PERINATAL CARE IN THE KOMI REPUBLIC, A SPARSELY POPULATED REGION OF THE RUSSIAN FEDERATION

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INTRODUCTION

The different parts of the Russian Federation have different demographic situations, climatic and natural conditions and traditions, but also many similar features. The majority of northern regions have a low population density, scarce urban populations and large territories with less developed infrastructure. It is impossible to ensure a high level of perinatal care with modern technology in regional hospitals with 100-200 deliveries per year. It is connected to quality of equipment and qualifications of the staff. Thus, there is a necessity of development of a special system of perinatal care based on special conditions and available resources (1). This paper will present the organization of the perinatal care in the sparsely populated Komi Republic.

Characteristics of the region

The Komi Republic is located in the north of the European part of the Russian Federation. The territory of the Komi Republic is 416,800 km² (distance from southwest to northeast 1275 km, from north to south 785 km). The average air temperature in most of the territory is +1 °C, down to -6.3 °C in the coldest areas. The population density is 2.7 per km². The mean age of the inhabitants is 33 years. The birth rate in 2001 was 9.3 per 1000 people. The population gain is negative (-3.2/1000 in 2001). This is especially a problem in the far north of the republic.

PRINCIPLES OF PERINATAL CARE IN THE REGION

All obstetrical departments of the different hospitals get a certification after they have documented an appropriate level of quality based on defined criterias. The first quality level is defined for obstetrical units at the level of village regional hospitals, with a total number of deliveries not exceeding two hundred per year. The second level of perinatal care is the urban hospitals, with 500 to 1500 deliveries per year. The third level of care is the Republican Perinatal Centre and Maternity house in the Republican Cardiological Centre of Syktyvkar.

Based on this system, 5-10 % of the deliveries will take place at the first level, around 40 % at the second level, and the third level will take care of up to 50 % of the births. The gynecologists and midwives at the first and sec-
ond levels will have to decide the delivery level at an early stage, but they are allowed to change due to unexpected complications. Modern pregnancy, obstetric and perinatal care will take place only at second and third level departments.

Structure of the Regional Perinatal Centre
The Perinatal Centre in Syktyvkar is the third level of the perinatal care (2). Its basic tasks are:

- Medical consultations and diagnostics; treatment of pathology discovered at lower level institutions; delivery support for pregnant women from risk groups; medical aid for newborns with need for medical treatment and rehabilitation.
- Development and introduction of modern technology.
- To organize the methodical development of pregnancy and obstetrical care of the republic and to train doctors and nurses for future work in other departments and hospitals of the republic.

The Regional Perinatal Center consists of three interconnected departments:

1. The Out-Patient Department, with the following sections:
   - The centre of family planning and reproductive health, including an obstetrician, a specialist in obstetrical and gynecological endocrinology, a specialist in infertility, an andrologist, a psychologist and other relevant specialists. It has small operation theaters and one department for studies of in vitro fertilization (IVF).
   - The consultation and diagnostic department, obstetricians for ambulance care, ambulatory day-time stay, and a department of genetic consultation.

2. Round-the-clock Remote Advisory Department (stationary centre):
   - Section for short-term stay for diagnostics and treatment.
   - Department for pathology in pregnancy.
   - Department for pathology in early pregnancy (mainly <22 weeks).
   - Delivery department with operation theaters.
   - Department of reanimation and intensive therapy for the women after delivery.
   - Department for the women after delivery with newborn children and a special department for women with infectious diseases.

3. Pediatric department:
   - Department of reanimation and intensive therapy of the newborn.
   - Department of rehabilitation of the newborn.

4. General (common) services:
   - Department for medical nutrition.
   - Department for functional diagnostics.
   - Department of physiotherapy.
   - Laboratories (genetic, microbiological, biochemical, endocrinological, immunological, acute diagnostics, and X-ray).
   - Educational and methodical centre. A special transportation unit with appropriate skilled personnel is also connected.
Educational, methodical and advisory work of the Perinatal Center

A prime task becomes the preservation and improvement of the professional skills of the medical personnel in all areas and at all levels of the system. For this purpose, the Perinatal Center has created methodical centres. The medical persons of the village territories, as well as the central bases of improvement of professional skills, can take specialization courses in the Perinatal Center during two-three weeks every year. During this time, they have the opportunity to practice and acquire new skills, to get acquainted with new methods of diagnostics and treatment, and to read new literature. An obligatory condition for all territories of the republic is the individual supervision in each hospital.

All lower level establishments are associated with a higher level establishment. The coordination of this system is the responsibility of the Republican Perinatal Center in Syktyvkar.

The Remote Advisory Centre (distant center for medical consultation for doctors and nurses)

Since 1996, the Remote Advisory Center has been working in the Komi Republican Perinatal Center. The purposes of this center were, from the start, to provide round-the-clock advisory help for doctors and nurses of establishments at the first and second levels, to create systems of operative tracking and management in acute obstetrical situations, and to suggest and give practical help to the experts out in the territories.

CONCLUSION

In the Komi Republic, with its very low population density, a modern system of pregnancy and perinatal care has been developed. This is confirmed by the basic statistical parameters shown in Table I. The basic components are:

- a step-by-step system of supervision of pregnancy.
- a modern and well-structured perinatal center.
- a system for selection of risk pregnancies and centralization of the complicated pregnancies.
- remote consultation by the experts at the Republic Perinatal Center to all levels.
- the introduction of, and critical approach to, modern technology.
- a system to educate and maintain the qualification of the staff.
- an official state program supporting perinatal medical care in the Komi Republic.

### Table I. Basic pregnancy outcome results in the Komi Republic (the Komi Perinatal Center).

|                  | 1997  | 1998  | 1999  | 2000  | 2001  | 2002  |
|------------------|-------|-------|-------|-------|-------|-------|
| Infant mortality, /1000 | 16.7  | 16.4  | 16.1  | 13    | 9.4   | 10.7  |
| Perinatal mortality, /1000 | 14.8 (11.4) | 11.9 (9.4) | 11.0 (8.8) | 10.5 (7.5) | 8.5 (6.8) | 6.2 (4.0) |
| Maternal mortality, /100 000 | 86.6  | 18.6  | 31.0  | 20.5  | 19.5  | 9.0   |
| Malformations /10 000 | 26.2  | 34.2  | 34.8  | 33.8  | 22.2  | 18.7  |
| Infant morbidity /10 000 (different conditions) | 54.2  | 85.1  | 90.2  | 61.5  | 44.5  | 55.3  |
SHORT COMMUNICATION

The results so far:
1. Maternal mortality has been reduced to an extremely rare event, comparable to the Scandinavian standard.
2. Perinatal mortality has been reduced to 6.2/1000, comparable to the Scandinavian standard (the Norwegian perinatal mortality, including stillbirths from the 28\textsuperscript{th} week, was 4.8/1000 in 2002) (4).
3. Reduced mortality from malformations.
4. The use of acute transportation to a higher level of care has been reduced 2.5-fold, leading to a considerable reduction of costs.
5. The analytical approach to all procedures and routines provide the basis for new and improved procedures.
6. Information about all deliveries is to be included in a birth registry.
7. Systems for education of the staff are developed.

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