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External Review of the Moldova-Swiss Modernizing Moldovan Perinatology System Project

11-19 October 2010

Submitted to SDC by

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2010

Contents

Executive summary

Gelmius Šiupšinskas and Stela Bivol were invited by SDC to conduct review of Moldovan Perinatal System project, funded by SDC and implemented by Swiss Tropical and Public Health Institute (SwissTPH) and Association of Perinatal Medicine of Moldova (AMP).

Following sources of information were used for the review:

1. Comprehensive set of project documents, provided by SDC (Annex 1).
2. Sites visits to the selected maternities from all 3 levels of care and primary health facilities (Annex 2). Progress of implementation was validated using the methodology of qualitative triangulation: observation of clinical practice, interviews with providers and patients, medical records, and statistical data (where available). WHO Euro "Assessment tool for the quality of hospital care for mothers and newborn" was used as reference standard to evaluate quality of care.
3. Meetings with stake holders at national level (Annex 2), including Ministry of Health, Chair of Department of Postgraduate Education in Obstetrics, Medical University, SDC Moldova, SwissTPH, AMP, international organizations (WHO, UNICEF).

Project Goal is reduction of perinatal and early neonatal mortality and morbidity in the Republic of Moldova trough improved access and availability of high quality perinatal services at all levels of care.

Project achievements (strengths):

1. Improved referral both of pregnant women and newborns (regionalization is working quite well).
2. Professional confidential audit of maternal and perinatal losses and/or near-misses.
3. Increased survival of extremely low-birth (<1000g) newborns.
4. Improved knowledge of medical professionals.
5. Increased use of the low invasive respiratory support techniques.
6. Progress in developing multidisciplinary teamwork, particularly, at level II maternities (in Balti).
7. Promising leadership at level II maternities (Balti, Chisinau City perinatal center).
8. Demedicalization of neonatal care.
9. Follow-up system for newborns at risk, particularly for extremely low birth weight newborns.
10. Health Technology Management (HTM) sub-component, leading to gradually improved effective and efficient use of modern and expensive medical equipment.
11. Clinical Guidelines at national level and protocols at facility level.
12. Going-on National Program for Preventing and Diagnosing Congenital Malformations.

Project weaknesses: None identified.

Areas for improvement:

1. Compliance with guidelines and protocols (change of clinical practices) at facility level (all levels of care), particularly in following areas:
    a. Normal birth (safe demedicalization).
    b. Healthy newborn, including thermal control.
    c. Universal preparedness for newborn resuscitation.
    d. Infection control including proper hand washing and rational use of antibiotics.
2. Effective communication and quality counselling of families on options of care (including primary and in-patient care).
3. Enhancement of role of midwife, in all facilities, and especially at level III and primary health care.
4. Analysis of statistical data at facility level that should lead to managerial and clinical decisions to change (improve) practices.

Overall conclusion

Objectives for Phase 2 of the Project, related to the Project results, are largely achieved. Less clear situation is with the Project outcomes, particularly, related to quality of care. The overall impact of the project on mortality and morbidity indicators should be assessed with precaution as yet because of too short period of time.

Background

The Moldova Swiss “Modernizing Moldova Perinatal System” (MMPS) Phase II project was officially launched on May 10th 2008.

The current project phase focused on strengthening level II facilitates to close the referral gap between level I and III centers. Level II facilities, in this phase, have been strengthened to treat maternal and neonatal cases of medium degree of severity, which reduced the need to refer all cases to the level III centers that had been previously overwhelmed by cases that did not need the highly specialized services offered at this level.

Table 1. *Project log-frame.*

Project Goal:	Reduction of Perinatal and Early Neonatal Mortality and Morbidity in the Republic of Moldova
Project Objective:	Improved access and availability of high quality perinatal services at all levels
Component 1:	Quality of care
Component 2:	Health Promotion and Prevention
Component 3:	Professional communication

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3. Meetings with stake holders at national level (Annex 3), including Ministry of Health, Chair of Department of Postgraduate Education in Obstetrics, SDC Moldova, SwissTPH, AMP, international organizations (WHO, UNICEF).

Findings

Component 1: Quality of Care

Activities:

- Capacity building of clinical staff with international, regional and national training events
- Institutionalisation of monitoring and reporting at all levels including in the follow up centre
- Strengthening infrastructure of Perinatal Centers by supplying of modern equipment, personnel training in its use and renovation of two NICUs, and strengthening the Follow-up center from level III
- Operationalization and effective use of modern medical equipment locally
- Implementation of Health Technology Management (HTM) at the pilot facility level and future expanding to national level
- Quality assurance and quality management
- Clinical Practice Guideline development based on EBM and their implementation

Access and availability of high quality perinatal services at all levels (progress on regionalization)

Survival of premature babies up to 1000 g

According to official statistics, survival of extremely low-birth (<1000g) newborns is increasing (table 2). However, dynamics is less apparent (years 2007-2009) when looking at the birth weight group 1000-1500g (table 3).

Table 2. *Survival of extremely low-birth weight newborns (draft of exit phase report)*

2007	2008	2009	Quarter I, 10
19 from 98 or **19,4%**	27 from 87 or **31%**	52 from 115 or **42,5%**	22 from 40 or **55%**

Table 3. *Survival of newborns (up to 7 days) with birth weight 1000-1500g (BABIES matrix)*

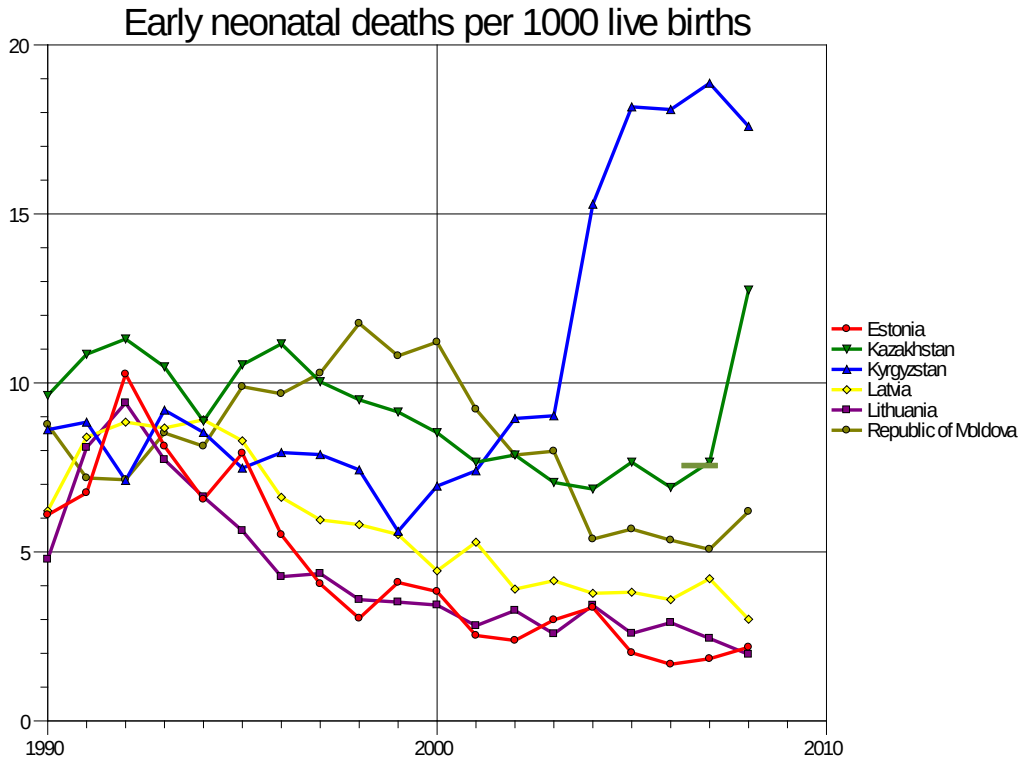
2005	2007	2008	2009
58 from 148 or **60,1%**	27 from 122 or **77,8%**	168 from 203 or **82.8%**	183 from 224 or **81.7%**

The overall situation could be promising. However, results should be taken into account with some reservations. Preconditions, that are causing neonatal mortality in this birth weight group worldwide and, particularly, in CIS countries (besides immaturity), are neonatal hypothermia, nosocomial infections and other, often iatrogenic circumstances. Observations collected during this mission fully support common situation related to chances of survival of very low birth-weight newborns. Most missed opportunities are related not to insufficient equipment but, rather, to substandard care.

Official registration of live-births according to WHO live-birth definitions in Moldova was started in 2008. MoH. When earlier similar registration was introduced in several other countries of WHO European region (Estonia, Latvia, and Lithuania in 1991, Kyrgyzstan in 2004, Kazakhstan in 2008), during following 2-4 years it was notable 2+ fold surge of early neonatal mortality (from 4 to 10‰) not only because of additionally

registered <1000 g cases (this would account only for up to max 2-3‰ increase), but also, or even more, because of overall improved registration and reporting of neonatal deaths (picture 1).

Picture 1. *Early neonatal mortality in several countries of WHO European region (European Health for all Database, WHO Euro, 2010).*



It should be made clear that acceptance of WHO criterions does not automatically mean directing of all efforts and resources exceptionally towards survival of newborns <1000g. In the beginning category of beneficiaries is >1000 g because of, first of all, improved registration. Gradually accumulated experience and skills of providers are unavoidably getting to the point when cases are readily registered and reported with already new criterions that are universally accepted and properly applied. Usually it takes several years until accumulated skills end experiences of care providers may result in consistently increased survival of this most sensitive category of patients.

At the end, when early neonatal mortality largely is caused by the losses in the birth-weight group <1000g, not survival alone, but quality of survival is becoming most important issue.

Women at delivery with completed pre-natal care

Based on the visit to primary health care facilities (Balti, Singerei, Hincesti) and interviews with women after delivery, we could conclude that the volume of antenatal care generally corresponds to necessary standards (Fe and folic acid, regularity of visits). Some women from rural areas considered they had insufficient obstetrical antenatal care and prefer to make parallel visits to obstetricians. Partner participation in antenatal care is rather an exception than a rule.

Overall, this indicator is not easy to measure since reporting could be prone to data collection bias, also, it is not that evidently correlating with major perinatal outcomes. It was not possible for the reviewers to assess

this indicator quantitavely. Indirectly situation could be evaluated using information retrieved from two sources (bellow):

- The conclusion form report on confidential enquiry into maternal death (CEMD) is that 11 (or 38%) of women who died during 2006-2009 did not have antenatal care. This indicates that accessibility to antenatal care is still an issue in Moldova.

- On the other hand, during 1st meeting on confidential audit of antenatal losses held on October 13 at Center of Family Medicine, Ciocana district, Chisinau, it was concluded that in 4 cases out of 5 women did have antenatal visits, however, the quality of care was not sufficient to avert unfavourable outcome.

1500 to 2500 g newborns treated at level 2 centres

The importance (and benefits) of concentration of preterm births at level II is quite difficult to evaluate because of at least two reasons:

1. Level II maternities in Moldova currently are not uniform in terms of capacity and require revalidation for relevance for level II care.
2. In up to date perinatology the majority of neonatal losses are within patients group eligible for level III care.

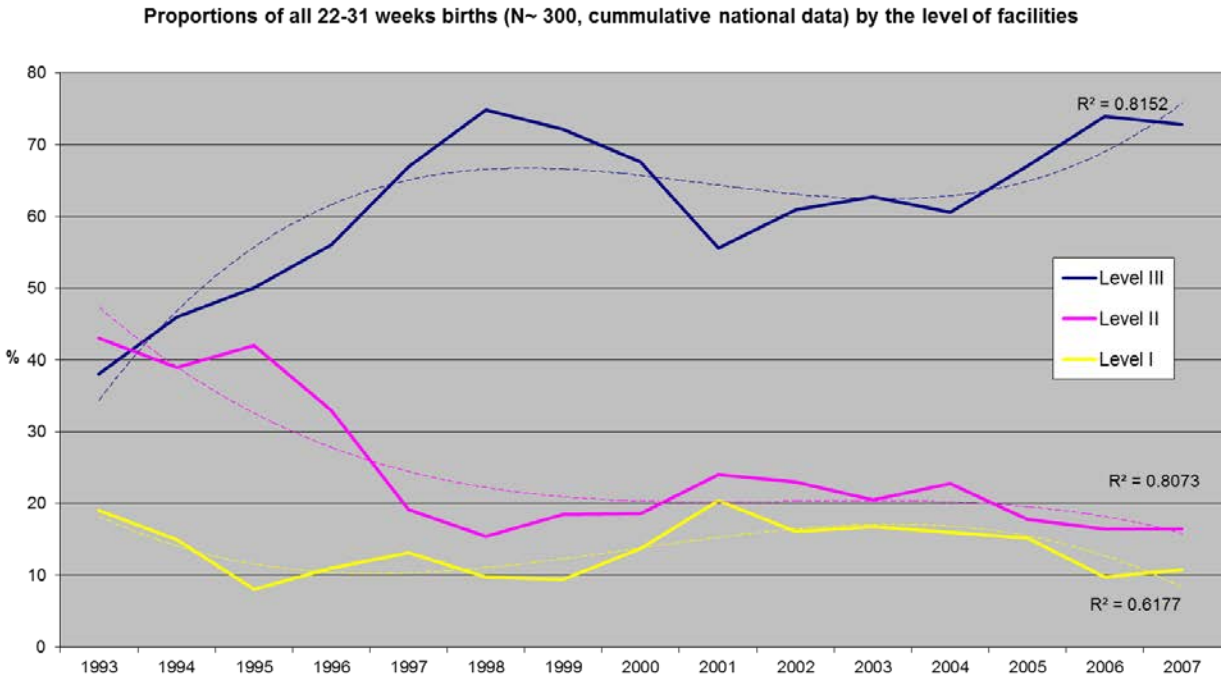
Therefore, in order to evaluate effectiveness of regionalization, it is quite logical to focus on the concentration of extremely preterm births (<1500g) at level III facilities instead (table 4, Draft of exit phase report).

Table 4. *% of babies between 500 – 1500g born in level III centers by the total number of newborns with this birth weight (in-utero transfer) (draft of exit phase report).*

2007	2008	2009	Quarter I, 10
208 from 339 or **61%**	268 from 368 or **73%**	279 from 339 or **82,3%**	62 from 75 or **82,6%**

According to official statistics, referral of pregnant women with preterm births is working quite well (table 3). It is even hard to believe that this indicator could be increased further more (for comparison see picture 2, example from Lithuania with regionalization experience of almost 20 years – app. 30'000 deliveries per year) - there always will be few cases when referral of woman in labour will not be possible or feasible until delivery of baby.

Picture 2. *Concentration of very preterm births (national data) at tertiary Perinatal centers – Vilnius and Kaunas (National register of Births in Lithuania).*

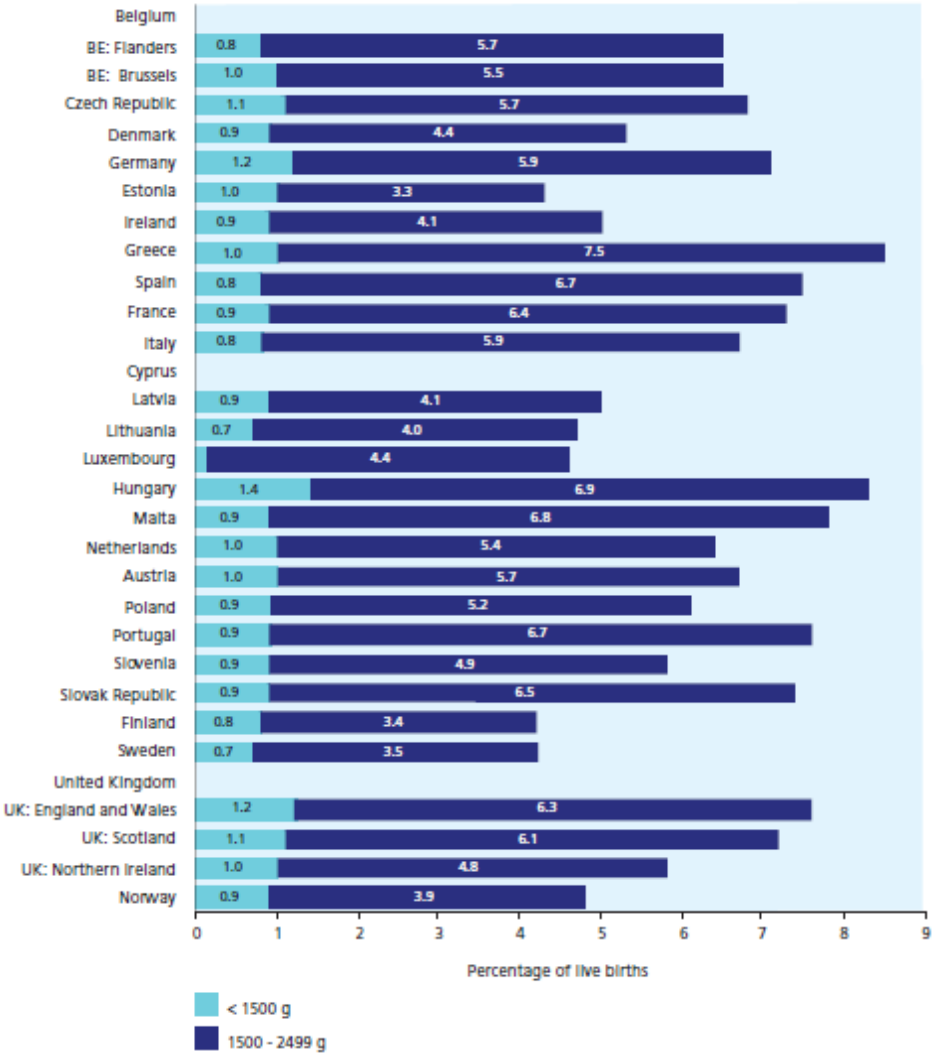


In 2009 already 266 (198+68) live births out of 339 (or 78%) in the group 500-1500 happened at level III facilities which indicates improvement of referral of pregnant and delivering preterm women.

On the other hand, all live-birth in this weight category accounts only for 0.75 (2008) – 0.84 (2009) % of all country live-births which is on the lower end among European countries (picture 3). This could mean that few of extremely and very low birth weight newborns' deaths could be still either not registered or reported as antenatal deaths.

According to national BABIES matrix data, in 2008, there were 210 live births 500–1500g at level III (144 at Mother and Child Research Institute and 66 at Municipal center). It amounts up to 72% (out of 290) of all live births <1500g in Moldova.

Picture 3. *Proportion of under 1500 g births among all live births (European Perinatal health report, Euro-Peristat Project, data from 2004, published 2008)*



Certainly, this is only beginning of concentration of very and extremely preterm births and, consequently, acquisition of experience in managing very sick newborns. It would be a bit premature to evaluate changes of major outcomes (neonatal mortality) for the moment, particularly, taking into account the relatively small numbers of losses. It is necessary collect data for 3-4 years in a row with newly accepted criterions in order to avert systemic bias on trends of major outcome indicators.

Regionalization of perinatal care besides concentration of high risk, largely – very preterm, deliveries, also should deal with transfer of very sick/very preterm newborns to appropriate level of care. One of the fundamental principles is that sick newborn should not be treated at level I facility. In Moldova (app. 40'000 deliveries per year) currently there are app. 350 transfers of newborns to tertiary level, and, likely, app. up to 50-100 transfers to level II facilities (the latest number is extrapolated, thus may be slightly biased). Altogether, in Moldova up to 450-500 newborns are annually transferred to the higher level of care.

For comparison, in Lithuania (30'000 deliveries per year) there are app. 800 transfers to level III and app. 150 – to level II facilities (2009). It seems, that with even with well-established and functioning referral

system for pregnant women (transfers in-utero), up to 3% of all newborns may require transfer extra-utero to the higher level of care.

Provider from level I facilities confirmed that transportation team is always coming on call to take sick newborn for the transportation to higher level of care (level II or III), however, only when newborn by phone is defined as being “stabilized”. This precondition with no doubts results in additional neonatal losses, since providers in periphery have very little means for the stabilization of baby. For some reason CPAP at the level I facilities is regarded as sort of luxury, while availability of at least 1 (better – 2) relatively inexpensive CPAP devices at level I should be a standard to ensure safe and effective respiratory support when required, usually, until arrival of referral team.

Overall, the distribution of facilities according to the level of care requires reconsideration.

Formally, in Moldova now is only one level III facility, however, from discussion with the staff, it appeared that newborns <1500g, born and treated at City perinatal center (formally level II), are regarded as receiving level III care. This seems a bit inconsistent. Annually Municipal perinatal center has only app 60 cases of very and extremely preterm newborns, which is just enough to maintain skills of staff for this very special category of patients (critical minimum number of these patients in NICU according to studies, when safety and quality is not suffering, is 50 cases per year)

On the other hand, part of level II maternities (i.e. Hincesti maternity) has no possibility to provide presence of neonatologist round the clock, has overall low number of births (less than 1000 per year) and high risk births and sick newborns (level II criteria) potentially cannot be managed there safely.

Premature babies with postnatal respiratory problems who receive early CPAP in delivery room (prevention RDS)

CPAP respiratory support is becoming more used in pilot maternities, however, it is still not available at many facilities in Moldova (both at level II and level I). 4 pilot institutions have already received 13 CPAP units. Further implementation and dissemination of this effective, safe and relatively inexpensive practice remains among targets for the last phase. This process should be carefully monitored by analysing outcomes in target patients groups.

Physicians applying the developed guidelines

During visit of the facilities it was revealed that some key practices either are not in line with national recommendations and facility-based protocols (management of so called placental insufficiency, use of tocolytics, medicated sleep, position for delivery, induction, augmentation, prescription of antibiotics) or are applied formally thus not contributing to favourable outcomes (warm chain to prevent hypothermia, appropriate hand washing, preparedness for newborn resuscitation at birth, patient counselling for options of care, etc.).

For example, in two referral maternities newborn in NICU was found in hypothermia (temperature was controlled by monitor) with no reaction from medical staff. In another facility all 3 measurements of newborn’s temperature in all 4 checked records had the same entered value.

Appropriate hand hygiene is not observed. Personnel in NICUs are wearing gowns with long sleeves, also rings, bracelets, etc. Sometimes, gloves are put on without hands washing, which, in fact, even if used, could not be performed effectively, considering circumstances above.

Birth practices are still quite medicalized, including spasmolytics, oxytocics i/m or subcutaneous, flat-back position in delivery, forced pushing, pressure on fundus uteri, artificial limiting of second stage of labour and duration of skin-to-skin contact post-partum.

Evidently beneficial demedicalization of care hardly will be achievable in case midwives will stay separated from professional participation in decision making, particularly, regarding care for normal births and healthy newborn.

Separate and significant problem remains substantial reimbursement from health insurance for so called pathology of pregnancy. This situation is leading to artificially large number of beds in antenatal departments, with non-valid diagnoses, test, treatments, and other interventions. This was recognized as an issue at all referral level maternities. Reimbursement for the services from Health insurance fund to maternities requires revision, since currently existing financing system stimulates medicalization of care (orientation towards in-patient care and interventions – caesarean sections, etc), while costs of normal births at the same time are not covered sufficiently.

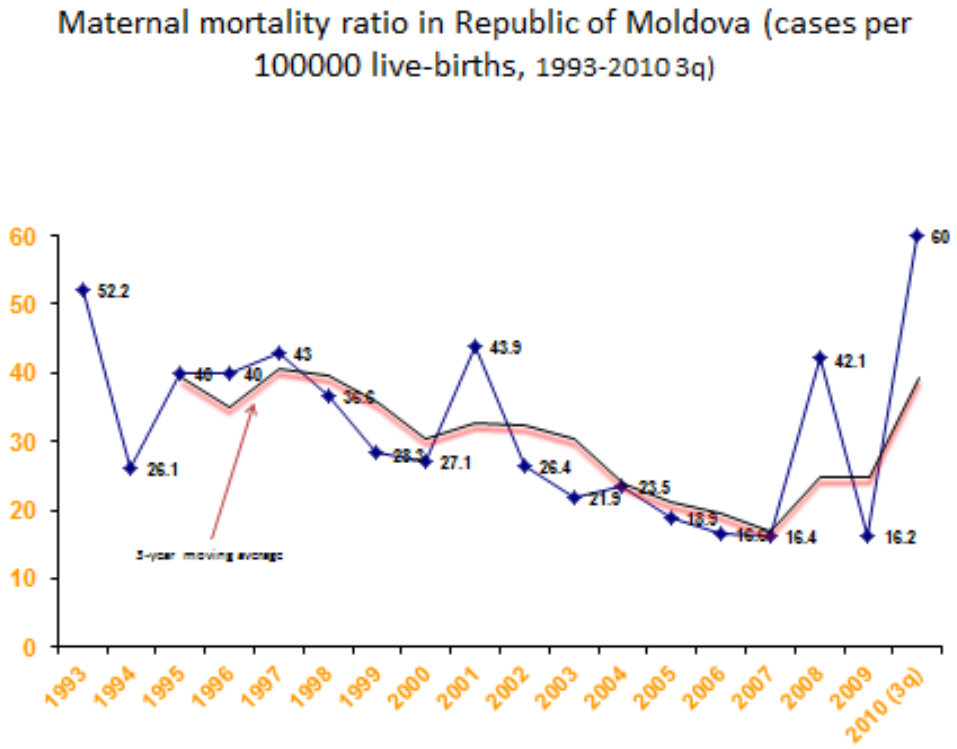
Findings of non-compliance with existing protocols are supported by conclusions both from interviews with mothers (Annex1), Evaluation of quality of perinatal services 2008 and, particularly, from Confidential enquiry into maternal deaths (CEMD), where it was concluded that management of maternal mortality produced by direct obstetrical causes was classified as sub-standard in 17 cases out of 22 (78.4%).

Only and exceptionally only neonatologists are responsible for preparedness for resuscitation of the newborn, however, in case asphyxia is expected, additionally doctor from intensive care is invited. This practice clearly indicates that there is no trust in relevant skills of ordinary neonatologist, already not talking about skills of obstetricians, midwives and nurses. Involvement of intensive care specialist almost as a rule ends with intubation of baby, which along with above mentioned infection control habits often may lead (and is leading) to nosocomial infection. The neonatologist in one facility with relatively low number of deliveries recalled, that during last year she was using several times adrenalin for resuscitation of newborn, which is very high frequency indicating insufficient skills of facility team both for the assessment of ante/intra-partum fetal well-being as well as for initial resuscitation of baby.

There are big concerns on over-medicalized case management at neurology departments. Overall, it seems this part on mid-term neonatal care is very much oriented towards in-patient care. Number of medications (vitamins, so called neuroprotectors, etc.) still is prescribed regardless lack of evidence for effectiveness and safety.

Overall, taking into consideration the infection control practices (one randomly selected case showed 5 different antibiotics prescribed to one very low-birth weight newborn during 3 weeks treatment in second stage department) and medicalized care, late neonatal period looks like one of the “most dangerous moments” for preterm newborn.

Picture 4. *MMR in Moldova (modified from 1st report on CEMD in Moldova)*



As could be seen from the trends in maternal mortality in Moldova (picture 4), there is increase in MMR during the last 3 years. According to opinion of reviewer, this phenomenon should be attributed (besides other causes) also to better registration and reporting, which is extremely positive outcome of properly conducted audits – first of all, of confidential enquiry into maternal death (CEMD) in Moldova.

The audit of perinatal losses has similar potential if trust and professional ownership from health care providers has been achieved. Overall, perinatal audit should be supported and expanded as much as possible since, besides potential for internal quality improvement in Moldova, it is one of few know-how's that soon will be very much attractive at international level if implemented systematically.

Follow-up system for extremely low birth weight newborns

Existing follow-up clinic for extremely preterm newborns looks particularly promising, first of all, because of highly committed staff, and, because of appropriate orientation of rehabilitation activities towards out-patient follow-up with kinesio- and physio-therapeutic activities including active family involvement, and not enforcing medications and in-patient care. This demedicalized approach should be supported as much as possible as the most appropriate strategy for development and a shift away from the old neurologic strategy of medicalized and in- patient care. Available evidence does not support any medications as well as in-patient management of babies with residual difficulties of physical adaptation.

Quality assurance and quality management

This component is implemented in 4 pilot institutions and it has focused on strengthening the local use of quality improvement tools (BABIES, maternal and perinatal audits) and quality management system at local level.

In 2002-2005 with support from CDC Atlanta and UNICEF a critical mass of specialists has been trained in Babies and Total Quality Management. In year 2008 under this project the concept of quality management has been developed at institutional level. Members of quality teams have been trained in June 2010 and specific steps to implement 4 small quality improvement projects have been made. The progress of implementation will be monitored during 2 seminars until the end of this year.

At the same time, existing quality management activities (discussed at Chisinau municipal center) primarily are directed towards compliance with requirements from Health Insurance Company (i.e. properly filled-in case records to ensure reimbursement for the case management) and are not leading to the real process of improvement of quality of care.

BABIES matrix is a good tool at national level, however, it looks less practical for specific facility. This was apparent in all maternities visited – no analytical conclusion was possible retrieve for local managers based on BABIES they fill in.

It seems data collection and reporting prevails over analysis, thus it is not leading to managerial or clinical decisions to change (improve) practice.

The elements of benchmarking have been presented to the teams during the meetings of progress monitoring of quality improvement projects (October 2010). A common list of indicators for benchmarking activities has been developed and agreed upon.

The shift of quality assurance towards changing the clinical practices is one of the most important priorities under the quality management component. This component requires particular attention and support during last phase to achieve measurable impact of the entire project.

Health Technology Management System is developed and introduced

This is one of the most promising components of the Project if it is sustained and expanded systemically. HTM is apparently one of weakest parts of health care support services in entire NIS, thus its importance to the so highly priced service as referral perinatal care could not be overestimated.

Meeting with professionals running this part of the project activities showed apparent competencies and motivations. Most of its the further success will depend how health care managers will consider integrating HTM into their routine procurement plans and if they will appreciate not only economic gains, but also patients' safety. Latest should become more topical issue with advancement of insurance medicine.

Component 2: Healthy pregnancies are promoted and measures to prevent malformations are taken

Activities:

- Continued development of the National Program in preventing and diagnosing congenital malformations
- Development of statistical forms for the collection of data on malformations
- Production and dissemination of information materials

Most of planed activities in this component are on the right track. Professionals from this part of perinatal services claimed that they are missing many items of equipment (i.e. modern microscopes) to provide quality service, which is true. On the other hand, even existing services are not accessible for all in need because of financial constraints – services are not supported adequately from health insurance scheme.

Investments in this component within and beyond the Project, particularly, related to routine screening, should be balanced against needs in other areas of perinatal medicine. In any case, this part of medicine is

particularly connected in terms of impact to other medical disciplines – routine antenatal care, pediatric surgery, effective counselling, ethical committees, etc.

The frequency of congenital anomalies in Moldova, according to epidemiology (HFA-DB), does not differ significantly from the European average. In any case, these causes of perinatal loses are most difficult for control, thus always remain among leading causes of perinatal mortality in developed world.

For the moment, the most important part could be finalisation of the new M&E framework and reporting system that, potentially, later could be used as a framework for development of universal national birth register.

Component 3: Professional communication at national and international levels is improved.

Activities:

- Collaboration with neighbouring countries, particularly with Romania
- Telemedicine applications
- International networks and memberships

The vast majority of planned activities have been conducted and results have been achieved. An additional possibility would be visits to other countries with experience of transition and with good perinatal process and outcomes indicators.

A suitable country would be Lithuania which is comparable to Moldova by geographic and demographic dimensions; also, it has been recognised by WHO Euro for experience in reforming perinatal care by implementing regionalization, evidence-based practices, moreover, professionals there still speak Russian.

Starting 2011, SDC will be supporting upgrade of quality and safety of perinatal care in Lithuania as well (project duration 7 years).

Telemedicine has been implemented in this phase only in 4 pilot institutions and 153 users are registered, from which 48% obstetricians, 28% neonatologists and other specialists. Although obstetricians are more passive in presenting and reporting cases, the neonatologists, according to project team, are quite satisfied with the opportunity of distance advice. Being an instrument for increasing quality of care and being implemented in the other Swiss projects (Romania, Ukraine), its application in Moldova has taken a different course, distance consultation for cases, with support for specialists from level 2 and avoiding sending the ambulance with a consultant, thus reducing costs.

The estimations show (according to project team) that a consultation using AVIASAN costs 4000-4500 lei (250 euro) while use of Telemedicine only 50 lei (3 euro). Telemedicine has stimulated teamwork by involving other specialists in consultations (X-ray specialist, neuropediatrician). The x-ray specialists offer counselling round the clock.

It could be concluded that telemedicine is attractive technology, but has not reached its full potential as yet. One possibility to increase the number of users would be to integrate it in the continuous medical education system and develop a CME crediting system, especially since attendance of long courses has lately become an issue for health institutions.

Synergies with other SDC funded projects

The reviewers have met with the team leaders of REPEMOL and Parental Education projects to discuss possible synergies between the three SDC funded health projects in the areas of staff training, information and awareness raising campaigns, Health Technology Management and Quality Assurance. The immediate recommendation of both team leaders was to organize regular meeting of all three projects to update each other about their activities and strategies as a way to improve cross project collaboration.

REPEMOL project

Currently REPEMOL project has a Health Technology component that is coordinated by a shared coordinator in both projects and there is full synergy and sharing of knowledge and activities in both directions. The recommendation is to continue these activities as planned and put an additional emphasis on advocacy of the importance and cost control and cost reduction potential of this component not only in Pediatric Emergency and Perinatology, but in the whole health institution and at the national level.

In the area of quality management, Perinatal and REPEMOL projects have attended separately trainings on quality management in Tirgul Mures, Romania. The recommendation is for both projects to identify common points related to quality management and quality improvement and exchange experience in implementation of quality management activities.

Parental Education Project

One of the opportunities for improvement as perceived by the Perinatal Project is a need to strengthen counselling skills of family practice regarding antenatal and postnatal follow up of women and their children. In fact, the evaluation team attended the first session of perinatal audit of cases of antenatal infant death, which is an efficient quality improvement tool, oriented at improving family medicine practice in antenatal follow-up. The recommendation is that the Perinatal Project focuses on further expansion of antenatal audit to primary care initially in Chisinau and Balti and then expansion to other rayons. As a result of conducting the antenatal audit, process and capacity problems in the primary care will emerge. The Perinatal Project will be most suited to identify, document and solve process and organizational problems through quality improvement mechanisms.

Identified capacity gaps, such as insufficient counselling skills of health providers, would be well addressed by the Parental Education Project. This project currently plans to focus on building capacity of primary care in counselling skills for better parenting, by developing a 6-session curriculum on parental education and to pilot it initially in 4 rayons. The team of Neovita has extensive experience in providing client-friendly services and raining capacity, therefore they are best suited to provide training on counselling skills for primary care staff. Therefore we recommend that Perinatal and Parental Education Projects work closely in the planning phase of the capacity building efforts, so that the priority of both projects are included in the human capacity building plan .

Recommendations

General recommendations

There is potential to find interconnecting points with other two SDC funded programs - Regionalization of the Paediatric Emergency and Intensive Care Services in Moldova (REPEMOL) and Parental Education Projects

It could be mutual benefit for Perinatology project and REPEMOL by sharing experience in HTM (perinatology) and continuous quality improvement principles (REPEMOL).

Perinatology and Parental Education Projects potential could benefit from mutual training on counselling skills.

In 2011 SDC funded project will start in Lithuania. There could be bilateral interest in inter-country exchange of experience – for Moldova: lessons learned from regionalization of perinatal care (implemented since 1991), midwifery and NICU nursing practices, in-service training, for Lithuania – BTN and perinatal audit, and HTM, since substantial part of funds of Lithuanian project will be directed for the procurement of expensive medical equipment.

According to findings during the mission, men's involvement in perinatal care is growing, however, could be present at wider scale. Missed opportunities are clearly related to insufficient counselling skills of providers and, partially, still patriarchal family model, which is less present among younger generation. Parental Education Projects potentially should reduce gaps in this regard and facilitate man's participation in antenatal follow-up.

Quality of care

During last phase of project it is worth to focus on reinforcement of outcome indicators, first of all, related to quality of care (clinical practices). For some reasons, although this has not been the focus of the project thus far, the previous training efforts did not achieve fully their expected impact on routine clinical practice. Without substantial and consistent improvement of routine practices there could be difficult to demonstrate true impact of entire Project. In addition to reserved attitudes towards new practices, there might be some systemic inefficiencies and gaps preventing health practitioners to adopt new skills. Quite possible, there is a need for systemic and managerial interventions to improve staff motivation and performance, such as reassessment of costing of health services in maternities, improvement of clinical teamwork, increasing the role of midwives, performance-based remuneration. Without a better enabling environment, only the capacity building effort will have limited success.

Therefore, it is necessary to focus on comprehensive and harmonized multidisciplinary clinic- and team-building oriented training with substantial investment in regular external follow-up and tutorial guidance.
WHO Euro training package "Effective Perinatal Care-EPC" (http://www.euro.who.int/en/what-we-do/health-topics/Life-stages/maternal-and-newborn-health/policy/effective-perinatal-care-training-package-epc) is based on principles above and is proven to bring changes in clinical practice within couple of years if main rules are followed:

a. EPC is initially conducted in one referral maternity by multidisciplinary team of experienced, usually – international, facilitators (midwife, obstetrician, and neonatologist) who have personal experience in practicing EPC in clinical settings.
b. External follow-up in 6 months by the same team for refinement and reinforcement.

c. Internal monitoring at facility level by local staff using continuous quality improvement approach (i.e. benchmarking and monitoring process indicators)
d. ToT for most potential national professionals, including midwives, obstetricians, and neonatologists, on methodology of EPC training with update of content.
e. Cascade implementation of EPC at larger scale including regular follow-up as required.
f. For sustainability, involvement of University staff, particularly, Department of Postgraduate Education (OB/GYN and Neonatology) is recommended.

Regionalization

Regionalization in Moldova is on the right track; however, its entire potential is still not achieved.

a. Reassess criteria for regionalization and of conformity of existing facilities to updated criteria (3rd and, especially, 2nd level facilities)
b. Referral team for transportation of neonates (physician and nurse) should come from neonatal intensive care unit
c. Review protocol for timeliness and preconditions (if any) for arrival of reference team
d. Ensure continuity of practices between midwifery and obstetric practice, NICUs in maternity and pediatric hospital.
e. Use experience of other countries (i.e. Lithuania) in order to avoid delay in finding most effective model.

Antenatal care

Antenatal care standard in Moldova is in line with international recommendations. Issue remains compliance with it.

a. Anonymous antenatal audit has a great potential for quality improvement.
b. Involvement of midwife in antenatal follow-up would facilitate the process.
c. Counselling skills of provider could be improved using synergy with Parent Education project.

National program of malformations

It is suggested continue with support of this component of the Project; however, without universal access for the entire population to the service, meaningfulness of this component will remain limited. Investments should be balanced against needs in other subcomponents of the project.

Professional communication

Telemedicine still is in very beginning stage. In order to facilitate expansion of this technology would be worthwhile integrate use of telemedicine and distance learning in the continuous medical education system, including granting CME within crediting system.

Lithuania and Ukraine (EPC practices) are potential partners to substitute/control experiences gained in communication with Romanian perinatologists.

Inequities

Discussions, maternal review and equity analysis show existing inequities in access based on socio-economic status and by environment (rural/urban).

Systemic incentives for family doctors would facilitate serving underprivileged populations (enhanced health insurance schemes or contribution of local public authorities).

Annex 1. Qualitative assessment of quality of care based on clients perceptions

The goal of the interviews was to explore women opinions regarding the clinical care they have received during antenatal, labor and postnatal periods.

Method

In-depth interviews with randomly selected women in postnatal wards of visited maternities were conducted. A total of 23 women from six maternities were interviewed.
The interview guide was based on WHO quality assessment tool and put emphasis on:

Antenatal follow up

- satisfaction with antenatal care at primary care level
- intake of Ferum, folic acid
- partner involvement in antenatal visits
- counselling on labor and delivery
- family planning counselling
- arrangements regarding continuity of care with an OB/GYN

Intranatal care

- staff support in labor
- free position and relaxation techniques
- delivery in non-flat back position
- use of non-recommended practices (enema, shaving)
- partner during labor
- early skin-to skin and duration

Postnatal care

- Counselling on breastfeeding and family planning
- Quality of staff interaction
- Knowledge about follow up after hospital discharge
- Infection control
- Observance of hand washing and use of gloves
- Arrangements for visitors

Table 5. Distribution of interviews per sites, evaluation visit, October 2010

Site	**Description of cases**
Balti, level II	Four women, all rural, 3 vaginal deliveries, one urgent C-section
Singerei, level I	Four women, all rural, 3 vaginal deliveries, one urgent C-section
Hincesti, level II	Three women, 2 rural, one from the rayon center, all vaginal deliveries
Anenii Noi, level I	Three women, all rural, 2 vaginal deliveries, one urgent C-section
Chisinau Republican Center, level III	Six women, 4 urban, 2 rural, 3 vaginal deliveries, two planned C-sections, one urgent C-section
Chisinau Municipal Center, level II-III	Three women, all urban, 1 vaginal delivery, one planned C-section, one pregnant woman in the pathology department
Total	**23 women: 15 vaginal deliveries, 7 C-sections, one pregnant woman**

Findings

Antenatal follow up

All pregnant women attended their local family medicine center for the standard antenatal follow up visits, where their pregnancy was monitored. At the same time, many women have made arrangements for parallel follow up with an OB/GYN from a maternity and have delivered at their provider of choice. In the case of several rural women, they have preferred to make a personal arrangement of being followed up directly at an urban or district maternity and were just notifying their family physician of the results and for documentation, as they thought the rural GP was not qualified for quality antenatal follow-up.

The standard volume of antenatal services was received by all women: most had the first antenatal visit at around 10-12 weeks, most have received folic acid and Ferum supplements during pregnancy, have had the necessary or higher number of antenatal visits. Some urban women and none of the rural pregnant women have attended antenatal classes. Many women mentioned they have received information about danger signs, preparation for labor, diet and other topics. Asked to name danger signs, none of the women could name lack of fetal movements for more than 24 hours as a sign to referral to a health institution. Only one urban woman has been regularly accompanied by her husband at antenatal visits and said she was rather an exception and the physician did not address at all to her partner, she has just accepted his presence. Overall, women were satisfied with the volume of services and disliked long waiting times and redundancy of specialist visits (e.g., ophtalmologists, ENT etc). Some thought they would have needed more support for their partner involvement and preparation for partnership during labor.

Intranatal care

Most women entered maternity after initiation of labor and were all admitted to a separate delivery room. Many women had a partner (usually husband or mother) during labor, but fewer had their partner until the end of delivery. Women were not counselled or actively encouraged to have their husbands/partners during labor. In those cases when partners did not stay during labor was because women did not accept the idea or their husbands were afraid, against etc. The health personnel did not counsel before or during labor about the benefits of partner presence. None of the women mentioned the most important evidence based benefit that partner presence during labor improves outcomes for newborns.

Women who have delivered vaginally were encouraged to be active during labor, walk and find most comfortable positions during contractions. None of the interviewed women were offered shaving or enema. Many women mentioned active involvement of midwives in helping women finding comfortable position, psychological support, massage and relaxation techniques, many favoured the aids, such as chairs and balls available in the delivery rooms. One woman was actively encouraged to give birth in a non-flat back position, however she felt it was not comfortable and resorted to delivery on the table. All women have delivered on the table and could not name any benefits of non-flat back delivery. Most women were encouraged not to push.

Babies of women who have delivered vaginally were all applied skin-to-skin contact immediately after birth, but the interval was different, ranging from 10 minutes to an average half an hour to 1 hour and in very few cases 2 hours. Usually the skin-to-skin was interrupted by the health personnel for measurements and newborn care and after interruption newborns were sometimes reattached to mothers. Early breastfeeding was a universally encouraged behaviour, most efforts by health personnel being put in the early initiation of breastfeeding within the first two hours after birth.

Babies of women who delivered through C-section usually did not have any skin-to-skin contact and were monitored by health personnel in a different room, after showing the baby for a short time to fathers or relatives. Only in one case the father was used for skin-to-skin contact. Usually women were reunited with

their babies in the postnatal ward, but the timing was different. One woman mentioned she saw her baby only after 24 hours and did not know if or how the baby was fed, as she was not asked to express milk.

Postnatal period

Counselling: during postnatal period most emphasis of counselling efforts of health providers is put on breastfeeding counselling and newborn care. Women were able to mention benefits of breastfeeding, different positions for breastfeeding and show techniques for correct baby positioning. Some women delivering through C-section have difficulties with breastfeeding and needed more in-depth counselling and support with initiation of BF. Very few women said they had a discussion about contraception in their postnatal period.

Some women felt the information was mostly provided in a unidirectional way and was not really counselling or they did not have opportunity to ask questions. A very telling case is a woman on her 3rd day after delivery who had written a full page of questions waiting for the next visit of physician, and she felt that the information she received was formal and in a rush and her proactive position was bothersome for nurses. Some women at their second or third delivery mentioned that the quality of information they have received currently was better than before.

Temperature: temperature in postnatal wards varied depending on maternity. In some maternities there were no thermometers in the postnatal wards and in those where thermometers were available, sometimes the room temperature was less than 25 degrees.

Infection control

Overall, the qualitative assessment reinforced the wrong accents in infection control in maternities of protection against outside infections and less focus on hands as the source of most infections in maternities. None of the women noticed that health personnel would wash hands when entering their ward before touching their baby. Many have mentioned that restrooms of both wards and those dedicated to health personnel lack liquid soap and paper towels or they lack any soap or towel in general. Some women have noticed more attention to hands in the delivery ward, where health personnel used gloves during delivery and initial baby handling.

At the same time, health personnel put most of their control efforts on the visitors. In some maternities visitors are not allowed at all to postnatal wards, some have made a special room for visitors where women receive food and discuss with their families. When visitors are allowed to postnatal wards, they are requested to wear white gowns and single-use overshoes. No specific emphasis is made regarding hand hygiene of visitors either.

Conclusions

Antenatal follow up corresponds to the volume of necessary services and visits, yet is perceived by some women as still redundant and some women from rural areas feel it is unreliable; therefore prefer to see a OB/GYN of choice in parallel. Partnership during antenatal follow up is an exception and when it happens, providers are not skilled to involve husbands/partners in discussions or decision-making

As for quality of health services in maternities, some new practices have been widely accepted and have become the norm:

- active movement during labor
- no enema or shaving before delivery
- rooming in
- early breastfeeding and breastfeeding counselling
- early discharge from the maternity

Some practices have been partially implemented:

- Partnership during labor is allowed, but not actively encouraged and pursued and evidence-based benefits of partnership are not correctly explained to couples
- Skin-to-skin contact is promoted and implemented, but it seldom lasts for at least an hour and is interrupted by health personnel for newborn care
- In some maternities necessary attention is given to room temperature, but temperature monitoring is not performed on a systematic basis
- In case of a woman with caesarean section, skin-to-skin, rooming in and early breastfeeding are less implemented and depend a lot from case to case.

Some practices have not changed:

- All women deliver on the table in a flat-back position and exceptionally in other positions
- Counselling skills of health personnel are weak at all levels (maternity and GP) and miss their objective to change behaviours and reinforce new practices in key areas of mother and child care
- Infection control is focused on visitors and not on the health personnel
- Hands are still not the primary focus of infection control in health institutions: supply of soap and paper towels is frugal and practices of hand washing are erratic.

Annex 2. List of background documents

1. Project Document with Annexes
2. Progress and Annual Reports
3. Study on the Quality of Perinatal Services in Moldova- evaluation report of the National Perinatology Program (2008)
4. Report of the MidTerm Review of the National Reproductive Health Strategy- chapter on safe motherhood.
5. Draft End of Phase Report
6. Last phase evaluation
7. Project on HTM submitted by Technical University professor Sontea
8. National Program on Congenital Malformations
9. National Program on Perinatology
10. Steering Committee minutes
11. Maternal and Child Health Equity Analysis, Center for Health Policies and Studies (PAS Center), 2010

Annex 3. Frame of the evaluation mission

October 11-19, 2010

Monday, October 11		
Initial meeting with national project team		
14:30	Petru Stratulat	Team leader, AMP
	Ala Curteanu	AMP team
Initial meeting with SDC team		
17:00	Georgette Bruchez	SDC
	Anne Habsberger	SDC
	Natalia Cernat	SDC
Tuesday, October 12		
Balti Perinatal Municipal Center (level 2)		
09:00–13:00	Petru Nedelciuc	Head of maternity, OB/GYN
	Lilia Prisacaru	Head midwife
	Ninel Naghirneac	Head of birth hall
	Victor Clapaniuc	Head of Physiologic Delivery Department
	Nina Foca	Head of Neonatology Intensive Care Department
	Simion Galbur	Head of Pathological Delivery department
	Aliona Pariniuc	Midwife
	Ludmila Turcanu	OB/GYN and FP, Family Planning Office, CMF Balti
Singerei maternity department, Rayon Hospital (level 1)		
14:00-16:00	Natalia Crisciunas	OB/GYN, head of department
	Tatiana Stelea	OB/GYN
	Ala Curchi	Neonatologist
	Victoria Hozun	Midwife
	Valentina Stratan	Midwife
	Ana Friiuc	Deputy director, mother and child, Health Center
	Angela Spinu	Medical director, Health Center
Wednesday, October 13		
Chisinau, Republican Mother and Child Center (level 3)		
09:00-12:30	Marin Rotaru	Head of Maternity, Republican Perinatal Center
	Olga Cernetchi	Prorector, Head of OB/GYN postgraduate department
	Valentina Diug	Curriculum coordinator, OB/GYN postgraduate department
	Serbencu Anatol	Deputy head Maternity, Republican Perinatal Center
	Petru Stratulat	Curriculum coordinator, Chair of Postgraduate Education
	Ala Curteanu	AMP team
	Petrov Victor	Assistant Professor
	Oxana Zavtoni	Head midwife of Maternity, Republican Perinatal Center
	Tatiana Caraus	AMP team
Perinatal mortality audit session, antenatal cases, Center of Family Medicine, Ciocana district		
13:00	Petrov Victor	Assistant Professor
	Tatiana Caraus	AMP team
Thursday, October 14		
Meeting at the Ministry of Health		
08:30	Gheorghe Turcanu	Deputy Minister
	Rodica Scutelnic	Head of Mother and Child Department
Hincesti maternity department, Rayon Hospital (level 2) and Center of Family Medicine		
09:00-13:00	Liviu Tautu	Head of maternity department
	Leonard Tautu	OB/GYN

	Ala Tautu	Neonatologist
	Ana Ciobirca	Midwife
	Vera Munteanu	Director, Family Medicine Center
	Lilia Tanase	Deputy Director, Family Medicine Center
Anenii Noi maternity department, Rayon Hospital (level 1)		
14:00	Alexandru Nastas	Head of maternity department
	Aliona Elev	Head midwife
	Ala Nacu	Neonatologist
Friday, October 15		
Municipal Perinatal Center Chisinau (level 2-3)		
09:00-13:00	Iurie Dondiuc	Head of Perinatal Center
	Ludmila Rusu	Deputy Director, pediatrics
	Dumitru Siscanu	Consultative department, OB/GYN
	Cornelia Sirbu	OB/GYN, Head of in-patient admissions
	Tatiana Roschina	Head of maternity department
	Svetlana Achilina	Head midwife
	Ludmila Boleac	Midwife
	Oleg Potacevschi	Head, Pathologic pregnancy department
	Eudochia Chirtoaca	Head midwife
	Vadim Leuca	Head of Neonate Intensive Care Unit
HTM, Republican Perinatal Center		
15:00-16:00	Tatiana Buzdugan	HTM Coordinator
	Victor Sontea	Chair of Bioengineering Department, Technical University
	Valeriu Palii	Bioengineer, RPC
Follow up Center		
16:00 17:00	Alexandru Magulceac	Head of Neonate Intensive Care Unit
	Ala Jitarciuc	Neonatologist, Follow Up Center
	Daniel Cosma	Neonatologist, Folow Up Center
WHO Moldova		
17:30-18:30	Silviu Domente	Acting head of office, WHO
	Larisa Boderscova	Program Officer, WHO
Saturday, October 16		
09:00-17:00	Gelmius Siupsinskas Stela Bivol	Working on findings, preliminary conclusions, preparation for final debriefing
Monday, October 18		
Meeting on Congenital Malformations team		
11:30	Mihail Stratila	Deputy Director
	Natalia Barbova	Physician genetician
	Natalia Usurelu	Scientific secretary
Meeting with REPEMOL project team		
14:00	Silvia Morgoci	Coordinator, SDC REPEMOL project
	Tatiana Buzdugan	HTM Coordinator, Perinat and REPEMOL projects
Meeting with UNICEF Moldova		
16:00	Svetlana Stefanet	Head of section, UNICEF Moldova
Tuesday, October 19		
Meeting with the Director of the Parental Education project		
09:30	Galina Leshko	Director, YFHS Neovita, SDC Parental Education project
Final Debriefing		
08:00	Georgette Bruchez	SDC
	Anne Habsberger	SDC
	Natalia Cernat	SDC

14:00	Petru Stratulat	Team leader, AMP
	Ala Curteanu	AMP team
	Tatiana Caraus	AMP team
	Tatiana Buzdugan	HTM Coordinator
	Marin Rotaru	Head of Maternity, Republican Perinatology Center
	Anatol Serbenco	Deputy Head, Republican Perinatology Center
	Valeriu Gladun	Chief of Delivery Department Republican Perinatology Center
	Victor Ciobanu	Curriculum coordinator, Chair of Postgraduate Education