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International maternal health indicators and middle-income countries: Russia

Justin O Parkhurst, Kirill Danischevski, Dina Balabanova

Maternal health outcomes for the countries of the former Soviet Union are poorer than for the rest of Europe. Russia in particular is a problem. What measures are suitable for guiding the country’s policy on improving this area of health care?

Background

Russia’s overall maternal mortality ratio was estimated to be 34 deaths per 100,000 live births in 2002. This is significantly higher than the ratio in western Europe, where ratios of 10 or lower are common. Yet, despite the international focus on maternal mortality as one of the millennium development goals, little analysis has been done on what action is needed for improvement. Interest is focusing on other measures, many of which examine the provision of the various elements of delivery of care. But in the post-Soviet context, how useful are these process indicators in guiding policy development?

International indicators in Russia

Outcome indicators

Although the maternal mortality ratio is the most widely used indicator of maternal health outcomes, the very high rates of induced abortion in Russia undermine the use of the ratio as it is expressed as number of deaths per 100,000 live births. Abortion related deaths are included in the numerator, but aborted pregnancies are not counted in the denominator. This could inflate the ratio by up to 60% compared with a hypothetical country in which there were very few abortions. Even though abortion is legal and easily available, abortion complications account for about a quarter of maternal deaths, with two thirds of these reportedly resulting from illegal abortions.

National figures say nothing about the distribution of outcomes among population groups. Key informants (see table 1) identified migrants and young mothers as especially at risk, but whether more general socioeconomic inequalities exist is not known. There are certain methodological problems in tracking health outcomes by socioeconomic status, but Diamond and colleagues have suggested ways of circumventing some of these problems, including ecological analyses combining census and health survey data.

Access to and availability of care

Russia has an extensive, though underfunded, network of antenatal and emergency maternal care facilities, with high staffing levels. As table 2 shows, unlike in low income countries, in Russia virtually all women give birth in institutions, with a trained attendant. The infrastructure that permits this near universal access was established before the recent decline in fertility (now 1.2 children per woman), so there is considerable overprovision.

There are, however, grounds for concern. Although Russia has a compulsory health insurance system, in practice about 10% of the population fall outside it. Key informants identify certain groups as being at particular risk. Mothers aged under 18 remain under the
Table 1 Sources of information in review of maternal health in Russia

<table>
<thead>
<tr>
<th>Source</th>
<th>Numbers and types</th>
<th>Selection procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications or international reports</td>
<td>170 (70% published in Russian language journals)</td>
<td>Review of online databases (PubMed/Medline); archives of Russian central medical library; library of National Research Institute of Obstetrics; websites of international organisations</td>
</tr>
<tr>
<td>Russian grey literature</td>
<td>35</td>
<td>Suggested by key informants including government officials</td>
</tr>
<tr>
<td>Secondary analysis of existing data</td>
<td>Government statistics; national reproductive health surveys; Tula oblast pregnancy outcomes dataset</td>
<td>Contacts in Russia</td>
</tr>
<tr>
<td>Key informants (via interviews)</td>
<td>National government; regional governments; non-governmental organisations; health workers; international agencies; academics</td>
<td>Snowball sampling; internet search of agencies; authors of reports and publications reviewed</td>
</tr>
<tr>
<td>Empirical study of maternal care practice in Tula, 2002-3</td>
<td>Interviews in all 19 functional maternity facilities (freestanding and part of general hospitals) in Tula region</td>
<td>Head of maternity department; deputy or head of facility in all facilities</td>
</tr>
</tbody>
</table>

Care of paediatric services, which have poor links to sexually transmitted infections services and to maternal and reproductive services. Migrants and those who lack registration documents with local addresses face barriers in accessing care in some places owing to bureaucratic obstacles and informal pressure to pay for care. Modern contraception is, in practice, not always accessible, reflected by high levels of awareness of different contraception methods but low contraception use and high rates of abortion.

The widespread use of indicators of service provision in international comparisons appropriately reflects the situation in developing countries faced with severe shortages of health professionals. In contrast, most countries of the former Soviet Union have extensive health infrastructures, with Russia reporting twice as many midwives per 100,000 population than many Western countries. A study in the Tula region, however, showed that the official number of budgeted posts often substantially exceeds the number of individuals employed.

Use of services
Indicators of service use are widely used in policy documents. Their value is greatest, however, where the concern is with low use. With nearly all births in Russia attended by skilled staff, aggregate measures provide little insight into health system failures. Instead, researchers need to identify the few women within the lack of any national consensus.

Antenatal care provides an example of over-medicalisation. In Russia, almost all mothers receive a highly intensive package of antenatal care, involving 15 to 19 visits according to one study. Admission to hospital during pregnancy is increasingly common (38-50%) of mothers are admitted at some stage in their pregnancy), in part to compensate for reduced need for postnatal beds. Of those admitted, about 40% remain for 30 nights or longer.

Met and unmet need
Rather less information is available for generating indicators that relate use to specific needs, although some indicators, such as access to care by mothers with complications, are less appropriate because of the over-medicalisation.

In seeking to identify those in greatest need, it is necessary to take account of certain definition issues. The traditional Soviet medical paradigm was quite different from that in the West. The reasons for this difference are complex and go beyond the scope of this paper, but they encompass differences in ideology, incentives, and adaptations to circumstances (such as a large pool of health professionals with few drugs or modern equipment). For example, many deliveries are recorded as "imperfection of labour activity," yet there is no clear definition of what this means. Interviews with obstetricians in the Tula and Moscow regions suggest that this terminology is popular for three reasons: physicians can obtain gratuities or formal payments for managing "complicated" cases; the risk of litigation or complaints by patients is reduced; and length of stay can be extended, leading to higher reimbursement for the facility.

Quality and variability of care
Table 2 shows that few quality based indicators are regularly collected in Russia. As with other types of indicator, however, their potential use is limited by Russian contextual factors, with variation among facilities in the way different conditions are treated. For example, in the Tula region even quite basic practices such as episiotomy or amniocentesis show marked differences. Whereas variations in obstetric practices have been well documented in many countries, the extent of variation in Russia appears much larger than might be expected for some procedures, possibly reflecting the lack of any national consensus.

A way forward?
Given the many problems with quantitative measures in Russia, is there an alternative? Many countries already do regular audits of maternal deaths. Russia has such a system, but it is largely an administrative formality. It is hampered by lack of transparency, investigative expertise, and established procedures, and there is little evidence of tangible improvements in practice. A detailed investigation of nine maternal deaths in the Tula region between 2001 and 2003 identified errors in anaesthesia as a contributing factor in four cases, thus identifying an area in need of attention. This would have been missed in inspection of routine data, which focus on specific complications such as haemorrhage, sepsis, or eclampsia.

Discussion
A problem in trying to identify useful indicators for guiding policies for reducing Russia's unduly high level of maternal mortality is that systems for data collection
have not changed much since Soviet times, when information was primarily geared towards the needs of central planning, with little attention to quality and accessibility. However, although international bodies have identified a set of indicators that can be used to assess maternal care, these have been designed primarily for low income countries and are not especially helpful in a situation characterised by high use, extensive infrastructure, and evidence of over-medicalisation.

The challenge is to find measures that track quality rather than quantity and to indicate when services are being used appropriately. Some indicators that have been developed elsewhere—though not yet widely used—may prove useful in settings such as Russia. These indicators include the “observed versus expected ratio” (OVER) of complications\(^5\) or ones that overcome the current system of incentives to over-treat, such as monitoring time from admission to treatment. The Russian Federation has the capacity to capture detailed health indicators; the question is therefore to decide what is appropriate. Any improved quantitative indicators should be supplemented, however, with approaches such as maternal death audits.

This analysis shows how, although some existing indicators can be useful for international comparisons, others may be needed for tackling particular regional or country contexts. Only by using measures suited to their specific needs will countries such as Russia be able to improve maternal health.

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A memorable patient
What a stroke

A 64 year old man, who lived alone, was found collapsed one morning by his daughter. She responded only to painful stimuli and seemed to have weakness of the left side of his body. He was brought by ambulance to the accident and emergency department, the paramedics alerting the department that they were bringing a patient with stroke. On arrival at the department, the patient’s Glasgow coma scale was 10/15. He was not moving the left side of his body, although tone was normal in both arm and leg and power could not be assessed because of his low Glasgow coma scale. He had equivocal plantar responses and pinpoint pupils. A diagnosis of pontine haemorrhage was made, and a computed tomography scan led to the diagnosis of perforated duodenal ulcer, which was successfully treated by surgery.

Side of the body

The patient complained of severe abdominal pain. It became clear that he had had sudden onset of abdominal pain nearly 12 hours before being brought to hospital and had taken 25 tablets of co-proxamol to relieve this pain. He was prescribed co-proxamol tablets for pain in his knees from osteoarthritis.

On further examination, he was found to have weakness in the upper abdomen with some rebound tenderness. To our astonishment, an x-ray of his chest and abdomen showed free air under the diaphragm. He confirmed that he had had a duodenal ulcer in the past. A diagnosis of perforated duodenal ulcer was made, and he was successfully treated by surgery.

We learnt to always exclude an overdose of opiates as the cause of pinpoint pupils in all our patients. We were unable to explain the patient’s lack of use of the left side of the body on presentation.

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