

Cardiovascular Disease in Russia

Towards a 360° assessment

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SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Higher School for Economics, Moscow
20 September 2017



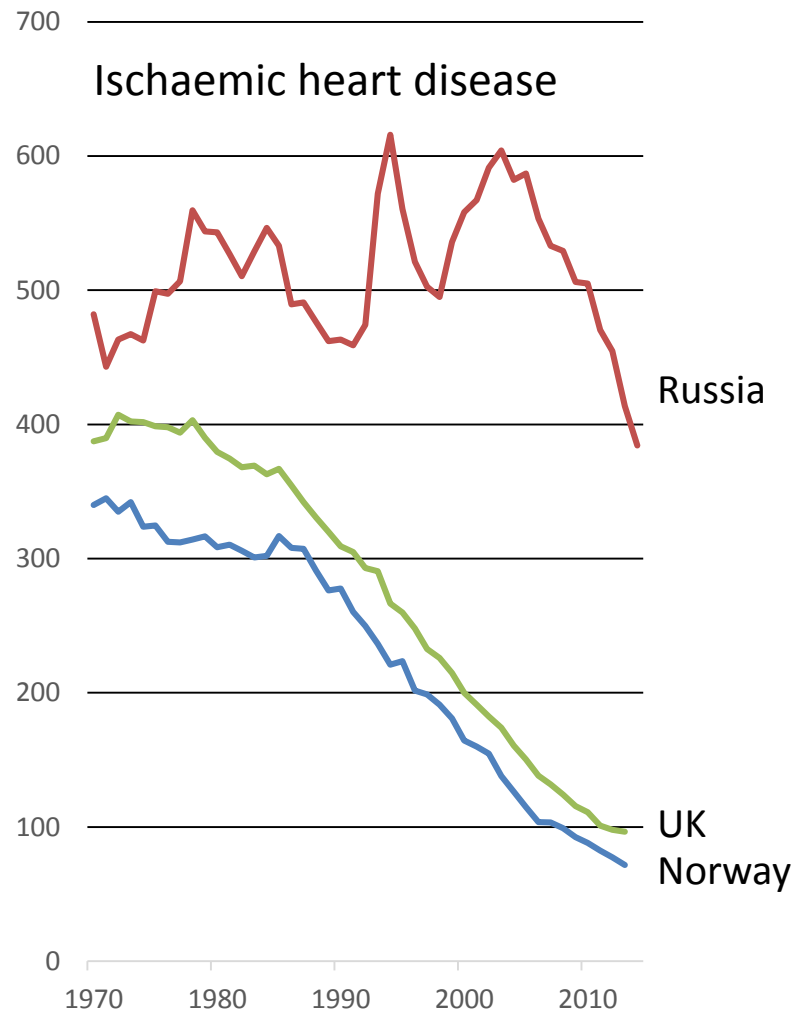
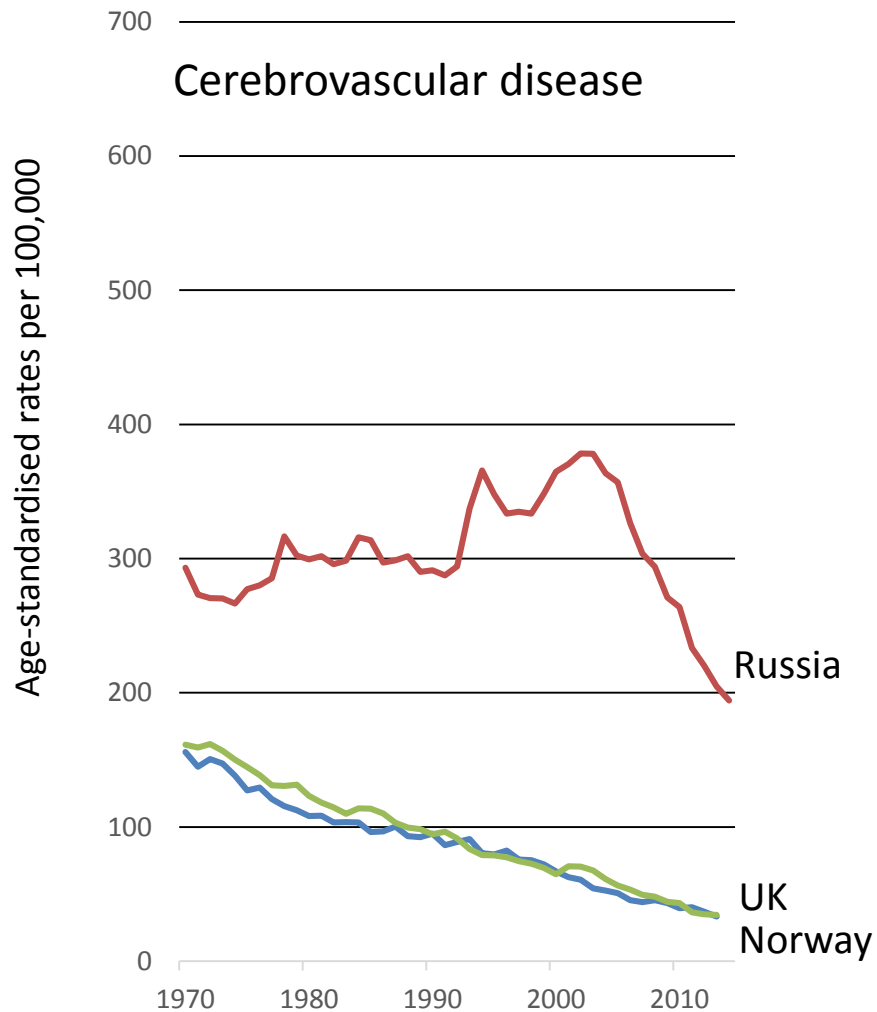
Good News

**Cardiovascular mortality rates in Russia
have been declining since mid-2000s**

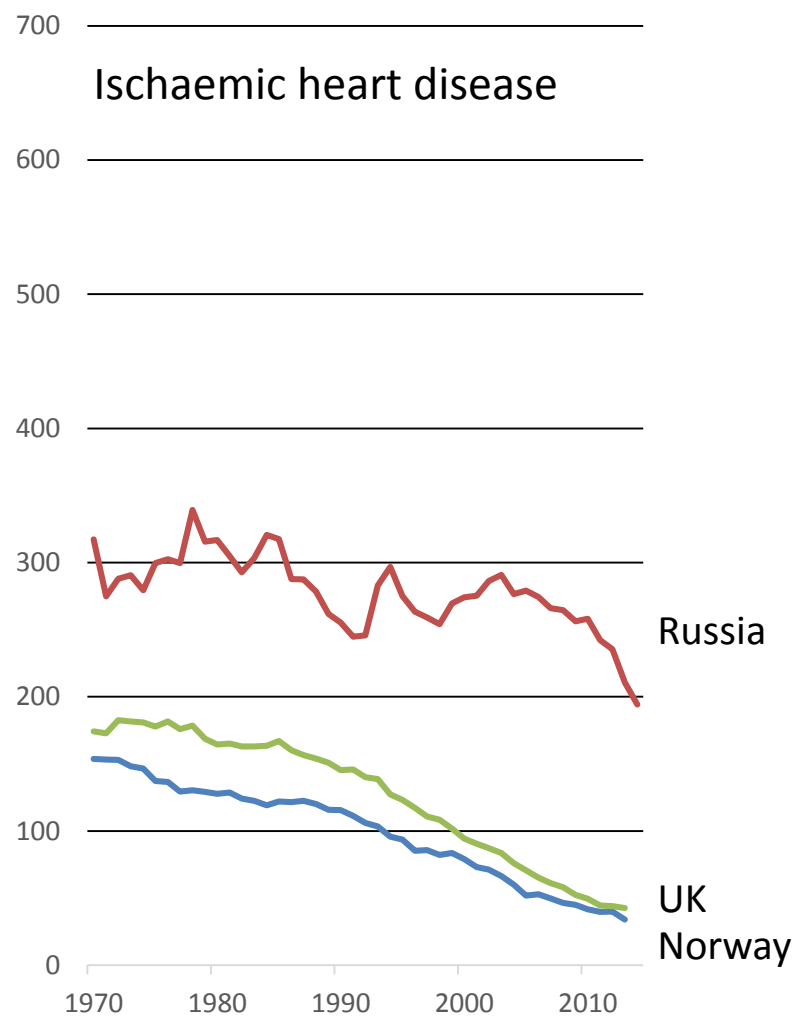
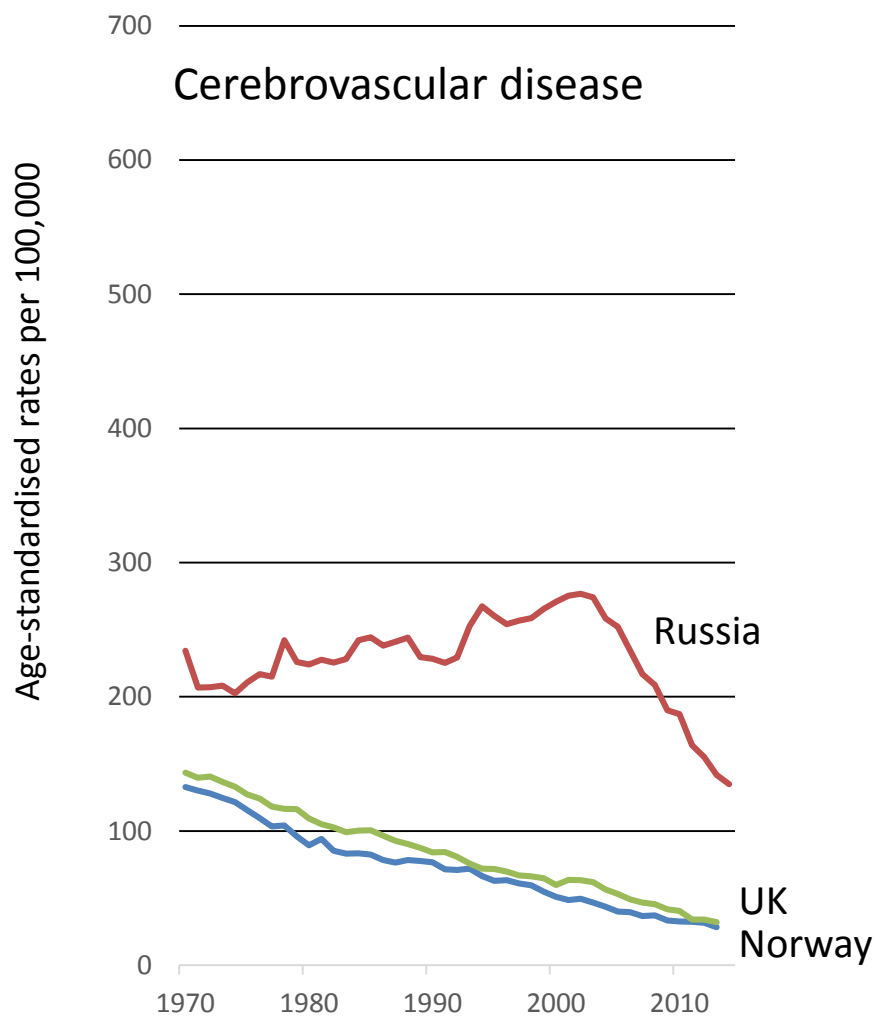
but

**Russia still has one of the
highest cardiovascular mortality
rates in the world**

Cardiovascular mortality trends 1970-2014 in males by country



Cardiovascular mortality trends 1970-2014 in females by country



Two simple questions

- What is the explanation for Russia's very high and fluctuating cardiovascular mortality ?
- What can be done about it ?



Institute of Internal Medicine
SBRAMS, Novosibirsk, Russia

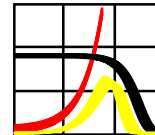


Arkhangelsk, Russia



UiT / THE ARCTIC UNIVERSITY
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Max Planck
Institute for
Demographic
Research



International Project on Cardiovascular Disease in Russia (IPCDR) 2014 - 2019

Funded by



wellcome trust



**Project launch meeting
Moscow 2-3 June 2014**



Objectives of IPCDR

- To explain the poorly understood but extremely high rates of premature mortality from cardiovascular disease (CVD) in Russia
- To communicate results effectively so as to improve primary and secondary prevention of CVD in Russia
- Broaden aetiological understanding of CVD worldwide

Logic of IPCDR



Why does
Russia have
one of highest
CVD mortality
rates in world
?

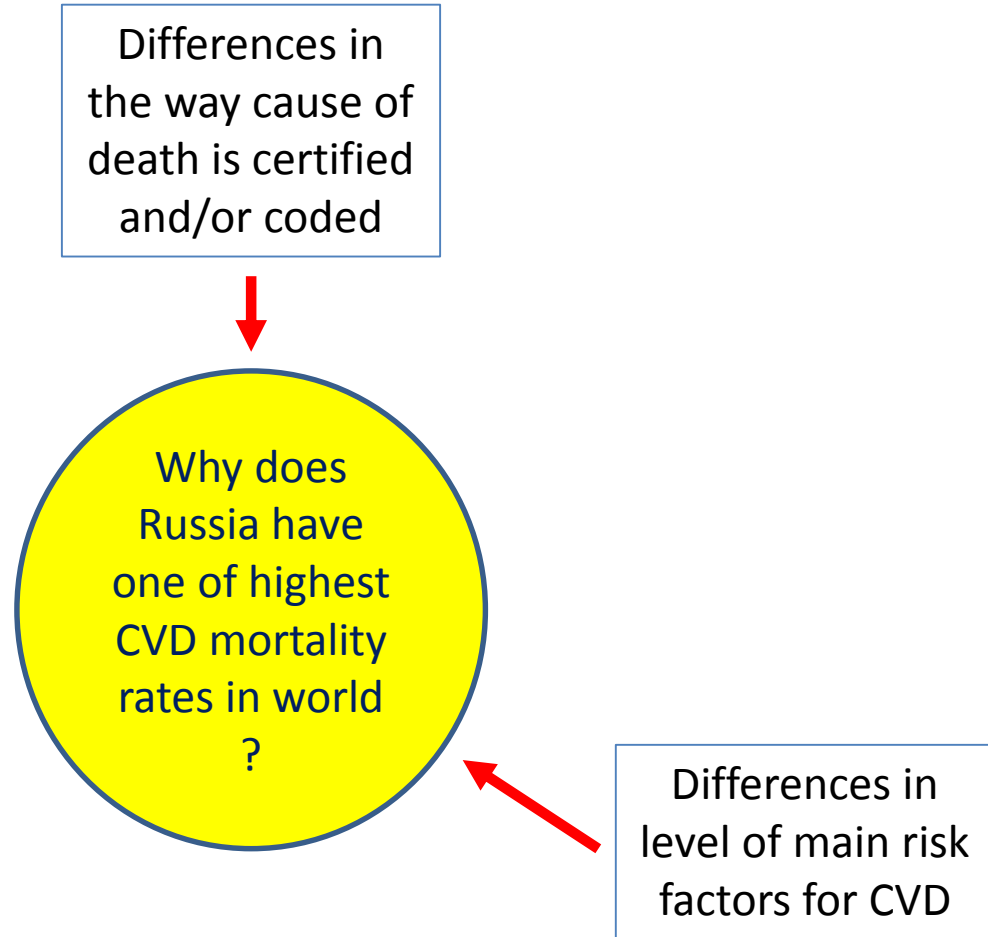
Logic of IPCDR

Differences in
the way cause of
death is certified
and/or coded

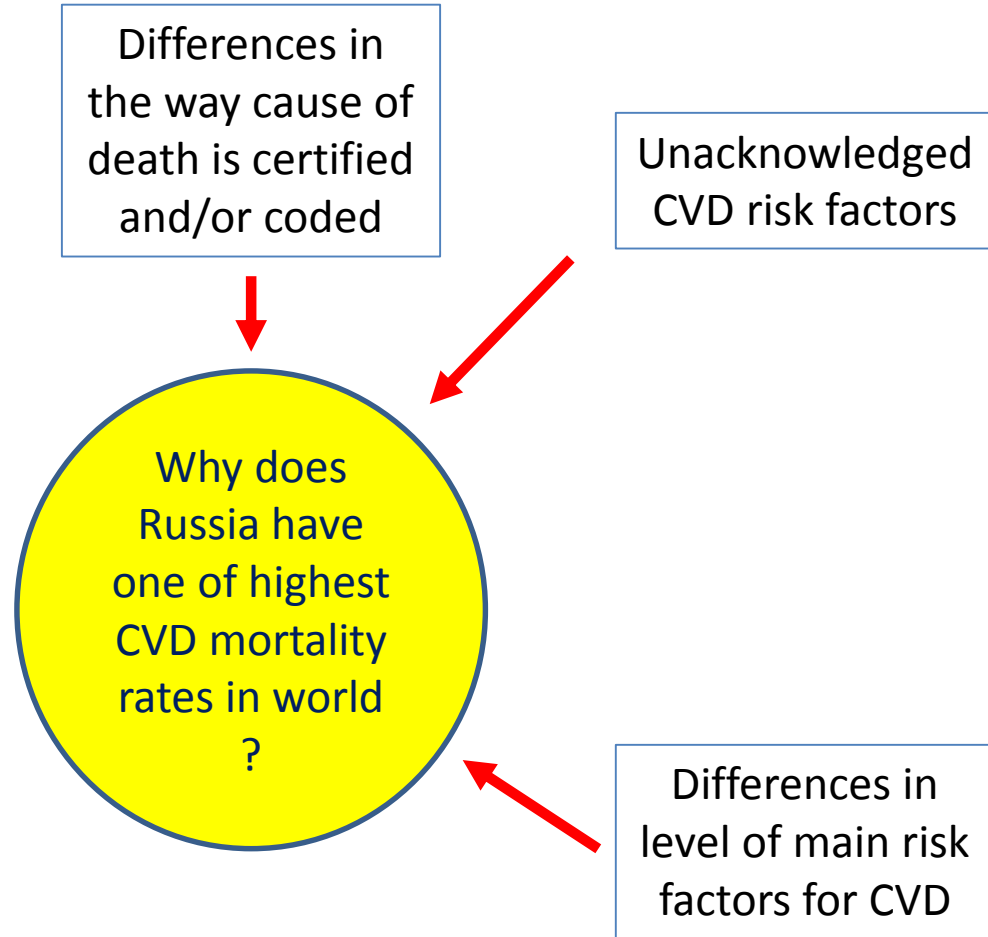


Why does
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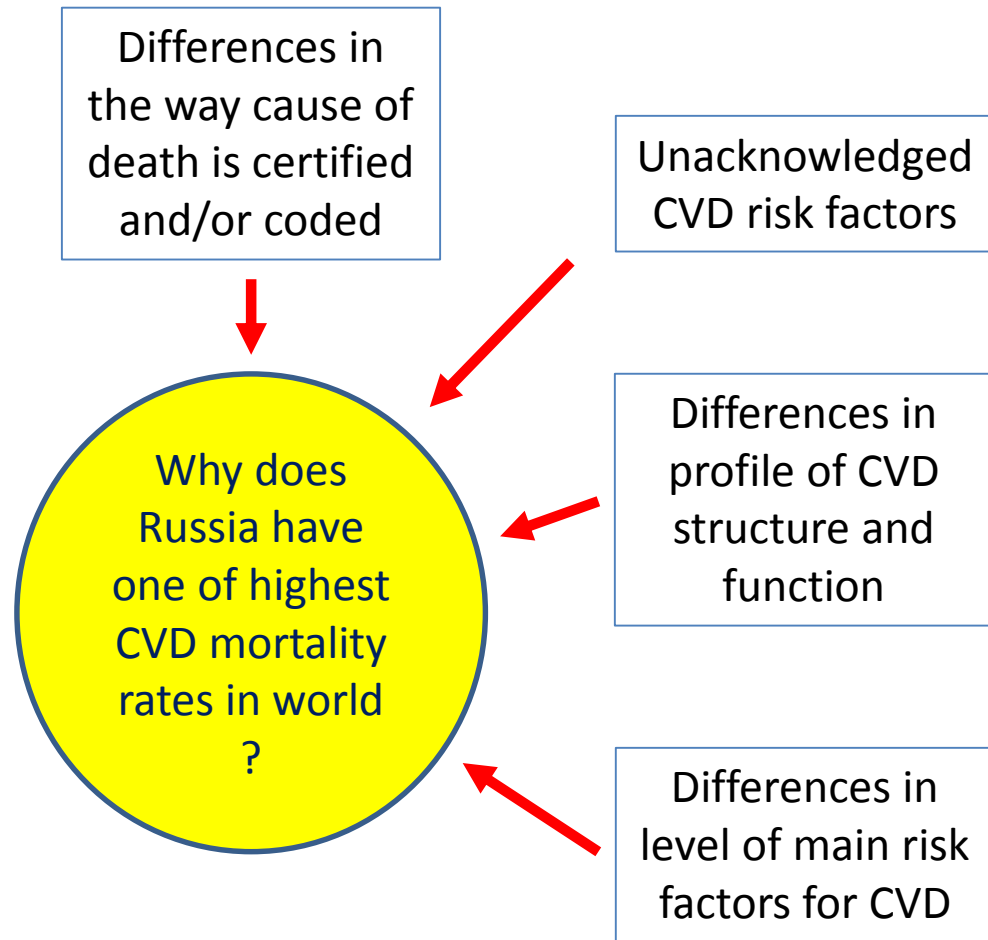
Logic of IPCDR



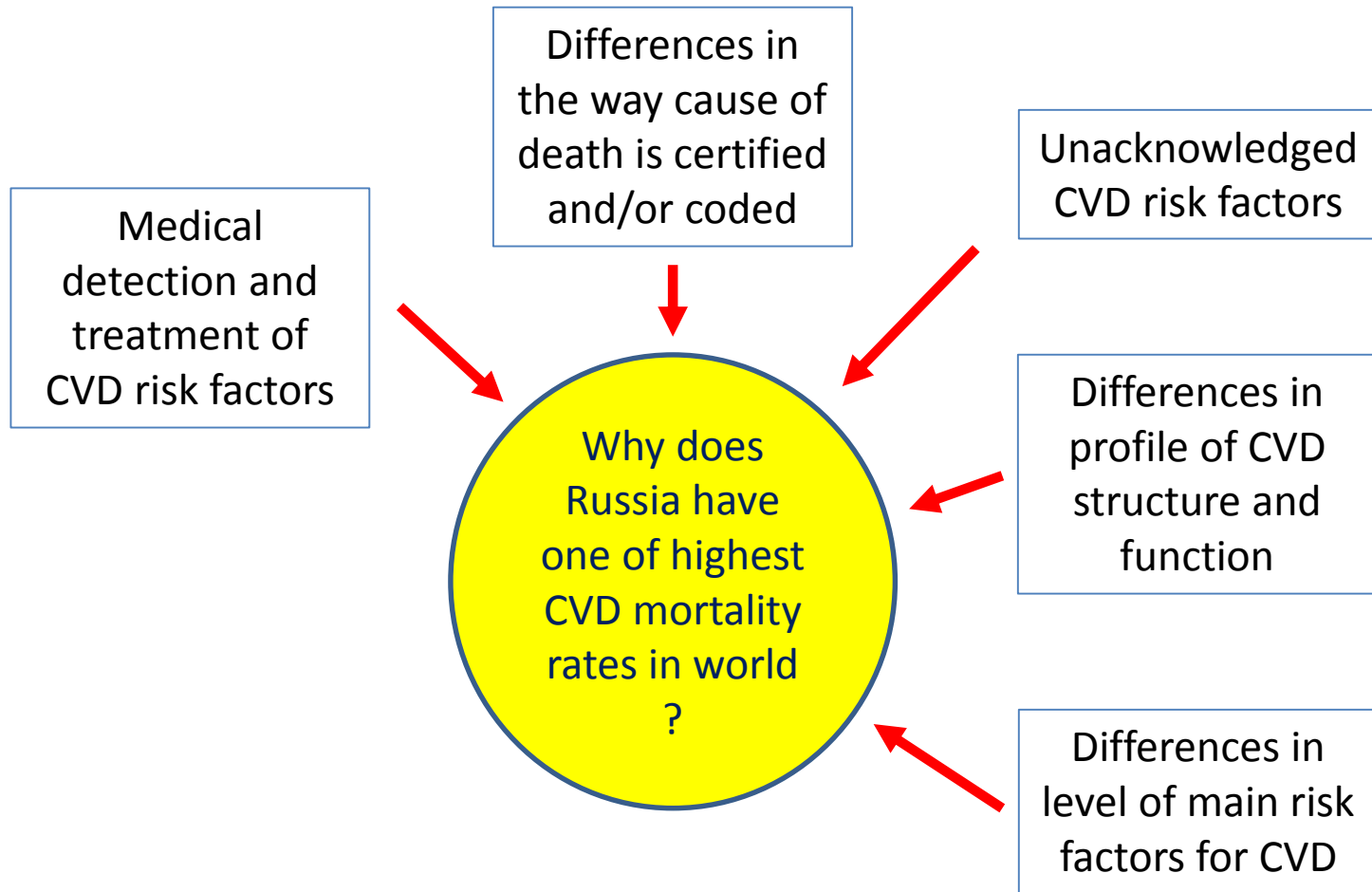
Logic of IPCDR



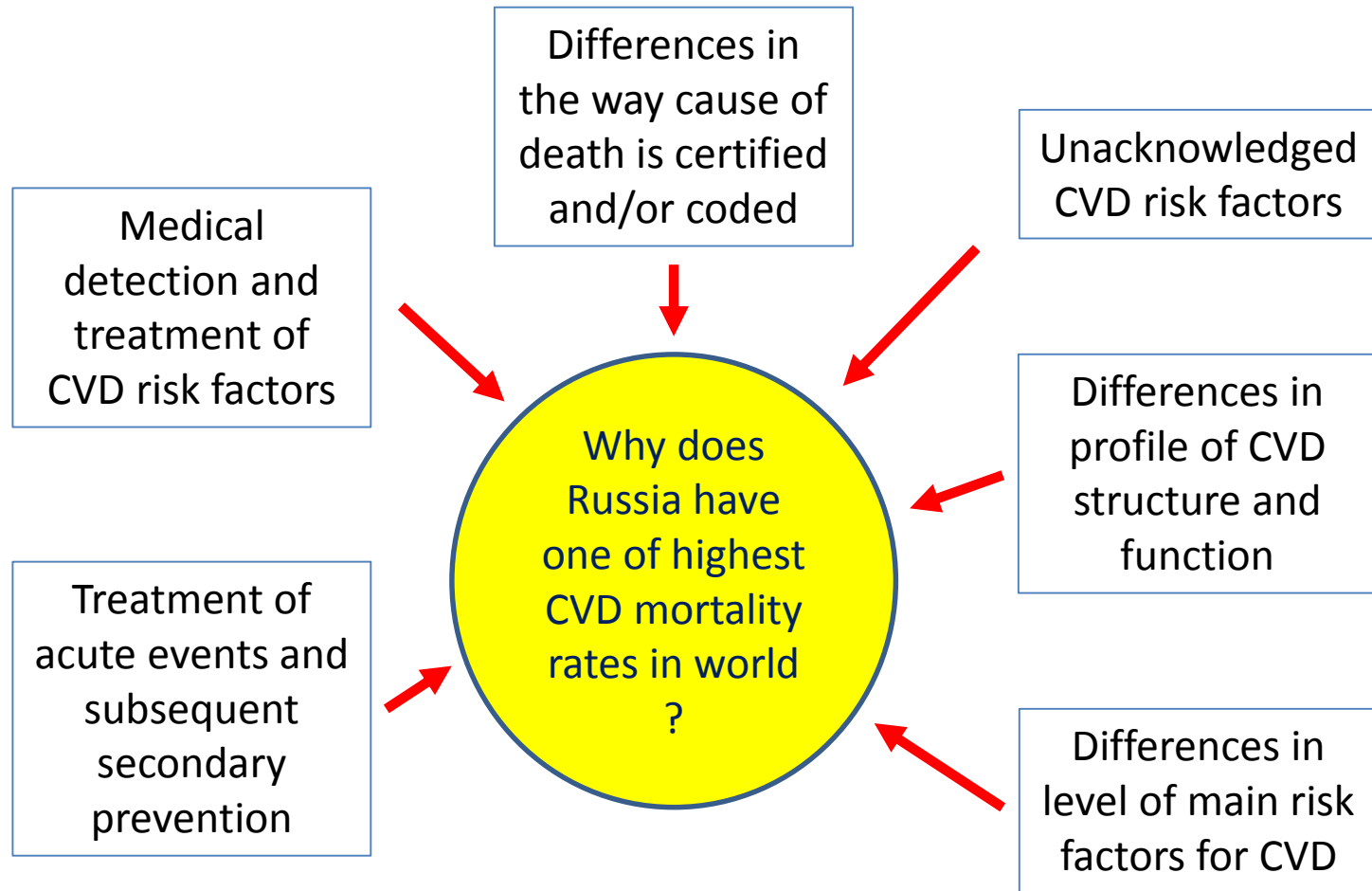
Logic of IPCDR



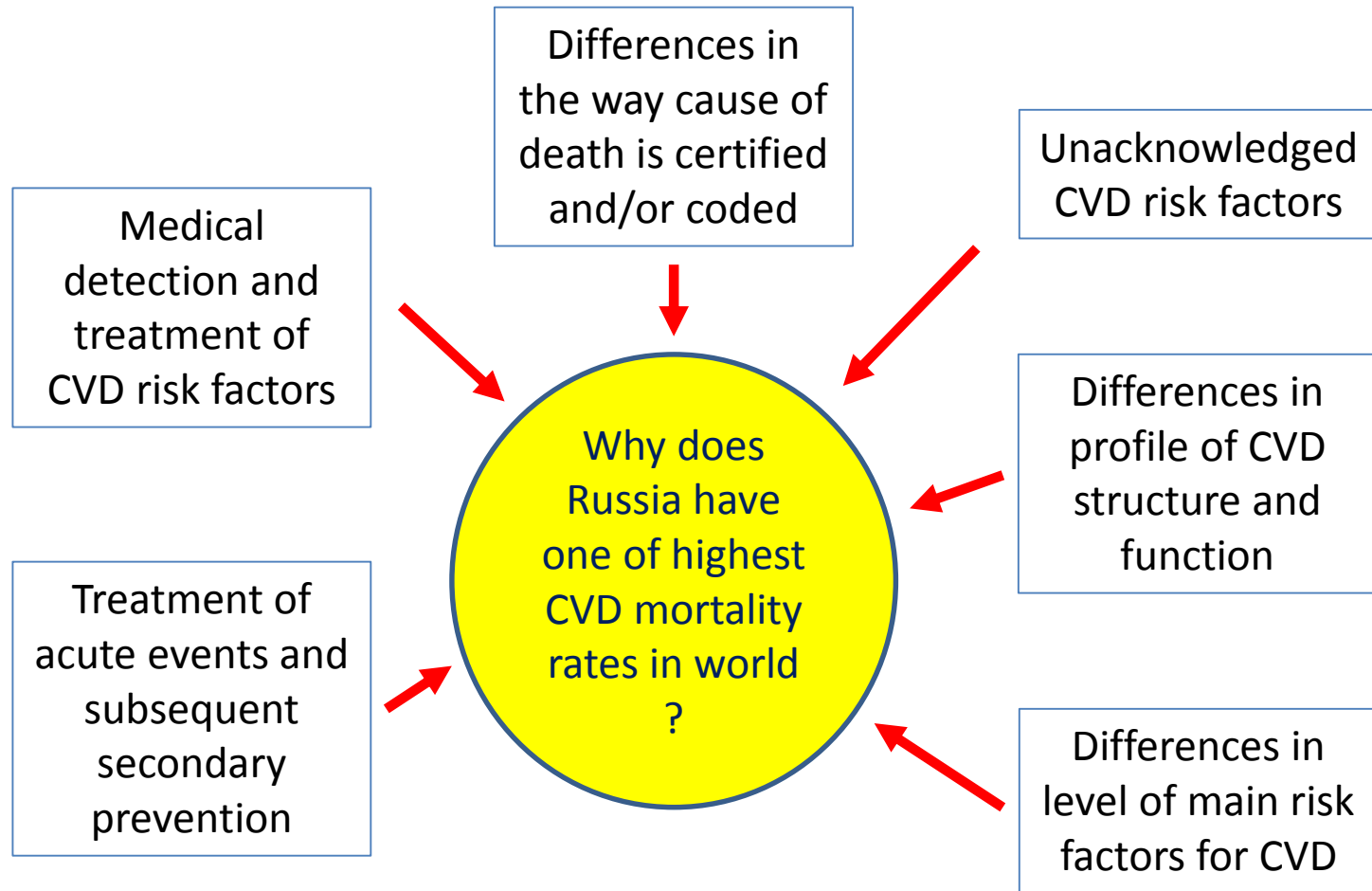
Logic of IPCDR



Logic of IPCDR



A 360° assessment



Four themes

- Theme 1 :** Validity of cause of death (coding, autopsy and other studies)
- Theme 2 :** Levels and trends in cardiovascular mortality and associated risk factors (synthesising existing routine and research data)
- Theme 3:** Understanding the nature and causes of cardiovascular disease in Russia (aetiological studies)
- Theme 4:** Barriers, opportunities and capacity for improved prevention and treatment (role of *health sector*)

Theme 1

- Content : Series of comparative studies of validity of cardiovascular cause of death in Russia and Norway, involving medical and forensic experts and statistical organisations in both countries
- Leader : Per Magnus (Norwegian Institute of Public Health)

Theme 1 - Status

- Bench marking of coding using existing Nordic-Baltic methodology completed and being analysed
 - 350 death certificates from Nordic countries coded in Arkhangelsk (by >20 specialists)
 - 350 death certificates from Arkhangelsk coded in Norway
- Analyses underway looking at influence of certifying expert (forensic vs other) on cause of death
- Analyses underway of detailed distribution by cardiovascular cause of death (ICD10 3 and 4-digit level) in Russia vs other countries
- Small-scale study of sudden unexpected deaths subject to forensic autopsy in Arkhangelsk, Tromso and Oslo completed

Theme 2

- Content : Synthesis of existing routine and research data from Russia to provide best possible assessment of risk factors and their relationship to mortality variation, and their comparison with other countries
- Leader : Vladimir Shkolnikov, Higher School for Economics, Moscow & Max Planck Institute Demographic Research, Germany

Theme 2 - status

- Pooled data set of national and local studies assembled
 - Smoking : analyses of socio-demographic differences (14 studies, 155,013 individuals, aged 18-79) and of time trends in (RLMS 1985-2015; 123,919 observations)
 - Next step will be analyses of biomarkers (hypertension, lipid profiles, obesity)
- Ongoing analyses of national and regional mortality data
- Travel time to PCI centres analysed for RF as a whole in collaboration with Theme C

Theme 3

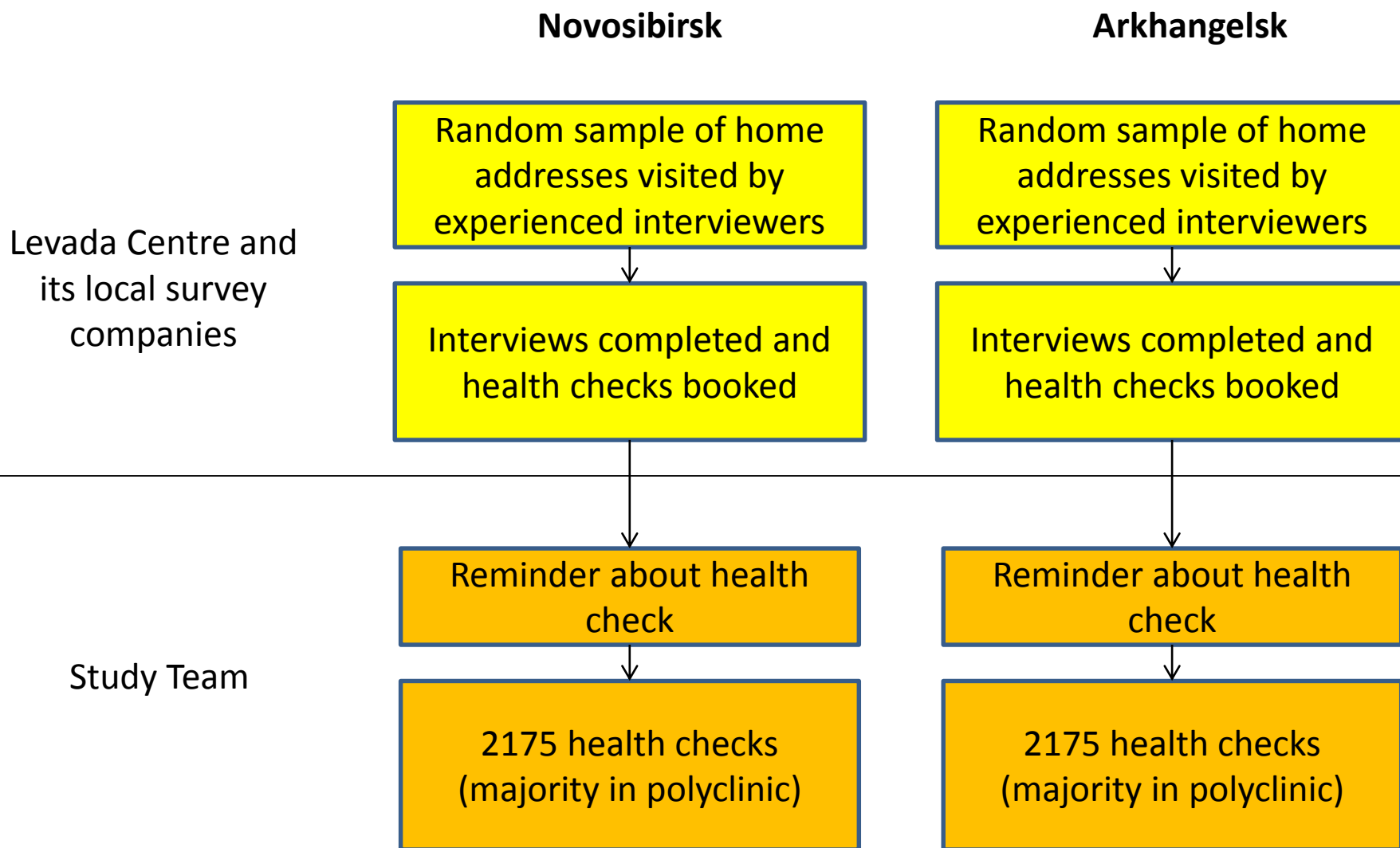


- Content : Cross-sectional surveys of random sample men and women aged 35-69 years including cardiovascular structure, function and bio-markers in Novosibirsk and Arkhangelsk
- Leader : Sofia Malyutina (Institute Internal Medicine, SB RAMS and Novosibirsk State Medical University)

Core activities of Theme 3

- In-depth phenotyping of cardiac and vascular structure and function and biomarkers, using state-of-the-art methods
- Measurement of functional markers, behaviours, socio-demographic factors and risk markers
- Assessment of association of these parameters in the study population
- Comparison of phenotypes and associations with Tromsø 7 Study in Norway and other studies

Survey Procedure



Cardiovascular phenotypes

Type	Source	Biomarker/proxy measure
Atherosclerosis	Questionnaire	Previous MI
	Cardiax digital ECG	Evidence previous MI
	Carotid ultrasound (GE Vivid Q)	Carotid IMT, plaque
Cardiac remodelling	Blood sample	NT-pro BNP, hsTnT
	Echocardiography (GE Vivid Q)	Myocardial function and size
	Cardiax digital ECG	LVH
Vascular dysfunction	Vicorder	Pulse-wave velocity
Blood pressure	Omron 705 IT	Blood pressure

Theme 3 – status

- By early-September 2017 recruited and examined 91% (3975) of our target of 4350 men and women aged 35-69 years (2250 Arkhangelsk; 1725 Novosibirsk)
- Repeatability study underway (target = 200 subjects in each city)
- Examination of patients with alcohol problems in Arkhangelsk almost completed (target=250)
- Projected completion fieldwork late Autumn 2017
- Biochemical assays to be completed in Spring 2018

IPCDR

**Russia-Norway comparisons
particularly important**

Heart to Heart

Tromsø, Arkhangelsk and Novosibirsk

Troms, Norway (2015-16)

21,000 men and women, > 40 years

Arkhangelsk, Russia (2015-17)

2,200 men and women, 35-69 years

London, UK (2014-19)

Project partner



Novosibirsk, Russia (2015-17)

2,200 men and women, 35-69 years

Heart to Heart

Tromsø, Arkhangelsk and Novosibirsk

Troms, No
21,000 men

London, UK (20
Project partner

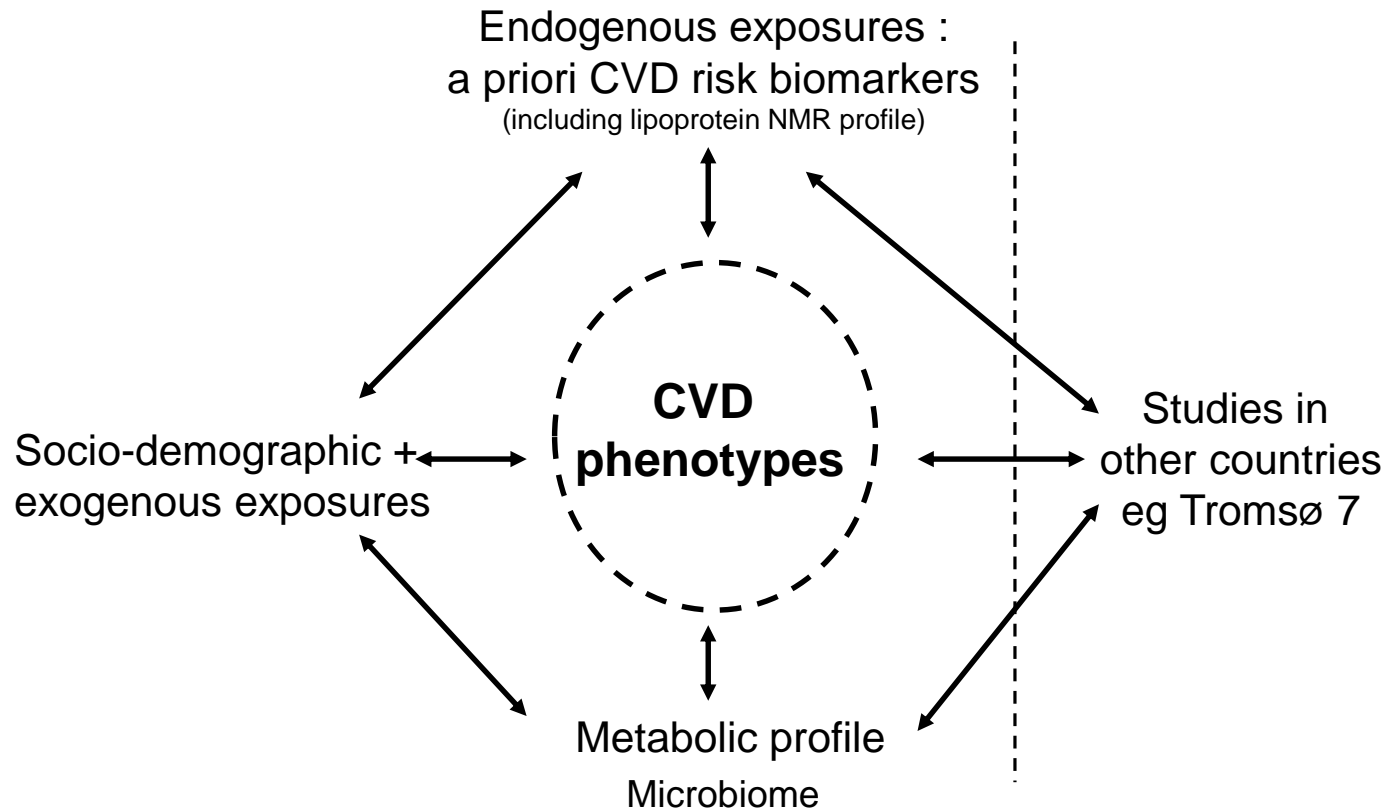
*Aim : to learn and benefit from
studying differences in
cardiovascular health in IPCDR
and the Tromsø Study*

5-17)
69 years

ssia (2015-17)
omen, 35-69 years



Associations : Analytic framework



Theme 4

- Content : Studies of health sector and treatment issues that might contribute to high CVD mortality drawing on other international comparative studies
- Leader : Martin McKee (London School of Hygiene & Tropical Medicine), coordinated by Anna Kontsevaya (National Research Centre Preventive Medicine, Moscow)

Theme 4 – Status (1)

Study of treatment of acute MI

- 13 regions (16 hospitals) with 1131 patients recruited on admission, with follow-up at 6 and 12 months proceeding
- Fieldwork to end autumn 2017



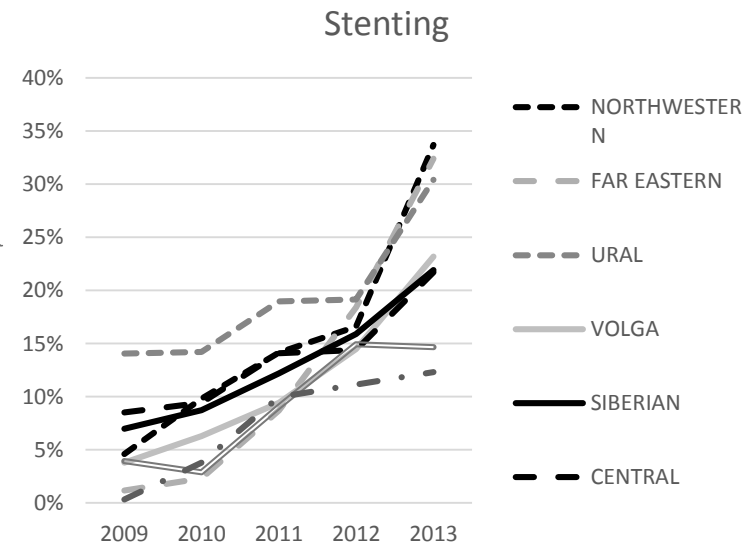
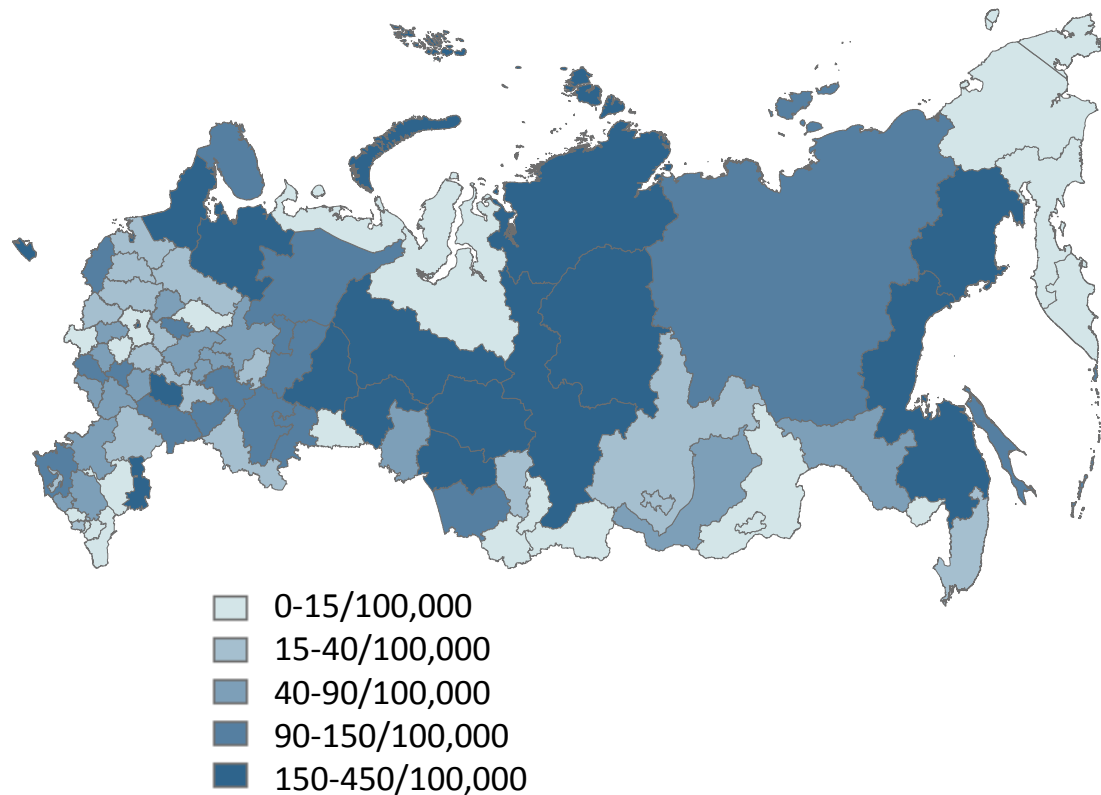
Theme 4 – Status (2)

- CVD medications availability and affordability study in 6 regions started
- Reviews of health care governance and quality management underway : commissioned from Sergey Shiskin at Higher School for Economics, Moscow
- Analyses of avoidable mortality planned
- Study of management of hypertension in primary care using discrete choice experiment

Some preliminary results

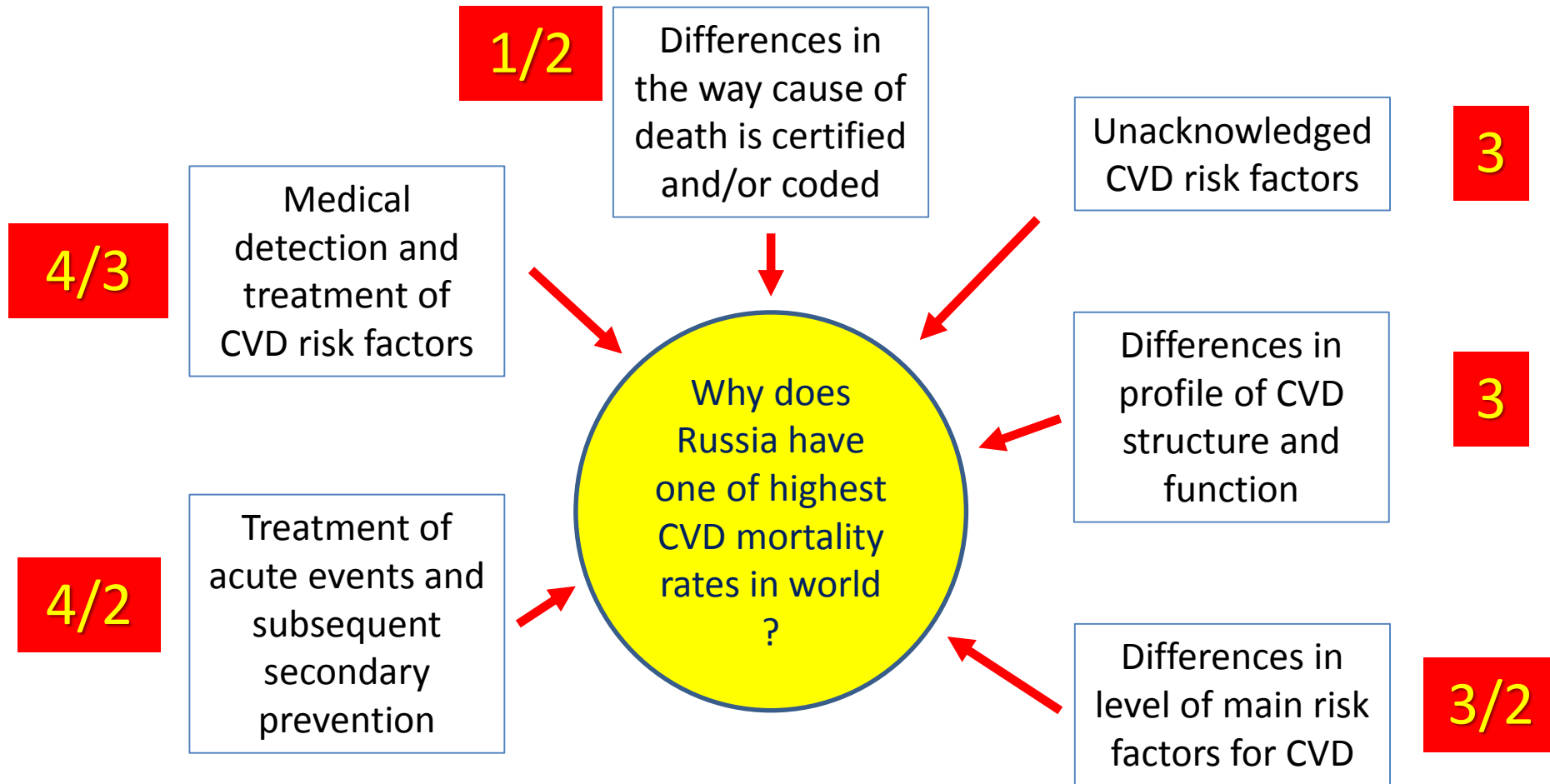
Rates of percutaneous coronary intervention (stenting) for acute myocardial infarction

Rates of PCI 2013



Kontsevaya et al. in press

IPCDR Themes



Getting policy engagement in Russia

- Presentations at conferences and symposia such as Russian Society of Cardiology annual meeting (St Petersburg, October 2017)
- Workshops at regional and federal level with Ministry of Health
- Using IPCDR to catalyse development of comprehensive strategy for CVD that incorporates all sides – a challenge !

Access to IPCDR data

- Sharing data is good for science and public health
- Any legitimate researcher will be able to obtain subsets of the data collected by IPCDR
- We are developing a transparent and open mechanism for applying for access to the data
 - Clear description of what is available (meta-data web-site)
 - Application process clearly defined

Thanks

- To **all the participants** who are taking part in the studies !!
- And to everyone working on the study (>120)



Спасибо

International Project on
Cardiovascular Disease

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