CVD prevention in Europe and Russia: core components of success and new challenges

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Disclosures

- I have no actual or potential conflict of interest in relation to this presentation
- I will not be discussing “off-label” uses of any medications
In the late 90’s and early 2000’s Russia have sustained a profound demographical crisis with a period of overmortality primarily due to cardiovascular diseases.
Distribution of major causes of death in Russia

- **2012**: CVD – 55.4%
- **2013**: CVD – 53.5%
- **2014**: CVD – 49.9%
- **2015**: CVD – 48.7%
- **2016**: CVD – 47.8%

The pie charts show the distribution of major causes of death in Russia from 2012 to 2016, with CVD being the leading cause of death each year. The other categories include cancer, chronic lung, external causes, and others.
Mortality rates from cardiovascular disease in Russia (per 100 000 population)

Since 2003 CVD mortality declined by 37%
## State support of CVD prevention

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Start of the “Health” State National Project</td>
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<tr>
<td>2008</td>
<td>Russia has signed the WHO Frame Convention against Smoking</td>
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<td>2009</td>
<td>695 Health Centers were opened throughout Russia</td>
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<tr>
<td>2010</td>
<td>National Antismoking Concept: Ban on advertising of cigarettes in shops; 21% increase of taxes on cigarettes; Ban on smoking in public places from 2013</td>
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<tr>
<td>2011</td>
<td>First Global Ministerial Conference on Healthy Lifestyles and NCDs control, 28-29 April, 2011 (Moscow Declaration)</td>
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</table>
Russian Society of Cardiology
Russian National Society of Preventive Cardiology
Biggest political party “Edinaya Rossya”

HEALTHY HEARTS
2009-2011

- 27 big Russian cities from Kaliningrad to Vladivostok
- 11,000 GPs and cardiologists were involved in training on contemporary strategies of CVD prevention
- More than 57,000 citizens participated in basic health-checks and got a professional advice on CVD prevention
The United Nations High Level Meeting on the Prevention and Control of NCDs resulted in a political declaration, committing world governments to develop a global policy on NCDs prevention as well as a global monitoring framework. 19-20 September, 2011, New York
25by25 GLOBAL TARGET
A 25% RELATIVE REDUCTION IN OVERALL MORTALITY FROM CARDIOVASCULAR DISEASE, CANCER, DIABETES OR CHRONIC RESPIRATORY DISEASES

WHF GOAL
A 25% REDUCTION IN PREMATURE MORTALITY FROM CARDIOVASCULAR DISEASE BY 2025

HARMFUL USE OF ALCOHOL
10% REDUCTION

PHYSICAL INACTIVITY
10% REDUCTION

SALT/SODIUM INTAKE
30% REDUCTION

TOBACCO USE
30% REDUCTION

RAISED BLOOD PRESSURE
25% REDUCTION

DIABETES/OBESITY
0% INCREASE

50% OF ELIGIBLE PEOPLE RECEIVING DRUG THERAPY AND COUNSELLING TO PREVENT HEART ATTACK AND STROKE

80% AVAILABILITY OF ESSENTIAL MEDICINES AND BASIC TECHNOLOGIES TO TREAT CVD AND OTHER NCDs

2025

Source: Adapted from WHO Global NCDs Monitoring Framework

The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of nine societies and by invited experts)

Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR)

Authors/Task Force Members: Joep Perk (Chairperson) (Sweden)*, Guy De Backer† (Belgium), Helmut Gohlke‡ (Germany), Ian Graham§ (Ireland), Željko Reiner¶ (Croatia), Monique Verschuren‖ (The Netherlands), Christian Albus‡ (Germany), Pascale Benlian¶ (France), Gudrun Boysen‖ (Denmark), Renata Cifkova§ (Czech Republic), Christi Deaton† (UK), Shah Ebrahim£ (UK), Miles Fisher§ (UK), Giuseppe Germano¶ (Italy), Richard Hobbs† (UK), Arno Hoes‖ (The Netherlands), Sehnaz Karadeniz§ (Turkey), Alessandro Mezzani¶ (Italy), Eva Prescott§ (Denmark), Lars Ryden† (Sweden), Martin Scherer£ (Germany), Mikko Syvänen§ (Finland), Wilma J.M. Scholte Op Reimer‖ (The Netherlands), Christiaan Vrints§ (Belgium), David Wood† (UK), Jose Luis Zamorano§ (Spain), Faiez Zannad¶ (France).

Other experts who contributed to parts of the guidelines: Marie Therese Cooney (Ireland).
First Russian National Guidelines on CVD prevention - 2011

First Russian National Guidelines on NCDs prevention - 2013
In 2009-2010 in the Russian Federation was developed a new preventive state healthcare structure - health centers (HCs) – 502 health centers for adults and 193 for children.

The aim was to increase citizens’ responsibility towards their health, to motivate people to give up unhealthy habits, including smoking and excessive alcohol intake, and to obtain the risk factors goals.

Complex health screening performed on free-of-charge basis includes more than 25 basic parameters of health:

- Measurement of height, weight (body mass index)
- Smoking status, eating habits, alcohol consumption
- Blood pressure
- Total cholesterol and glucose
- Carbon monoxide in the exhaled air, carboxyhemoglobin
- Lung function (spirometry)
- ECG (3 leads, computerized), heart rate variability
- Ankle-brachial index (vascular screening)
- Stress level
- Bioimpedancemetry (percentage of water, muscle and adipose tissue)
- Prophylactic dental examination
- Ophthalmometry (acuity and intraocular pressure)
- SCORE level

In 2011-2015 were additionally opened 59 Health Centers and 52 Mobile Health Centers.
More than 4 million 700 thousands people came to check their health in Health Centers of the Russian Federation.
DISPANSERIZATION: Health screening program in 21-99 years old people

- Height, weight, BMI
- Blood pressure
- Total cholesterol
- Glucose
- ECG (every year M 35+, W 46+)
- SCORE level (every year in 40-63 years old)
- Lungs fluorography
- Mammography (W 39+)
- Cervical cytology
- PSA (M 50+)
- Intraocular pressure (39+)
- Others

The complex depends on age and sex and consists of 2 stages

- SCORE <1% and 2-4%
  - 1nd Health Group

- SCORE 5-9% and 10% and more
  - 2nd Health Group

- CVD and other NCDs
  - 3rd Health Group
DISPANSERIZATION: Health screening program, 2014

**Russian Federation, 22 400 000 people**

- 1 Group: 33.3%
- 2 Group: 21.2%
- 3 Group: 45.5%

**Moscow, 2 300 000 people**

- 1 Group: 37.3%
- 2 Group: 21.1%
- 3 Group: 41.6%

_S. Boytsov, 2015_
DISPANSERIZATION: Health screening program, Moscow 2013
Cardiovascular diseases diagnosed first time during life per 100,000

- CVDs: 1695.4, 3165.2 (1.9 times)
- AH: 387.1, 2028.1 (5.2 times)
- CHD: 382.9, 543.7 (+30%)
- Angina: 115.9, 222.1 (+48%)
- Cerebrovacs: 340.2, 526.9 (+35%)
- Arteries stenosis: 1.5, 43.8 (29 times)

N. Pogosova, 2013
Consumption of vegetables, fruits, berries, fish and fish products in Russia (kg per person per year)

Vegetables, fruits and berries

Fruit and berries

Vegetables

Fish and fish products

Federal statistics service of Russia, June 2014
Consumption of strong alcohol and wine in the Russian Federation (liters per person per year)

Federal statistics service of Russia, June 2014
2012 – 2017 Risk factors in the Russian population

Smoking in men
- 2012: 45.00%
- 2017: 60.70%
Change: -25.9%

Smoking in women
- 2012: 15.00%
- 2017: 21.70%
Change: -30.9%

Russian population regularly doing physical activity
- 2012: 22.50%
- 2017: 36.80%
Change: +14.3%
• Since 2008 more than 16 800 million rubles (approx. 525 million USD) were spent in order to increase the availability of the modern technologies of CVD treatment.

• In 2008-2011 throughout Russia were opened:

  55 REGIONAL VASCULAR CENTERS
  146 VASCULAR DEPARTMENTS providing PCI, bypass surgery, valve surgery, arrhythmias interventional treatment, carotid artery surgery, etc.

Since 2004 increase of number: bypass surgery – 2.9 times, PCI – 10.5 times

Coronary revascularization procedures in Europe

European Cardiovascular Disease Statistics 2017

125 PCI per 100,000 in Russia in 2016
**EUROASPIRE IV Survey on CVD Prevention and Diabetes**

- Consecutive patients CABG / PTCA / AMI / ISCHAEMIA
  - **CABG**: Elective or emergency coronary artery by-pass graft (CABG) operation
  - **PTCA**: Elective or emergency percutaneous transluminal coronary angioplasty (PCI)
  - **AMI**: Acute myocardial infarction (ST elevation and Non ST elevation MI)
  - **ISCHAEMIA**: Acute myocardial ischaemia but no evidence of infarction

- Men or women

- Aged ≥ 18 years and < 80 years at the time of identification

- Index event ≥ 6 months and ≤ 3 years prior to the expected date of interview

European audit aimed to determine whether the European guidelines on cardiovascular disease prevention are being followed in clinical practice
European audit aimed to determine whether the European guidelines on cardiovascular disease prevention are being followed in clinical practice.
### EUROASPIRE IV: Medication use at discharge and at interview

<table>
<thead>
<tr>
<th>Drug class</th>
<th>Russia</th>
<th>All patients in EUROASPIRE IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In discharge letter</td>
<td>At interview</td>
</tr>
<tr>
<td>Aspirin and other antiplatelets</td>
<td>97.0%</td>
<td>93.4%</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>88.5%</td>
<td>80.1%</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>60.1%</td>
<td>52.8%</td>
</tr>
<tr>
<td>Angiotensin II receptor antagonists</td>
<td>11.4%</td>
<td>12.3%</td>
</tr>
<tr>
<td>Calcium antagonists</td>
<td>21.7%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Nitrates</td>
<td>42.2%</td>
<td>27.7%</td>
</tr>
<tr>
<td>Diuretics</td>
<td>38.2%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Statins</td>
<td>88.5%</td>
<td>74.6%</td>
</tr>
<tr>
<td>Anticoagulants</td>
<td>2.5%</td>
<td>2.1%</td>
</tr>
</tbody>
</table>
Cardiovascular risk factors prevalence in patients with CHD

EUROASPIRE IV, 26 countries, 2012-2013, 7998 patients

EUROASPIRE III и IV

- Smokers: 23% (Russia) vs 16% (All)
- Former Smokers (6 months prior): 65% (Russia) vs 49% (All)
- Intention to quit smoking: 55% (Russia) vs 51% (All)
- Obesity: 51% (Russia) vs 38% (All)
- Central Obesity: 63% (Russia) vs 58% (All)
- Intention to loose weight: 68% (Russia) vs 62% (All)
- Low Physical Activity: 62% (Russia) vs 62% (All)

- Smoking: 20% (Russia 2006-2007) vs 23% (Russia 2012-2013)
- Obesity: 28% (Russia 2006-2007) vs 51% (Russia 2012-2013)
- Central Obesity: 28% (Russia 2006-2007) vs 63% (Russia 2012-2013)
- Low Physical Activity: 77% (Russia 2006-2007) vs 62% (Russia 2012-2013)
Prevalence° of smoking*

Overall 19%

*Self-reported smoking and/or CO in breath > 10 ppm. ° Standardized for age and
LDL-cholesterol <1.8 mmol/L (70 mg/dL) in patients on lipid-lowering drugs

Overall 32%

Standardized for age and gender
Prevalence of obesity*

Overall 38%

*BMI ≥ 30 kg/m²: standardized for age and gender
EUROASPIRE III, IV, V

Prevalence of smoking

<table>
<thead>
<tr>
<th></th>
<th>Europe</th>
<th>Russia</th>
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<tbody>
<tr>
<td>II</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>III</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>IV</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>V</td>
<td>19</td>
<td>18</td>
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</tbody>
</table>


EA-3 | EA-4 | EA-5

%
**Prevalence of obesity**

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<thead>
<tr>
<th></th>
<th>Russia</th>
<th>Europe</th>
</tr>
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<tbody>
<tr>
<td>EA-3</td>
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<tr>
<td>EA-4</td>
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<td>38</td>
</tr>
<tr>
<td>EA-5</td>
<td>46</td>
<td>30</td>
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**LDL cholesterol < 1,8 mmol/l**

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<th></th>
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<th>Europe</th>
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<tbody>
<tr>
<td>EA-3</td>
<td>16</td>
<td>21</td>
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<tr>
<td>EA-4</td>
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<tr>
<td>EA-5</td>
<td>30</td>
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Thank you!