CENTER FOR ADVANCED GOVERNANCE

MANIPULATION OF PERFORMANCE DATA UNDER PUBLIC POLICY IMPLEMENTATION: EVIDENCE FROM RUSSIA
01. CASE: “MANIPULATION OF INFANT MORTALITY DATA”
BACKGROUND

K_{Perks} = \frac{\text{Stillbirths}}{\text{Early neonatal}} = 1:1

Stillbirths

22 weeks
0 days
7 days
28 days
1 year

8

Stillborn
Died under 7 days of age

1996

2000

The beginning of the intensive use of target-oriented planning

2012

2012’s May Decrees (Decree of the President of the Russian Federation № 598)

2016

Based on materials from the analysis of the CAG team (Terentyev V., Kopytok V., Vakhrusheva D., Tsygankov M.) as part of the Hackathon of the Accounting Chamber DataAudit, 2019.
HYPOTHESES

The reason of high value of the ratio of stillbirth rate to early neonatal mortality rate is

**Hypothesis 0:** high efficiency of the perinatal care system in Russian Federation, especially in terms of reducing the probability of infant dying in the first 7 days.

**Hypothesis 1:** underestimation of early infant mortality, i.e. situations when babies was born alive but died in the first 7 days are recorded in stillbirths and not alive.
As a result of changes in the accounting criteria for live births, manipulations shifted from the weight group of 1000-1499 g to the weight group of 500-1000 g – the proportion of births weighing 1000-1499 g increased sharply. There are no other factors.

**Evidence**: abnormal growth of the median change in the proportion of born live babies weighing 1000-1499 grams.

Median of the change in the proportion (%) of live babies weighing 1000-1499 g in the regions of the Russian Federation, a moving row
Since 2012, the proportion of stillbirths has been growing in the structure of perinatal mortality.

Data: statistical compendium of the Ministry of Health of Russia, Federal State Statistic Service
IF MEDICINE DEVELOPES FIRST, RISKS FROM EXPOSABLE FACTORS REDUCED

- High risks (a large number of factors that cannot be exposed)
- Moderate risks (lesser number of factors that cannot be exposed)

Controllability of negative factors

- Impregnation (or weight up to 500 g)
- 22 weeks
- Birth
- 7 days
- 28 days
- 1 year

PERINATAL
3.1 WORLD TREND 1: THE BIGGEST PART OF INFANT MORTALITY TAKES PLACE DURING THE FIRST 7 DAYS OF LIFE

The structure of infant mortality in the world (2013)

- Post to neonatal (29–364 days)
- Late neonatal (7–28 days)
- Early neonatal (0–6 days)

The trend is typical for Russia

Data: Global, regional, and national levels of neonatal, infant, and under-5 mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013.
3.2 WORLD TREND 2: WITH THE DEVELOPMENT OF MEDICINE – THE PROPORTION OF NEONATAL MORTALITY IN TOTAL INFANT MORTALITY IS INCREASING

The trend is not typical for Russia

The statement that the reduction in early neonatal mortality in the context of an increasing proportion of stillbirths in the structure of postneonatal mortality due to increased levels of care is not confirmed

4.1 THERE ARE STATISTICAL NON-CONFORMITIES COMPARED TO DEVELOPED COUNTRIES

<1.7 Countries in the WHO European Region
<3 EU countries with an accounting system similar to Russia

>4 in 25 regions of Russia
(at the same time, in 12 of them, the coefficient of early neonatal mortality is less than or equal to 1 – this is the level of developed countries)

max = 16.33
Sakhalin Oblast

Correlation between stillbirth rates and early neonatal mortality

What does this say: if we take as the threshold value the ratio of the coefficients of stillbirth and early neonatal mortality the value 3, then its excess can be a sign of manipulation of statistical data
ABNORMAL DISCONTINUITIES IN RELATIONS BETWEEN STILLBIRTH AND MORTALITY UP TO 7 DAYS RATES

Correlation between the rates of stillbirth and early neonatal mortality and the infant mortality rate in the regions of Russia in 2012 (green dots) and 2018 (blue crosses).

What does this say:
chaotic and inconsistent variations in values cannot indicate the impact on them of the results of the implementation of a unified health policy in the country.
THANKS FOR ATTENTION!
APPENDICES
Correlation between stillbirth rates and early neonatal mortality in countries with similar criteria for stillbirths in 2015

<table>
<thead>
<tr>
<th>Country</th>
<th>Stillbirth rate</th>
<th>Infant mortality, per 1,000 live births</th>
<th>Early neonatal mortality, per 1,000 live births</th>
<th>Stillbirths per 1,000 live and dead births</th>
<th>Correlation between stillbirth rates and early neonatal mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>≥22 weeks, ≥500 g</td>
<td>3.2</td>
<td>1.6</td>
<td>3.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Finland</td>
<td>≥22 weeks, ≥500 g</td>
<td>1.8</td>
<td>1.0</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>France</td>
<td>≥22 weeks, ≥500 g</td>
<td>3.3</td>
<td>1.8</td>
<td>4.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Estonia</td>
<td>≥22 weeks, ≥500 g</td>
<td>2.5</td>
<td>0.9</td>
<td>2.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Russia</td>
<td>≥22 weeks, ≥500 g</td>
<td>6.5</td>
<td>1.7</td>
<td></td>
<td>3.4</td>
</tr>
</tbody>
</table>
Underestimation of early neonatal mortality, total for the period from 2008 to 2018
Underestimation of early neonatal mortality, contribution of different years, 2008-2018