

Unified, whole system models of the 'health system'

- Requires that we all understand the human body and its interactions with the internal and external world in similar ways
- Two such models are the Meikirch model and the ANH 'biological terrain'



The Meikirch model consists of 5 components (a-e) and 10 complex interactions (1-10).

Source: Bircher & Hahn (2016)



The 12 sub-domains of the human 'biological terrain'

Source: ANH-Intl (2018)

Optimal health and resilience is created when an individual's 12 sub-domains of health are 'in balance' - or rapidly return to 'balance'



Some of the variables in an individual's life that cause imbalances in one or more sub-domains of the 'biological terrain'

- Diet and nutrition
- Physical activity
- Rest and relaxation
- Sleep
- Social connection
- Connection with nature
- Purpose/meaning in life
- Environmental toxins/pollutants
- Radiation sources
- Stress tolerance/transformation

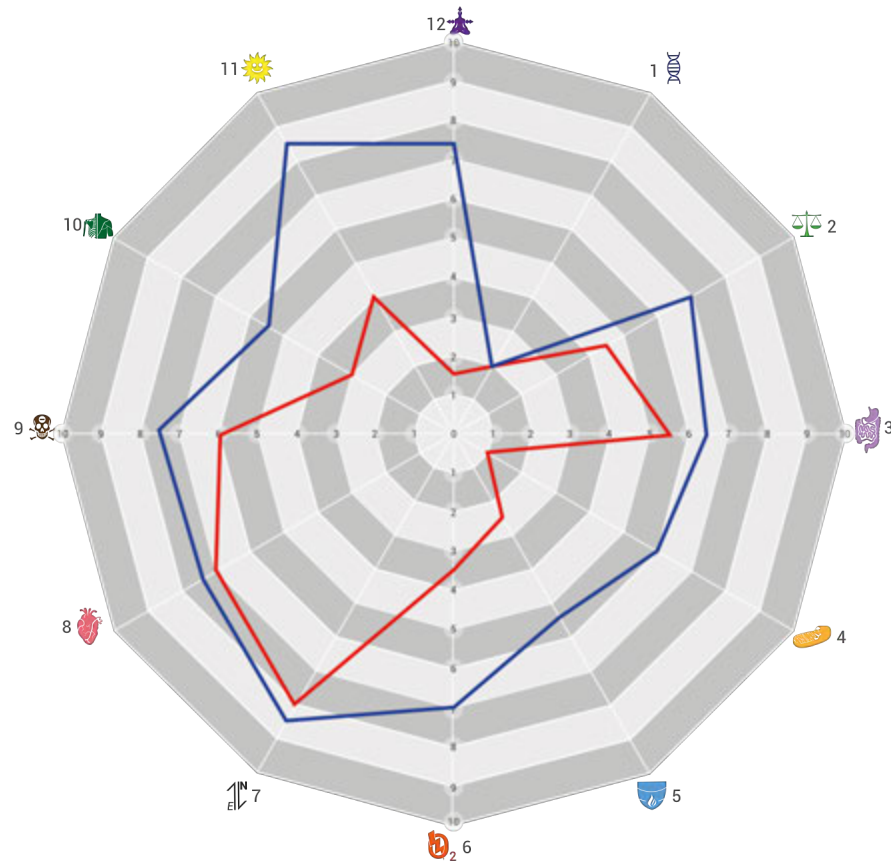
Level	Features	Examples
Self-evaluation	Zero or low cost, no specialised equipment required, symptomology characteristic of dysfunction or imbalance in specific domains	Glycaemic control: waist to height ratio, blood sugar 'crashes' Mitochondrial dysfunction: feeling 'tired all the time' Psychological function: degree of social connection
Guided evaluation	Low cost, but relevance of data benefits from interpretation and guidance from health professional	Toxic burden: evaluation of domestic chemical and air pollution exposure GI system and microbiome: Evaluation of food and symptom diary Psycho-social stress: monitoring of sleep patterns and heart rate variability (HRV) via smartphone app
Practitioner evaluation	Biomedical and genetic tests	Genetic and epigenetic background: genetic screening of specific polymorphisms Mitochondrial function: functional screening, patient history, results of functional testing (blood work, organic acids), mitochondrial function profile Oxidative stress: Test for oxidised LDL fractions and advanced glycated end (AGE) products, DNA/RNA oxidative damage assays, assay for activity of antioxidant enzymes e.g. glutathione (GSH), superoxide dismutase (SOD), catalase

The 12 sub-domains of health can be evaluated at 3 different levels

Mapping of the biological terrain

ID: Ms A, 53yo, F

■ Baseline
■ 6 months



1. Genetic and epigenetic background
2. Glycaemic control and metabolic flexibility
3. Gastrointestinal system and microbiome function
4. Mitochondrial function
5. Immune system function
6. Oxidative stress status
7. Neuroendocrine system function
8. Circulatory system function
9. Toxic burden and biotransformation
10. Structural integrity status
11. Psychological and cognitive function
12. Psychosocial-emotional health status

Purposes include:


- Tracking by the individual
- Tracking by health and fitness professionals
- Motivation
- Empowerment
- Collaborative and participatory
- Participatory research

In order to achieve sustainability at scale

- Each individual needs to interact with wider 'health systems' that meets specific sustainability criteria
- 10 hallmarks of health system sustainability



- | | |
|--|--|
|  Reduced pharmaceutical dependency |  Upstream focus and health optimisation |
|  Non-pharmaceutical health care approaches |  Routine evaluation or screening |
|  Economic and environmental sustainability |  Biological and genetic potential |
|  Person-centred health care |  Empowered self-care |
|  Fully informed consent for medical interventions |  Participatory and collaborative health systems |

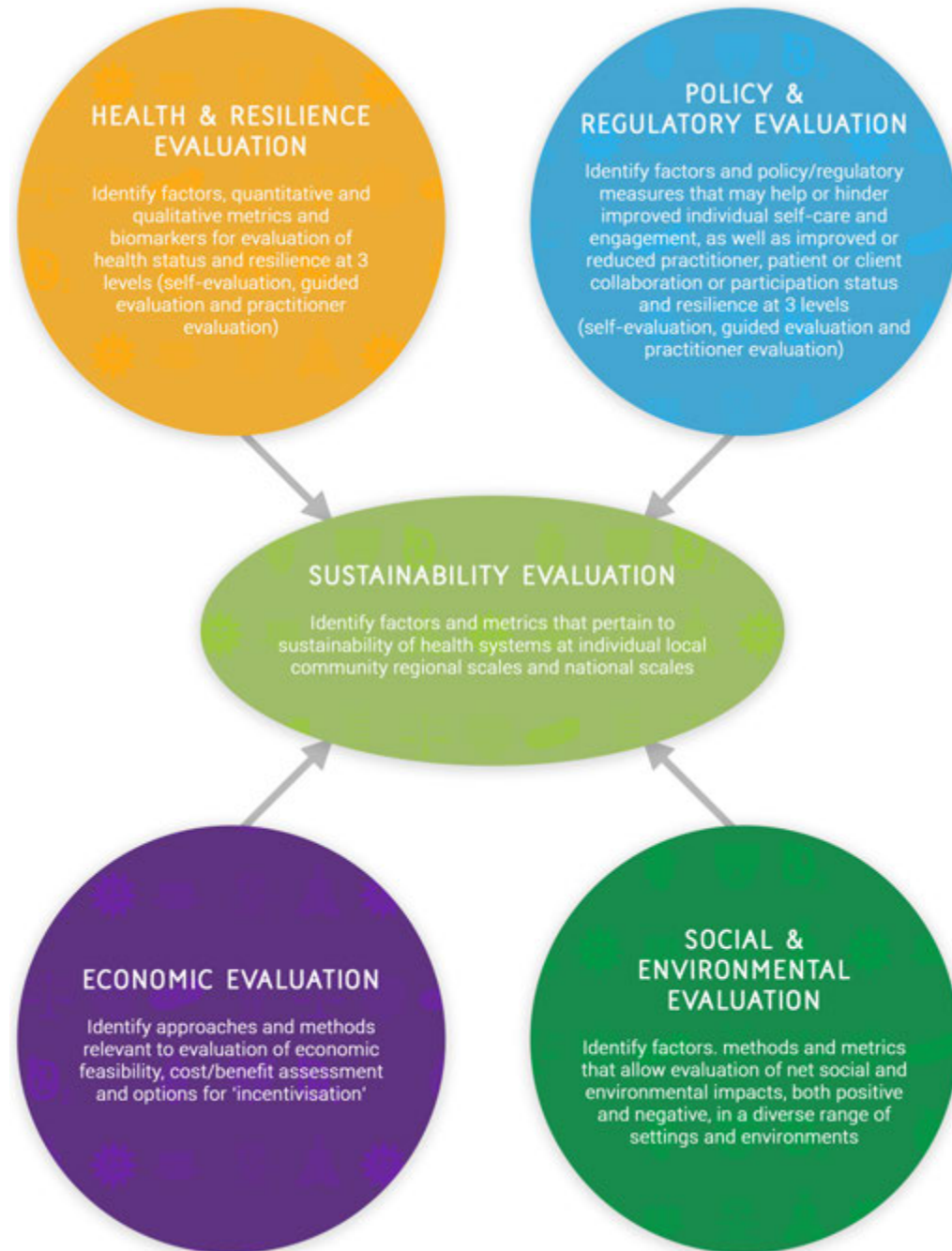


Impediments to
health system
sustainability
must be mitigated

- Economic/financial
- Scientific
- Structural
- Political/policy
- Legal/regulatory
- Professional /educational barriers
- Social/cultural/attitudinal barriers

Consensus between government, stakeholders, health professionals is necessary for rapid transformation towards sustainable health care

Trans-disciplinary working groups should be established to develop consensus



Pilot trials in various settings are required to evaluate collaborative and participatory, sustainable health models

Primary care

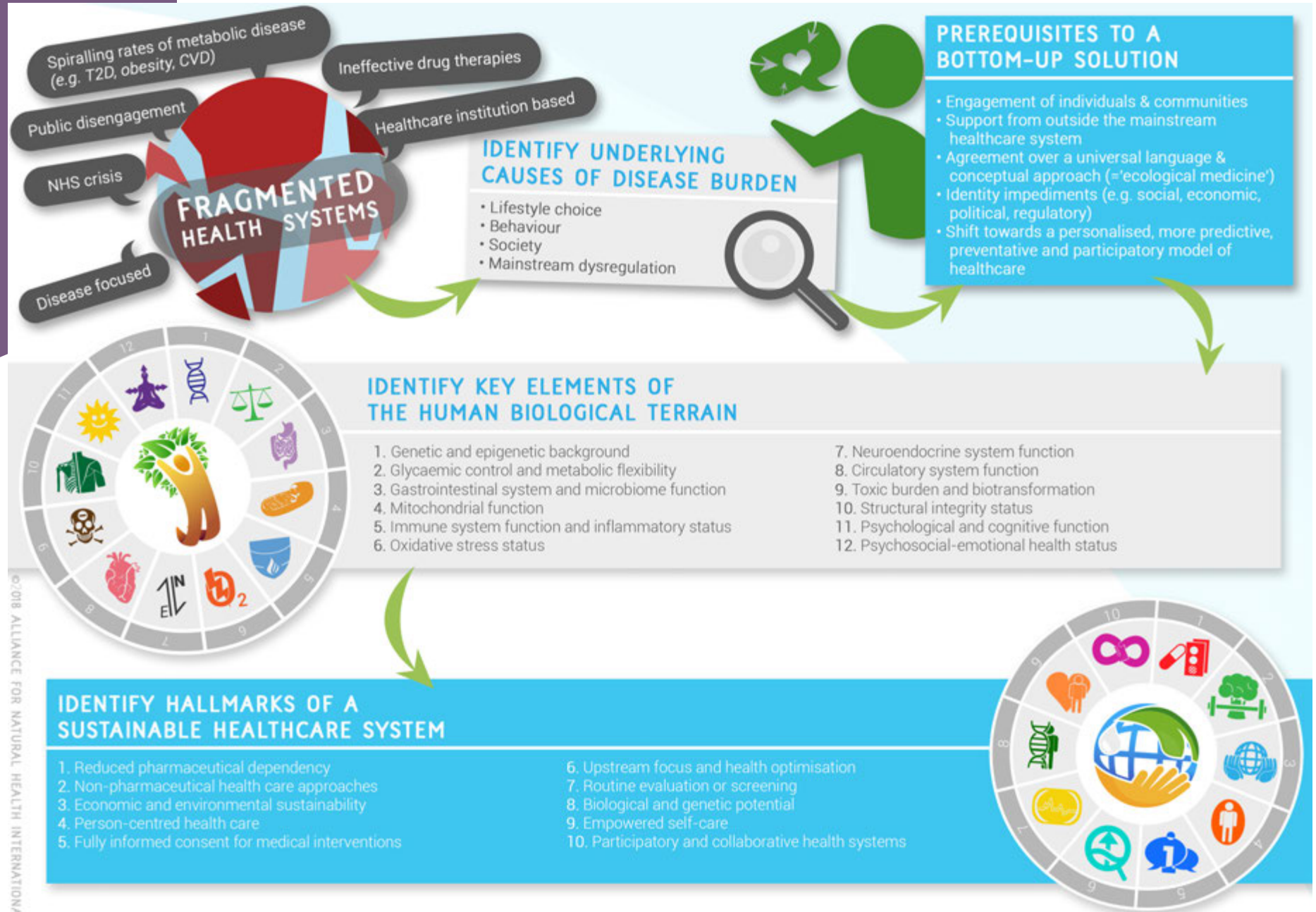
Community pharmacy

Integrative medicine clinics

Traditional systems of medicine

Community settings

Summary (1 of 2)



Summary (2 of 2)



ESTABLISH PILOT TRIALS

- Identify criteria for 'best case' examples of community-based healthcare collaborations (e.g. in primary care clinics, integrative medicine clinics, outside clinical settings)
- Implement trials and surgery evaluation using agreed biomarkers and outcome measures
- Recommend larger scale evaluation of successful collaborations
- Dissemination and advocacy

REACH A CONSENSUS VIA WORKING GROUPS*

- Which systems are dysregulated in metabolic diseases?
- What fixes are available?
- Who/how to implement?
- Which biomarkers of the biological terrain will be evaluated?
- How to measure total effect (outcomes) in multi-modality health systems? (e.g. Hawthorn Tracker)



*Between policy makers, healthcare decision makers, academics, clinicians and the public



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A person is shown in silhouette, sitting on a beach and meditating with their hands in a prayer position. The background is a bright sunset over the ocean, with the sun low on the horizon. The overall mood is peaceful and contemplative.

“ “ ” ”

Transformative and systemic changes in how we as humans manage our health are now needed as a matter of urgency. This includes transitioning from a more mechanistic model of healthcare delivery to a trans-disciplinary, adaptive, emergent and holistic model of health care that is based on living, dynamic and ecological systems.

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