Pediatric anesthesia care differs in terms of standards of safety due to economic and political regional developments in Europe. Former communist countries still lack modern equipment, and training vary significantly from international standards. Moldova is a small country of about 3.5 million people where anesthesia related mortality was assumed to be higher than in western European countries (e.g. 100% mortality in retrospective investigation of 50 esophageal atresia cases between 1987 -2005, personal communication, compared to 5% in developed countries (1)). A review following a visitation of Moldovan children hospitals in 2007 showed anesthesia equipment was archaic and outdated, and proper support was needed to change this appalling situation. Children were traditionally treated in 3 large centers, one of it an university hospital, located in the capital Chisinau. Children in need for receiving treatment in the province were anesthetized by much less experienced anesthesiologists, transportation to the university hospital happened if the child was in severe condition. Helicopter service for trauma or the severe ill did not exist in Moldova. Till today the head of the pediatric anesthesia departments were pediatric surgeons. As many other Eastern European countries, Moldova suffers from corruption. Payments for public services or exams have a negative influence on peoples motivation to adopt a modern medical system. Students report that bribes are still paid frequently for exams, starting already in school. Private donations (tax free) are paid for receiving a job and for receiving medical treatment, bypassing the official fiscal system.

Aiming to improve the safety of anesthesia, a group of anesthesiologists founded IATC (International Anesthesia Teaching Center, www.iatc.eu, since 2007). IATC specialized on international cooperation and implementation of safety concepts in anesthesia. Statutes of IATC exclude personal interests or benefit for staff and volunteers. IATC funding and projects are monitored by the German fiscal authorities and German government. The development of the past years and the contribution of a few Moldovan anesthesiologists to the project must be seen as in the view of the tremendous problems of a country after years of a chaotic transition time. The reorganization of the residency of anesthesiology is still under process, and needs time.

Projects and implementation:

In order to assist the cooperation partners (e.g. anesthesiologists in Moldova and other regions) to improve anesthesia safety in their country, three main strategies were developed in the early stages:

1. **Strategy targeting governmental involvement and funding** → endpoint: introduction of modern drugs and technologies
   
   a. Several applications for funding of anesthesia equipment to governmental bodies were submitted by IATC
   
   b. Annual participation in bilateral governmental delegations (Germany, Moldova, Serbia)

2. **Strategy establishing better communication between anesthesia societies** → endpoint: improved anesthesia training

   Partners: ESA, ESPA, SARM, WFSA


   Medical industry and Swiss hospitals provided equipment for the project

Equipment, public and governmental support:

Starting with nothing else but a single donated used anesthesia machine and a few motivated teachers, IATC and SARM (society of anesthesiology and intensive medicine of Moldova) launched a campaign to upgrade all Moldovan pediatric anesthesia departments to western standards with governmental support. This lead to an improved situation concerning anesthesia equipment in most Moldovan hospitals. In the year 2013 (6th year of the IATC project) all pediatric anesthesia departments and many major adult anesthesia departments in Moldova use modern anesthesia machines and full monitoring partly as a direct result of the IATC project. The introduction of important anesthesia drugs (Sevoflurane, Bupivacaine, Rocuronium, Neostigmine) was a further achievement supported by the cooperation project.
Changing the system: Fusion of residency, EDAIC exam

Together with the Moldovan society of anesthesiology (SARM), IATC advocated improvement in anesthesia training: Training for the Moldovan pediatric anesthesiologist was kept apart from the general anesthesia residency till now. Graduates from pediatric anesthesia residency were permitted only to work in one Moldovan hospital (Center of Mother and Child), and had no experience in adult anesthesia. This situation caused economic damage to the national health system and loss of physicians. IATC initiated a special working group in 2011 headed by the Moldovan minister of health aiming to reform the current anesthesia residency (adult and pediatric) and the national anesthesia exam.

In 2011, IATC promoted an official meeting and ceremony between ESA (Dr. Goldik), SARM (Moldovan Society of Anesthesiology) and Ministry of Health leading to a contract between ESA and SARM, and a document with the following plan of action:

<table>
<thead>
<tr>
<th>Plan of Reform, Anesthesia Residency Moldova, 11/2011:</th>
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<tbody>
<tr>
<td>o Elimination of pediatric anesthesia as a separated residency</td>
</tr>
<tr>
<td>o Duration of anesthesia residency: extended from 4 to 5 years</td>
</tr>
<tr>
<td>o Adaptation to European anesthesia syllabus</td>
</tr>
<tr>
<td>o Mandatory EDAIC exam replaces current diploma exam</td>
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</table>

To establish a functioning representation of Moldovan pediatric anesthesiology and to sustain pediatric anesthesia as a sub-specialty, IATC suggested to elect a delegate from Moldova for the ESPA (2011) and to enable specialists of anesthesia to be trained in fellowships in the university children hospital, Center of Mother and Child.

In 2012 IATC was authorized by ESA to supervise and finance the first official EDAIC exam in Chisinau. Moldova had never before used centralized European anti-corruption measures for anesthesia exams (SARM, IATC and ESA) as in 2012. The ESA exam fee for all participating residents was paid by IATC. SARM still allowed at this time a parallel national Moldovan anesthesia exam ahead of the EDAIC exam, and issued the 2012 specialists certificate after participation in this Moldovan exam. The following results have been published:

<table>
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<tr>
<th>Moldovan anesthesia exam result 2012:</th>
<th>100% candidates passing</th>
</tr>
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<tbody>
<tr>
<td>EDAIC exam Chisinau exam result 2012:</td>
<td>0 % candidates passing</td>
</tr>
</tbody>
</table>

We anticipate that once the EDAIC exam will be mandatory, more candidates will pass and catch up as it happened before in other nations (2). For a transition time the ESA suggested to certain countries to permit lower pass marks until residents performance would adapt to the requirements of the demanding EDAIC exam.

Pediatric anesthesia simulation course:
Till 2012 IATC supported and participated with volunteers in clinical teaching in Moldova. Starting from 2012 IATC participates with ESPA in the search for long term concepts using simulation techniques in transitional countries and western countries. Our hypothesis is that simulation is a valuable tool in teaching the young and even the less young anesthesiologists. Participation in repeated simulation scenarios confronts the team with international guidelines and recommendations, where rare but dangerous situations can be simulated without harming patients. Good simulation courses are loved by students and residents, and can raise the motivation of a team as a whole.

The development of an ESPA pediatric anesthesia simulation course including short lectures and skill stations is planned to be a sublimate to clinical teaching and gathering of clinical experience before or after a rotation in pediatric anesthesia. ESPA pediatric anesthesia simulation courses will be offered at the hosting hospitals. IATC participates in the project by providing an ambulance car with simulation equipment and a fully equipped anesthesia place. Currently, first trials were made in Switzerland (St. Gallen, Biel and Luzern), and a first Moldovan anesthesiologist became an instructor in this simulation course. Till autumn 2013 the pediatric anesthesia simulation course will operate in Moldova with the goal to establish simulation in pediatric anesthesia in Moldova. Starting from October, the project will be extended to other European countries. All course instructors will be ESPA members. An ESPA certification of attendance will be issued.

In conclusion: Improving safety in pediatric anesthesia in transitional countries like Moldova is demanding and needs time. A group of anesthesiologists supported under the name of IATC, all involved partners to improve safety in anesthesia in Moldova. A precondition for the project was the application of IATC for governmental funding leading to better equipped anesthesia departments and to a stepwise reform of the anesthesia residency in Moldova.

Literature:


2. Krzysztof Kusza, Zeev Goldik: How to adopt the European Diploma in Anaesthesiology as the National Board examination in anaesthesiology and intensive therapy – from euro (€) to EDA I – three-year experience in Poland. Anaesthesiology Intensive Therapy, 2011,XLIII,1; 6-8