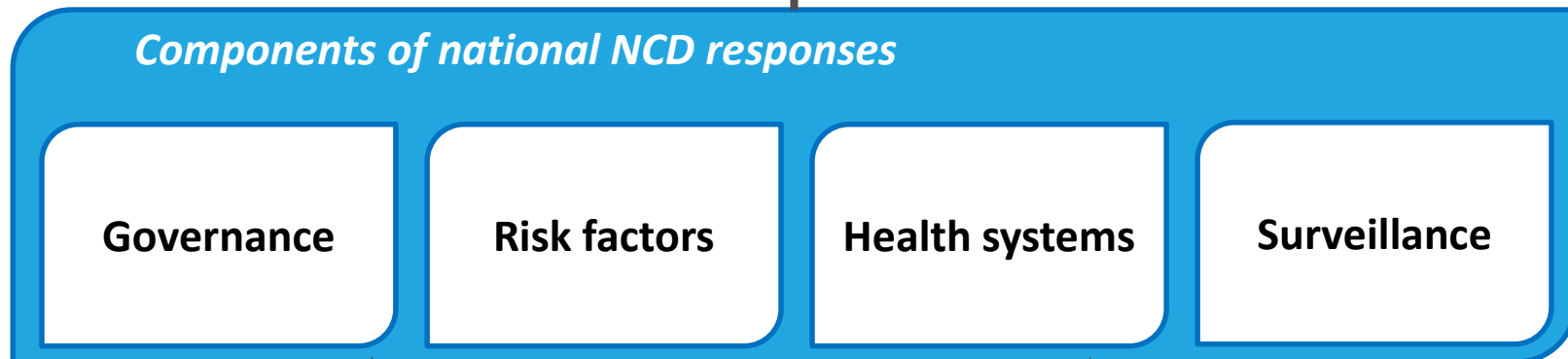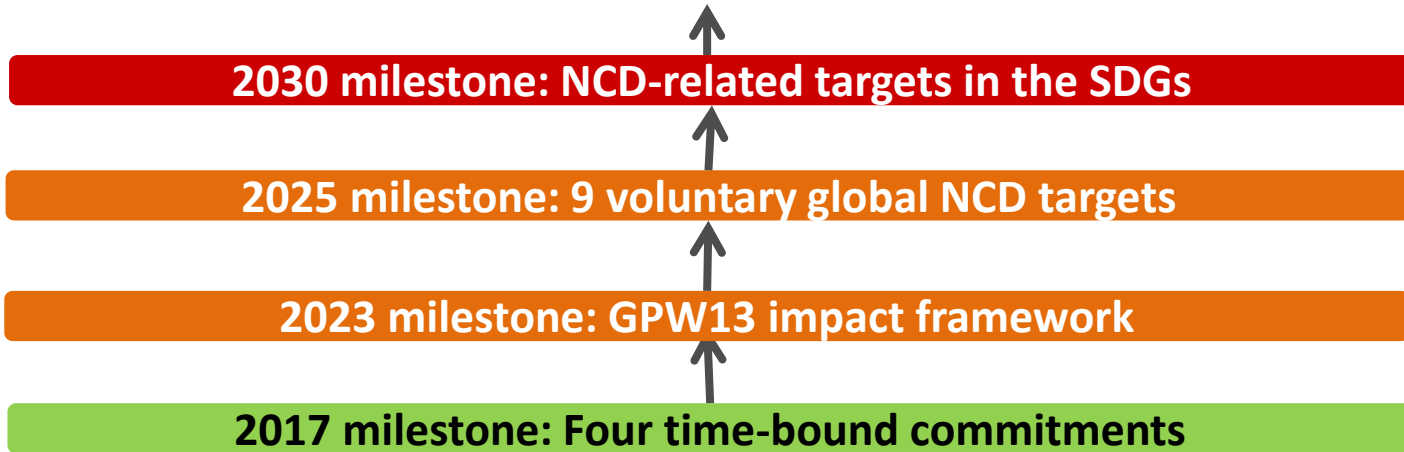# Priority Areas for noncommunicable diseases surveillance

Ivo Rakovac
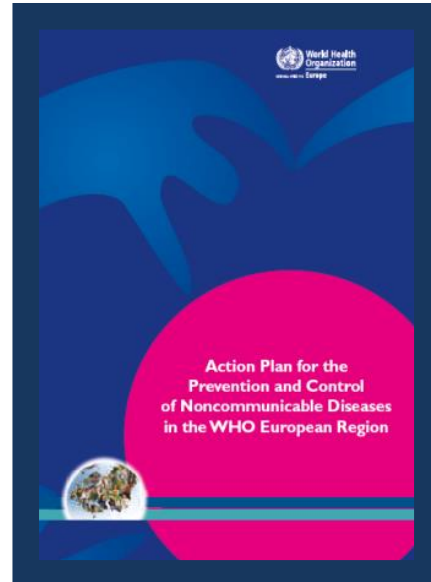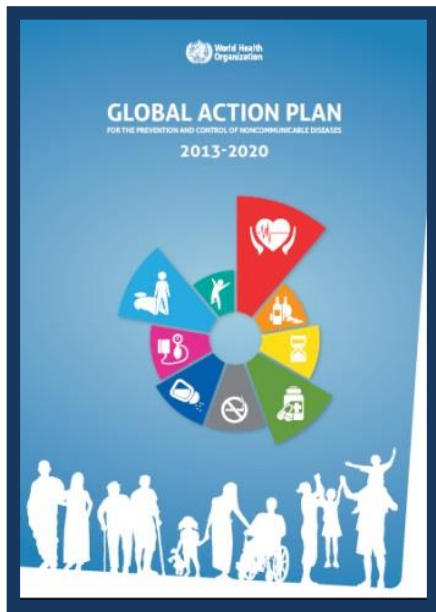
Frameworks: Vision on how to build national NCD responses

By 2030, reduce by one third premature mortality from NCDs

2030 milestone: NCD-related targets in the SDGs

2025 milestone: 9 voluntary global NCD targets

2023 milestone: GPW13 impact framework

2017 milestone: Four time-bound commitments

Components of national NCD responses

| Governance | Risk factors | Health systems | Surveillance |

2011 UN Political Declaration on NCDs

2014 UN Outcome Document on NCDs

H2020

WHO Global NCD Action Plan 2013-2020

WHO European NCD Action Plan 2016-2025

Best buys and other recommended interventions

13th Global Programme of Work (GPW)

Agenda for Sustainable Development 2016-2030

World Health Organization
REGIONAL OFFICE FOR Europe

Organisation mondiale de la Santé
BUREAU RÉGIONAL DE L' Europe

Weltgesundheitsorganisation
REGIONALBÜRO FÜR Europa

Всемирная организация здравоохранения
Европейское региональное бюро

Surveillance, monitoring & research are cornerstone of NCD Action Plans

Major NCD related surveys in the WHO European Region

- Policy and county level / aggregated data:
    - NCD Country Capacity Survey;
    - Joint Eurostat / OECD / WHO Europe data collection incl. hospital discharge data;
    - Causes of death
    - Global Alcohol Survey and Global Tobacco Survey
    - Child and adolescent health;
    - Joint Health 2020, NCD and SDG monitoring framework (?)
    - Other….
- Individual level, foods and exposure data:
    - STEPwise approach to Surveillance (STEPS)
    - Childhood Obesity Surveillance Initiative (COSI)
    - Health Behaviour of School aged Children (HBSC)
    - Salt, iodine and potassium surveys
    - Global Adult Tobacco Survey / Global Youth Tobacco Survey
    - Feed Cities
    - Baby foods
    - Marketing to children
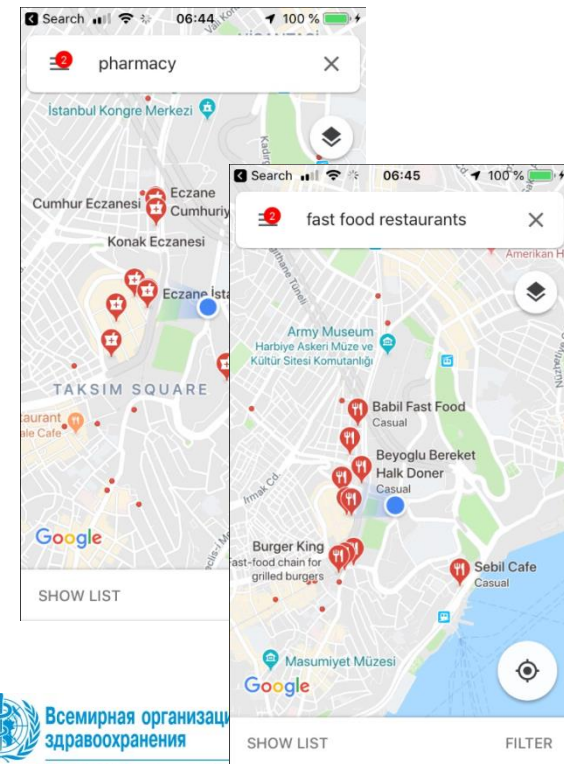
Population based NCD risk factor surveys

- Substantial cost
- Limited number of risk factors
- Use of self reported data
  - Recall bias
  - Social norms

- Large amounts of data already exists and is readily available:
  - Behaviours
  - Attitudes and perceptions
  - Environment

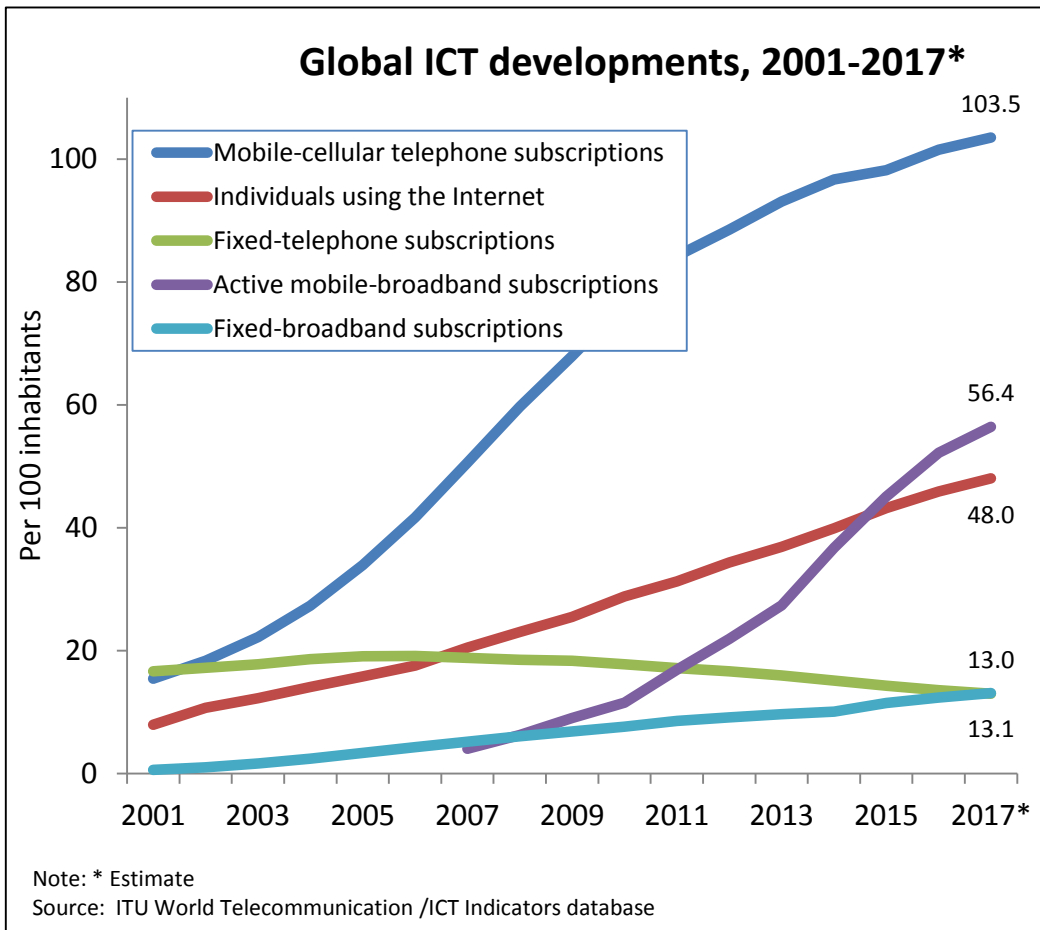# Surveillance methods – challenges and opportunities

- Aim to modernize STEPs and make it more robust
  - Extension from 4x4 to 5x5
  - Other relevant diseases and risk factors
- Validation of existing methods for assessing NCD risk factors
- Validation and objective measurement of behavioral NCD risk factors:
  - Physical activity (accelerometry)
  - Tobacco (cotinine for nicotine exposure)
  - Dietary intake (screeners and food frequency questionnaires)
- Biological risk factors:
  - Salt – spot vs 24h urine
  - Hypertension – device, single vs multiple measures
  - Blood glucose and diabetes (Cardiocheck) incl. HbA1c;
  - Cholesterol (Cardiocheck)

Surveillance methods – challenges and opportunities

- Environment:
  - Tablets / smartphones used for data capture record GPS coordinates automatically
  - Linkages possible with a number of geocoded datasets:
    - Walkability
    - Distance to / availability of medical facilities
    - Green spaces
    - Air pollution
    - Fast food outlets
    - …..
- Integrated camera?
  - "A picture is worth a thousand words"
    - "Dollar Street" by Anna Rosling Rönnlund
  - Food
  - Living conditions
  - Environment

Use of ICT and user tracking in Android apps

Global ICT developments, 2001-2017*

Mobile-cellular telephone subscriptions
Individuals using the Internet
Fixed-telephone subscriptions
Active mobile-broadband subscriptions
Fixed-broadband subscriptions

Per 100 inhabitants

103.5
56.4
48.0
13.0
13.1

2001 2003 2005 2007 2009 2011 2013 2015 2017*

Note: * Estimate
Source: ITU World Telecommunication /ICT Indicators database

Median: 10
No tracker <10%

Root parent	% apps	Subsidiary	% apps	Country
Alphabet	88.44	Google	87.57	US
		Google APIs	67.51	US
		DoubleClick	60.85	US
		Google Analytics	39.42	US
		Google Tag Manager	33.88	US
		Adsense	30.12	US
		Firebase	19.20	US
		Admob	14.67	US
		YouTube	9.51	US
		Blogger	0.46	US
Facebook	42.55	Facebook	42.54	US
		Liverail	1.03	US
		Lifestreet	<0.01	US
Twitter	33.88	Twitter	30.94	US
		Crashlytics	5.10	US
		Mopub	2.51	US
Verizon	26.27	Yahoo	20.82	US
		Flurry	6.28	US
		Flickr	1.37	US
		Tumblr	1.22	US
		Millennialmedia	0.71	US
		Verizon	0.11	US
		AOL	0.06	US
		Intowow	<0.01	US
		One By AOL	<0.01	US
		Brightroll	<0.01	US
		Gravity Insights	<0.01	US
Microsoft	22.75	Microsoft	22.11	US
		Bing	0.12	US
		LinkedIn	20.62	US
Amazon	17.91	Amazon Web Services	11.57	US
		Amazon	7.72	US
		Amazon Marketing Services	1.73	US
		Alexa	<0.01	US

World Health Organization
REGIONAL OFFICE FOR Europe

Organisation mondiale de la Santé
BUREAU RÉGIONAL DE L' Europe

Weltgesundheitsorganisation
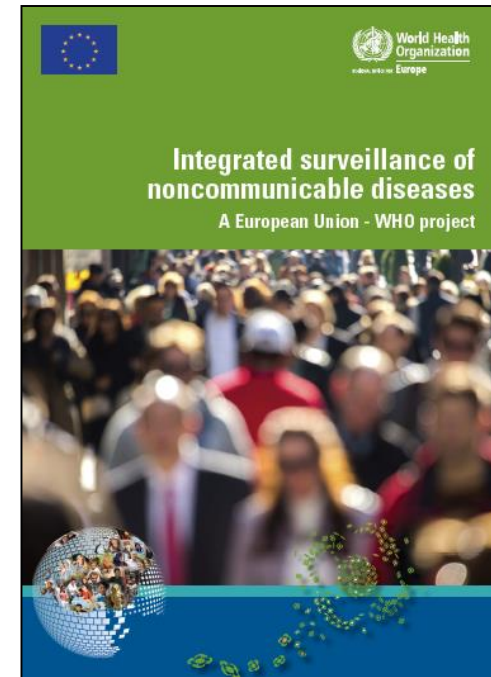REGIONALBÜRO FÜR Europa

Emerging surveillance methods – challenges and opportunities

- Mobile and ICT technology
  - Built-in accelerometers common
  - User tracking
  - Data capture by participants over longer period of time
  - Google Surveys
    - Requires validation, county specific
  - Health apps
    - Be He@lthy, Be Mobile
    - Google health
    - Apple health
    - Yandex.Health (Яндекс.Здоровье)
  - Not only surveillance, also interventions possible

World Health Organization REGIONAL OFFICE FOR Europe

Organisation mondiale de la Santé BUREAU RÉGIONAL DE L' Europe

Weltgesundheitsorganisation REGIONALBÜRO FÜR Europa

Всемирная организация здравоохранения Европейское региональное бюро

Innovative Big Data sources for surveillance of NCDs

Major data sources:

- WWW and application services (e.g. Google and Yandex Maps, Google Trends….),
- Social media and patterns of use
- Digital trails
- Electronic Health Records (EHR)

Integrated surveillance of noncommunicable diseases
A European Union - WHO project

Country support / implementation

- Training workshops:
  - STEPS
  - COSI
  - Feed Cities
  - 24h urine excretion: salt, iodine and potassium
  - ….
- Support to counties for development of implementation plans
- Monitoring of the quality of the fieldwork
- Support to use of tools for data collection, management and analysis and training
  - Data collection tools for fieldwork
  - Open source and freely available tools like R
  - Web and collaborative tools

Country support / implementation

- Build on existing and readily available survey data - e.g. explore individual risk factors for NCDs in more detail
- Publications using country data:
  - Build capacity in countries
  - Implementation research
- Simulation of different scenarios, communicating and integrating findings to stakeholders:
  - Policy dialogue
  - Modelling: PRIME, Dynamo HIA, IMPACT

Thank you

Acknowledgements:
- Joao Breda
- Enrique Loyola
- Bente Mikkelsen
- Julianne Williams
- Stephen Whiting

rakovaci@who.int