



Global Risks and Healthcare Local eHealth Solutions

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Global risks 2011

World Economic Forum created annual report **Global Risks 2011**:
<http://riskreport.weforum.org/>

Overview of **37 selected global risks** as seen by members of the World Economic Forum's Global Agenda Councils.

Five risk categories: economic risks,
geopolitical risks,
societal risks,
environmental risks,
technological risks.

Next slides: global risks landscape
risks interconnection map

Figure 1 | Global Risks Landscape 2011:
 Perception data from the World Economic Forum's Global Risks Survey

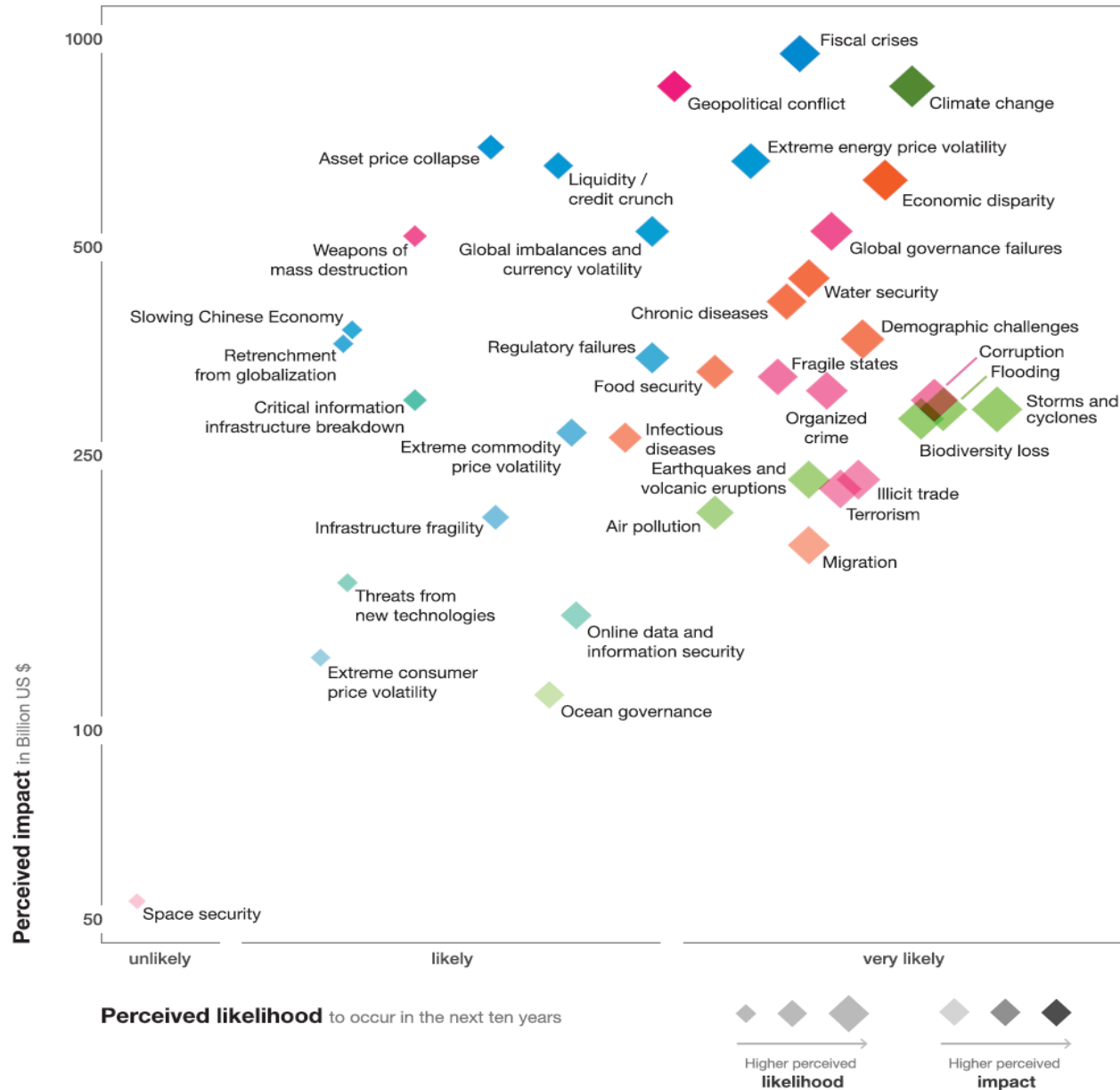
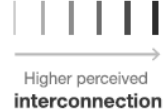
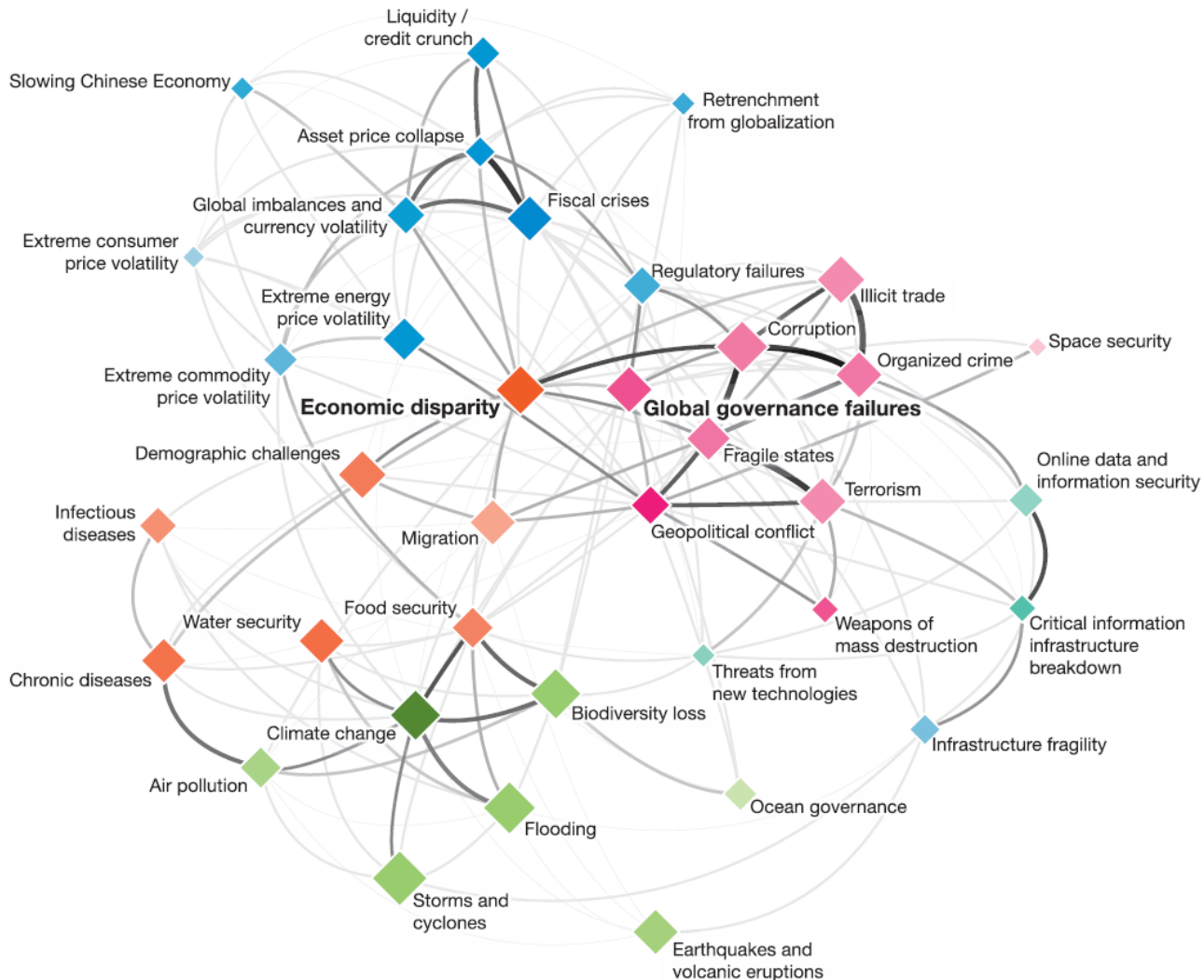


Figure 2 | Risks Interconnection Map (RIM) 2011



Health sector and global risks I.

Direct health risks:

- ✓ Chronic diseases
- ✓ Infectious diseases

Health / eHealth related risks (strong impact):

- ✓ Demographic challenges
- ✓ Fiscal crises
- ✓ Economic disparity
- ✓ Climate change
- ✓ Online data and information security
- ✓ Threats from new technologies

Health sector and global risks II.

Other Health / eHealth sector related risks:

- ✓ Global governance failures / Regulatory failures
- ✓ Global imbalances and currency volatility
- ✓ Corruption
- ✓ Extreme energy price volatility
- ✓ Critical information infrastructure breakdown
- ✓ Food Security / Water Security
- ✓ Migration
- ✓ Biodiversity loss
- ✓ Storms and cyclones / Earthquakes / Flooding

From risks to health challenges

Main challenge for health sector is:

Growing gap: possible resources vs. health needs fulfillment

Why?

- ✓ **Ageing population** – longer part of life spent in diseases and disability.
- ✓ **Demographics crises** – missing doctors nurses and other healthcare staff (future human resources).
- ✓ **Civilization diseases** – growing part of children population suffering from those diseases (for example: diabetes).
- ✓ **More healthcare possibilities** – new medication, examinations, therapy.
- ✓ **More expensive medicine** – genomics, proteonomics, nanomedicine.
- ✓ **Higher patient expectations** – live longer, more HLYs, no DALYs.
- ✓ **Inefficient use of scarce resources** – in the whole health sector.
- ✓ **Missing money in the time of fiscal crises** (EU problem).

From health to local eHealth challenges

Challenges for local eHealth solutions:

Levels of questions: why? / what? / how?

- ✓ **Financial resources for eHealth projects**
 - ✓ Get political support (**why** eHealth in times of fiscal crisis)
 - ✓ Strong Cost-Benefit Analysis
(eHealth is worth of spent money – include health benefits too!)
 - ✓ Provide money saving solutions or strong health impact
- ✓ **Get support** from all stakeholders (**what** are the real benefits)
- ✓ **Set new priorities** in times of fiscal and future demographic crises – changes in eHealth Programmes (**what** to do now)
- ✓ **Management** of new priorities (**how** to do it in best way)
- ✓ **Standardization** and EU interoperability (epSOS, HPro cards, eEHIC)
- ✓ **Mix** of operational and long term priorities (**how** to implement)

Changes in Slovak eHealth Programme

Driver for changes: Fiscal crisis and its impacts

The main money source for National eHealth Programme are in EU funds.

Changes in the Slovak eHealth Programme priorities

- ✓ Benefits driven (financial, social, political, health).
- ✓ Stronger involvement of insurance companies.
- ✓ ePrescription / eMedication as top priority.
- ✓ Support for healthcare providers connecting to eHealth.
- ✓ Deeper integration with epSOS.
- ✓ Stoppers solving: legislation, data protection, standards, sustainability of National eHealth operator.

Paradigm shift – why?

Key driver for health paradigm shift is the same as main challenge:

Growing gap: possible resources vs. health needs fulfillment

If citizens and communities do not play more active role in health care, epidemics of civilization diseases combined with population ageing and demographics crisis will destroy current healthcare systems.

Health paradigms are based on key stakeholder and his assets.

Possible health paradigms:

- ✓ Healthcare providers centric paradigm
- ✓ Patient-centric paradigm
- ✓ Citizen-centric paradigm

Patient-centric health paradigm

In the centre of health policy is:

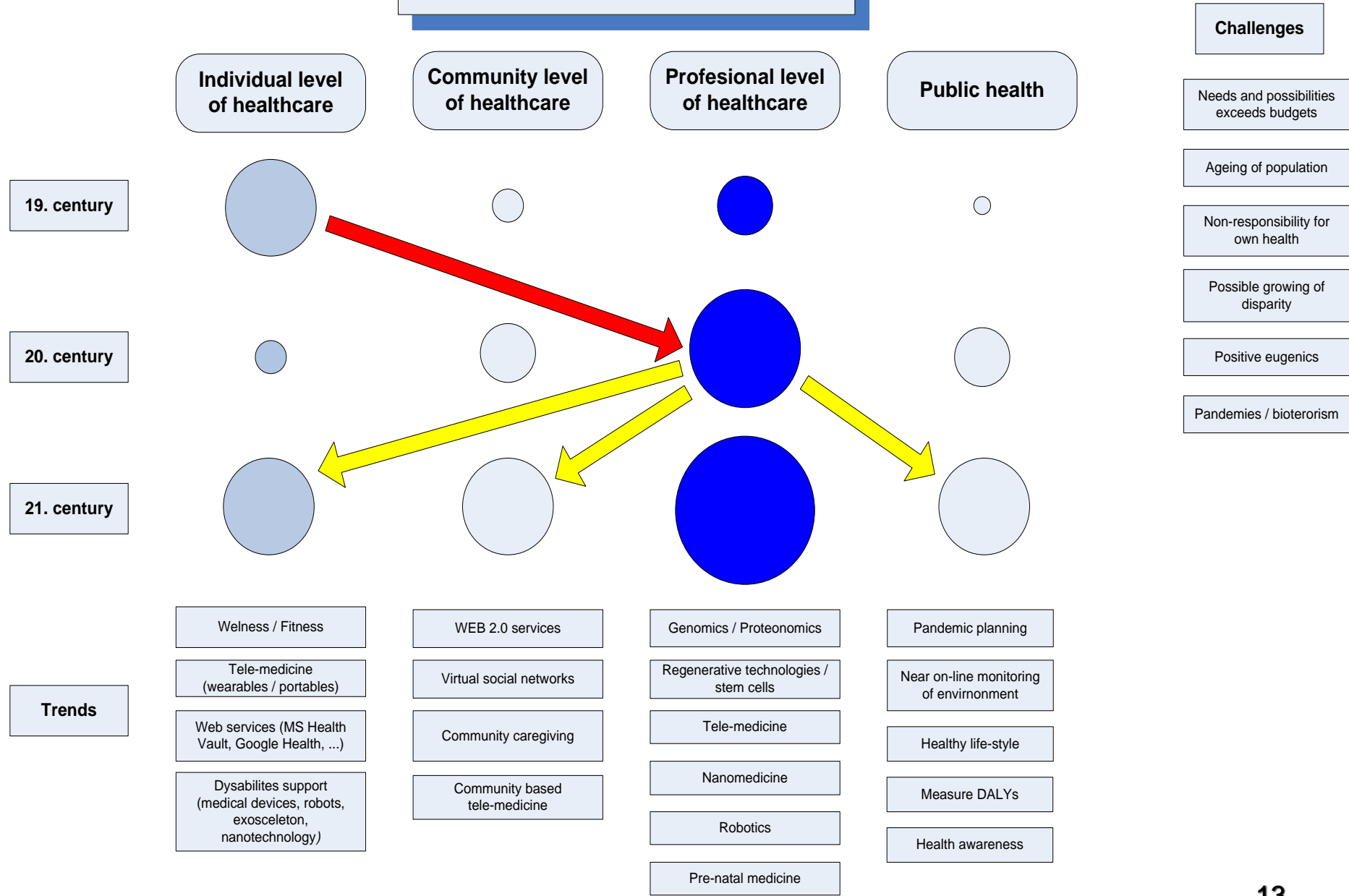
Professional healthcare for patient

Patients needs / requirements / wishes:

- ✓ More efficient examinations
- ✓ More innovative medication
- ✓ Better therapy
- ✓ New methods (genomics, nano technology)
- ✓ Better care (not only “must be“ but also “nice to have”)
- ✓ No waiting / wasting time
- ✓ More nurses, more doctors, more care
- ✓ No self-care, when I am healthy

But what about gap with resources? (money, human resources)

Trends in healthcare



Citizen-centric health paradigm

In times of fiscal and demographics crises, the message:

the longer you stay healthy, the more money is spared for future treatments is the key for the long term sustainability of the health care systems.

Health-damaging lifestyle with epidemics of civilization diseases, also among children population (diabetes and others), means the end of all dreams about the sustainability of the current health care systems.

How to manage the change?

- ✓ Management of all health determinants.
- ✓ Support all forms of health care.

The key is strong involvement of the citizen and his community.

Citizen-centric health paradigm

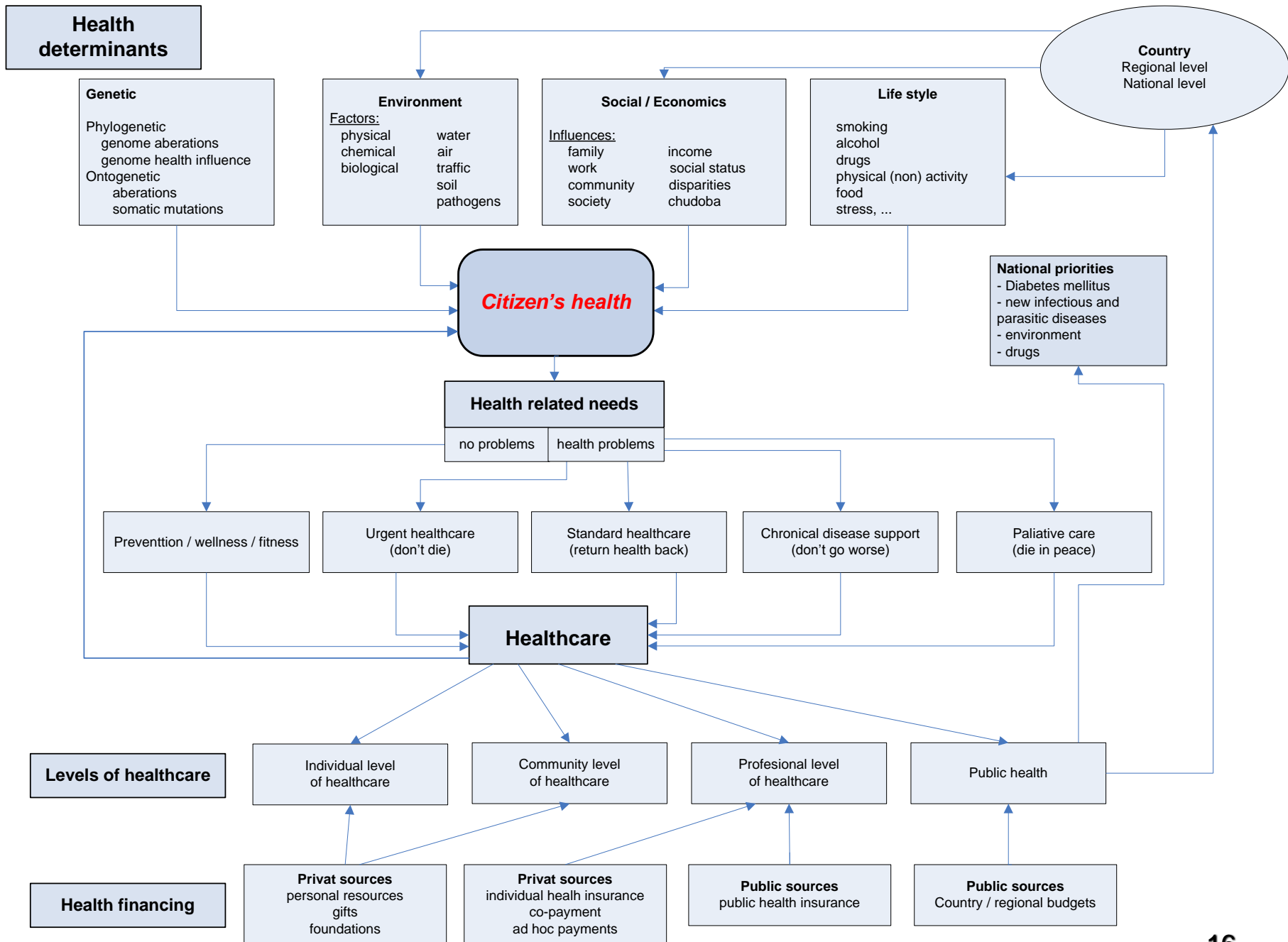
Management of all health determinants

- ✓ Physical environment
- ✓ Social and economic environment
- ✓ Health care (only 20 – 25 % influence on health)
- ✓ Lifestyle
- ✓ Genetics

Support all forms of healthcare

- ✓ Individual level of health care (self-management, self-treatment)
- ✓ Community level of health care
- ✓ Professional health care
- ✓ Public health

See model on next slide:



WHO view on new paradigm

WHO defines the health promotion as a process of **enabling people to increase control over the health determinants and thereby improve their health.**

The five action points were put forward by the Ottawa Charter for Health Promotion for constructing an effective healthcare strategy:

- ✓ build healthy public policy
- ✓ create **supportive environments for health**
- ✓ **strengthen community** action for health
- ✓ **develop personal skills**
- ✓ **reorient health services**

WHO report - Noncommunicable diseases

http://www.who.int/mediacentre/news/releases/2011/ncds_20110427/en/index.html

27.4.2011

“Noncommunicable diseases are the leading killer today and are on the increase”

"The rise of chronic noncommunicable diseases (NCD) presents an enormous challenge," says WHO Director-General Dr Margaret Chan. "For some countries, it is no exaggeration to describe the situation as an impending disaster; a **disaster for health, for society, and most of all for national economies.**"

"Chronic diseases deliver a two-punch blow to development. They cause billions of dollars in losses of national income, and they push millions of people below the poverty line, each and every year.

WHO report - Noncommunicable diseases

Cardiovascular diseases account for most NCD deaths, or 17 million people annually, followed by cancer (7.6 million), respiratory disease (4.2 million), and diabetes (1.3 million). These four groups of diseases account for around 80% of all NCD deaths, and share four common risk factors:

- ✓ tobacco use
- ✓ physical inactivity
- ✓ the harmful use of alcohol and
- ✓ poor diets.

NCD surveillance must be integrated into national health information systems.

Economic analysis suggests that each **10% rise in NCDs** is associated with **0.5% lower rates of annual economic growth.**

WHO report - Noncommunicable diseases

Best buys in Public health include promoting public awareness about:

- ✓ warning about the dangers of tobacco use;
- ✓ reduce salt intake and salt content of food;
- ✓ replacing trans-fat in food with polyunsaturated fat;
- ✓ adequate breastfeeding and complementary feeding;
- ✓ nutrition information and counselling in health care;
- ✓ national physical activity guidelines;
- ✓ school-based physical activity programmes for children;
- ✓ workplace programmes for physical activity and healthy diets;
- ✓ community programmes for physical activity and healthy diets.

Using: **Health portals, Social networks, Mobiles.** TV, radio, tabloids

EU view on new paradigm

White paper: EU new Health Strategy

Together for Health: A Strategic Approach for the EU 2008-2013

Core Values mentioned in White Paper are:

- ✓ **Citizens' empowerment.**
- ✓ Reducing inequities in health.
- ✓ Health policy based on the best scientific evidence.

Three main challenges concerning EU health systems:

- ✓ Demographic changes including population ageing.
- ✓ Pandemics, major physical and biological incidents, climate change.
- ✓ New technologies which are revolutionizing the way we promote health and predict, prevent and treat illness.

Europe 2020 view

Main messages:

Today Europeans face again a moment of transformation to cope with the **impact of the crisis**, Europe's structural weaknesses and intensifying **global challenges**.

Fiscal consolidation and long-term financial sustainability will need to go hand in hand with important **structural reforms**, in particular of pension, **health care**, social protection and education systems.

Flagship Initiative: „Innovation Union“

The aim of this is to re-focus R&D and innovation policy on the **challenges** facing our society, such as climate change, energy and resource efficiency, **health and demographic change**.

Europe 2020 view

Flagship Initiative: A Digital Agenda for Europe

„To promote deployment and usage of modern accessible online services (e.g. e-government, **online health, smart home, digital skills, security**).“

Key Actions:

Key Action 13: Undertake pilot actions to equip Europeans with **secure online access to their medical health data** by 2015 and to achieve by 2020 **widespread deployment of telemedicine services**;

Key Action 14: Propose a recommendation defining a **minimum common set of patient data** for interoperability of patient records to be accessed or exchanged electronically across Member States by 2012;

DALYs view of the new paradigm

Main notions in DALYs model by WHO (Disability Adjustment Life Years)

BoD – Burden of disease (0 – 1) 0: healthy, 1: dead

YLL – Years of life lost due to premature mortality.

YLD – Years of life lost due to disease burden.

$DALYs = YLL + YLD$

DALYs based Health mission:

To reduce mortality, morbidity, persistent and temporal burden of disease and thus improve quality of citizens' life.

DALYs based eHealth mission:

To support Health mission by using ICT.

New paradigm and eHealth priorities

Healthy citizen is the key, support of all 4 levels of health care is necessary, so new eHealth priorities are:

- ✓ More personalized, but secure services:
 - ✓ PHR / EHR based services
 - ✓ telemedicine and mobile Health services
 - ✓ communities support on social networks
 - ✓ individual and community support on health portals
 - ✓ wellness and fitness included
 - ✓ chronic diseases management (doctor's and patient's side)
 - ✓ patient pathway + clinical decision support
- ✓ Genomics and proteonomics
- ✓ DWH from EHR - anti fraud systems, clinical patterns
- ✓ **Smart eHealth services**

Smart eHealth services

Smart eHealth services attributes:

- ✓ Needs & requirements based (see example slide later)
- ✓ Respect local lifestyle and habits
- ✓ Simple for use, smart in functions
- ✓ PHR / EHR and EBM based
- ✓ Intelligent
- ✓ Semantics / ontology based
- ✓ Strong data mining with BI / CI
- ✓ Strong social networking
- ✓ On demand (in clouds)
- ✓ **Save citizen's time spent with doctors and nurses**
- ✓ **Reduce need of doctor's / nurse's intervention**
- ✓ Minimize physical movement (visit doctor, hospital)

eHealth intelligence

The term „eHealth intelligence“ means a set of services of eHealth applications going beyond the standard searching and processing. It consists of expert systems, agents, bots, and patterns recognition systems, advanced data mining, ontology networks, neural networks, fuzzy logic and other advanced software tools.

Work packages:

- ✓ Business intelligence (DWH, data mining, anti fraud, KPI, etc.)
- ✓ Clinical intelligence (chronic diseases management)
- ✓ Public health intelligence
- ✓ Life support systems intelligence
- ✓ Health portals intelligence
- ✓ Social networks intelligence
- ✓ Electronic virtual persons – Avatars
- ✓ Social support intelligence
- ✓ Smart homecare and tele-services (AAL)

Catalogue of needs – example

ID	eHealth domains	Health Portal	ePrescription	PHR / EHR	eBookings	Telemedicine	Genomics	PACS	eConsulting	eWarnings	eLearning
	Needs (citizen)										
1.1	To find information dealing with health related issues - health risks, examinations, therapy, GPs, hospitals, etc.	X								X	X
1.2	To get support for decision making in care process of own health or family members health (ex. - visit GP?)	X		X	X	X	X		X	X	X
1.3	To get drugs from pharmacy without physical visit of it.	X	X								
1.4	To have possibility monitor own body parameters (blood pressure, temperature, biochemistry).	X		X		X					X
1.5	To get support for decision making based on actual level of body parameters.	X							X		
1.6	To get support from applications, that diminish time spent in hospital and to receive support from healthcare in home.	X				X			X		X
1.7	To have possibility get devices , that diminish time spent in hospital and supporting people with dysfunction in homecare.					X					
1.8	To have somebody, who can be anonymous consultant for citizens health problem.	X		X					X		
1.9	To get support for optimizing dosage of drugs without visiting GP.	X	X	X							

Thank you for your attention

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