EVALUATION OF THE INTEGRATED MATERNAL AND CHILDHOOD HEALTH PROGRAM IN SERBIA

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Contents

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Heather Jeffery

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Abbreviations and Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ARI	Acute Respiratory Infection
CME	Continuing Medical Education
CPD	Continuing Professional Development
CPE	Continuing Professional Education
DPT	Diphtheria, Pertussis, Tetanus
HIV	Human Immunodeficiency Virus
ICD	International Classification of Disease
IMCI	Integrated Management of Childhood Illness
IMCH	Integrated Maternal and Childhood Health
MCQ	Multiple Choice Questionnaire
MICS	Multiple Indicator Cluster Survey
MTSP	Medium Term Strategic Plan (UNICEF)
NCHS/WHO	US National Centre for Health Statistics/World Health Organization standard or reference population for nutritional status of children
NGO	Non-Government Organisation
ORT	Oral Rehydration Therapy
OSCE	Objective Structured Clinical Examination
PBL	Problem-Based Learning
PHC	Primary Health Care
QI	Quality Improvement
SCORPIO	Structured, Clinical, Objective-Referenced, Problem-oriented, Integrated, Organised
SIDS	Sudden Infant Death Syndrome
STD	Sexually Transmitted Disease
TB	Tuberculosis
TOR	Terms of Reference
UNICEF	United Nations Children's Fund
WFME	World Federation for Medical Education

List of Tables and Figures

Executive Summary

The goal of the Integrated Maternal and Childhood Health (IMCH) initiative in Serbia, is to build the capacity of primary health care providers to incorporate the health needs of mother and child into existing systems, recognising that a healthy mother is a prerequisite for a healthy child. This program is based on UNICEF/WHO global Integrated Management of Childhood Illness (IMCI) guidelines but adapted to the specific needs of Serbia and Montenegro. The program is referred to as IMCH to reflect the nature of these changes.

UNICEF in partnership with the Serbian Institute for Mother and Child Health Care „Dr Vukan Cupic" and the Institute for Public Health, Belgrade introduced the IMCH program in 1996 following the government decree on Mother and Child Health Protection adopted at the Serbian National Assembly. The Institutes and UNICEF then developed case management guidelines and protocols on the most frequent maternal and childhood illnesses. A workshop for doctors and nurses working in primary healthcare facilities was designed and in so doing pioneered a new educational approach in Serbian healthcare training, by introducing small group, interactive learning techniques. By May 2003, all patronage (home visiting) nurses and fifty per cent of primary health care doctors will have been certified as competent in the field of Child and Maternal Healthcare following an intensive one week seminar program. The programme was also introduced in Montenegro although this was not included in the scope of this evaluation.

Evaluation of the program at this point in time indicates that it is rated highly by the trainees and the early results (for nurses) suggest successful incorporation of enhanced competence into workplace practice. Outcome results have yet to be fully evaluated but early observations suggest an improvement in maternal and childhood health outcomes.

Recommended measures for improvement of the IMCH program include further assessment/analysis of educational needs in case management skills, overall health system development and skills to foster parent and community involvement. This will provide a rational basis to facilitate the development of education strategies to address these needs.

Priority topics to address in the short term include Injury prevention/management, measures to reduce the Perinatal Mortality Rate, SIDS prevention and Child Protection strategies. Although separate UNICEF programmes exist for injury prevention and child protection they do not include all PHC doctors and nurses who are accessible through the IMCH program.

The educational methodology currently used would be enhanced by the development of specific learning objectives in the education domains of knowledge, skills and attitudes. Teaching methods used should be expanded to include Problem-based learning and skills training techniques. The validity and reliability of the assessment process would be improved by introduction of performance-based methods such as the Objective Structured Clinical Examination.

It is predicted that the IMCH initiative will have a major impact on educational reform in Serbia providing a model for the planning of future CME activities. This reform process will eventually be reflected in improved health care outcomes if the momentum is maintained and refinement of the educational process continues. Key areas to focus on include incorporation of evidence based medicine, critical appraisal and consumer participation into the curriculum together with an integrated approach to knowledge and skills training. World Federation for Medical Education international standards for excellence in medical education should be used as benchmarks to monitor the progress of program development.

The IMCH initiative can no longer continue as a pilot program supported by UNICEF. It should be fully integrated into the Serbian health system if sustainability is to be achieved. The quality of the program and its

potential for contributing to positive health gain in child and maternal care fully justifies such an action. The responsibility for service development, professional education and Continuing Professional Development lies with the Ministry of Health, and the Institute for Social Medicine. They now need to take responsibility for running this program and mainstreaming it into medical and nurse education. It cannot survive while UNICEF alone funds it and supports it.

A combination of strategies must be implemented to achieve the goal of reducing the child and maternal morbidity and mortality in Serbia. These are based on the UNICEF recommendations for advocacy, capacity-building, service delivery and empowerment. Advocacy for an integrated policy for early childhood development based on a human rights approach of non-discrimination and best interests of the child is fundamental to the process. A child-centred approach to capacity-building will ensure that infrastructure development, net-working and problem-solving will remain focussed on the child. Service delivery must be supported by the provision of adequate basic equipment, medicines and communication systems at the PHC centre level. Parents, carers and the community at large must be empowered to be active participants in the process of child and maternal health care. These concepts are embodied in the IMCH ideal.

Key Recommendations

Educational Recommendations

1. Revise the trainee learning needs in the knowledge, skills and attitudinal domains of learning

2. Additional topics to include in core content

   - Information technology/accessing international data-bases/critical appraisal/evidence based guidelines
   - Principles of change management for doctors, nurses and administrators
   - Consumer participation in the health care process
   - Child protection
   - Methods to reduce the perinatal mortality rate at PHC level including periconceptional counselling, identification of risks for preterm labour, triage related to pregnancy
   - Methods to reduce childhood injury particularly motor vehicle related and home related accidents
   - HIV/AIDS education at a community level
   - Child care practices to reduce Sudden Infant Death syndrome.

3. Revision of manuals for doctors and nurses

   - Develop evidence based, clinical guidelines with explicit recognition of the best level of evidence available
   - Develop a web-based manual that can be rapidly accessed and up-dated.
   - Use of illustration and colour especially with a web-based presentation.
   - Problem-based approach to topic presentation.

4. Define learning objectives in the knowledge, skills and attitudinal domains of learning

5. Teaching methodology

   - Integrate the teaching of knowledge with skills training
   - Reduce content; more small-group inter-active, less didactic teaching
   - Structured approach to skills training; „tell, show, do, feed-back"
   - Introduce the Problem-based learning methodology
   - Have computers available at the seminar venues
   - Increase the range of teaching resources at the seminars eg manikins, radiologic and pathologic materials
   - Introduce the concept of multi-professional education.

6. Introduce the Objective Structured Clinical Examination and Personal Learning Portfolio to the assessment process.

7. Program Evaluation

   - Develop/implement an education quality improvement program
   - Develop performance indicators to determine learning is incorporated into practice
   - Define specific indicators of changes in health care outcomes

8. Organise two skills development workshops for facilitators and teachers, 3 days duration, including

   - Education – objectives, teaching methods, assessment
   - Epidemiology eg literature searching, critical appraisal; quality improvement; basic database and internet technology use

General Recommendations

9. Improve analysis of cause and associated factors of „unexplained" and injury-related deaths in 1-4 year old children

10. Telephone counselling service; extend to regional centres of Serbia

11. Home visitation by patronage nurses; extend brief to identification of high risk pregnancies with antenatal and postnatal follow up to two years

12. Develop a National Perinatal Strategy

13. Transfer the responsibility of the IMCH program to the Ministry of Health to ensure sustainability and quality improvement in PHC performance and outcomes.

Implementation Matrix

NO	RESPONSIBLE INSTITUTION	SHORT TERM (BY END 2003)	MEDIUM TERM (BY END OF PROGRAM 2004)	LONG TERM (5-10 YEARS)
1	**Ministry of Health**	Prepare for the upgrading and continuation of the IMCH program when UNICEF turns the program over to the MOH end 2004 Institute reduction in perinatal mortality as a National priority and implement a situational analysis that is perinatal (doctor and nurse representation). External consultant recommended. Initiate a Child Death Review Team under Law with specific surveillance, reporting, monitoring and research functions	Prepare for the provision of CPE in the IMCH to PHC workers in selected purpose built centres in Serbia.Introduce performance-based accreditation Implement a perinatal strategy over 1-2 years, including evidence based education and content, infrastructure development, networking throughout Serbia with tertiary, secondary and primary level doctors, nurses, administrators Develop with stakeholders a perinatal committee infrastructure and reporting system from primary/secondary to tertiary levels to MOH (and reverse) Introduce accreditation of hospitals, perinatal health workers and procedures Provide resources for funding and place responsibility with key organisations with public health and child expertise	Provide maintenance infrastructure for services. Ensure CPE is a mandatory part of community doctor and nurse accreditation in PHC Ensure sustainability through i) funding of ongoing CPE in perinatal medicine andii) ongoing maintenance of infrastructure for service development Ensure CPE is a mandatory part of doctor and nurse accreditation in perinatal medicine
2	**Association of Paediatricians**	Advocacy for recommendations 1-13	Advocacy for recommendations 1-13	Advocacy for recommendations 1-13
3	**Institute of Mother and Child**	Work with the IPHs (conjoint) on analysis of child hood deaths Encourage and support teachers in upgrading the educational framework of IMCH including attendance at skills workshops (senior and younger member each topic) Advocacy for E/R 1-8, G/R 10, 11, 12, 13	Initiate and promote with the IPHs, all opportunities for prevention of childhood deaths Provide leadership, support and training for regionalisation of the IMCH program under the direction of the MOH With the IPH Belgrade, initiate a train-the-trainers approach, (after upgrading skills as outlined recommendation 8), for regional trainers throughout Serbia Advocacy for G/R 10, 11, 12, 13	Continue to provide support, recognition and innovation in modern education, as outlined in the Edinburgh declaration and using this and subsequent documents from the WFME, to ensure that the lead paediatric institution is implementing suchstandards Advocacy for G/R 10, 11, 12, 13

NO	RESPONSIBLE INSTITUTION	SHORT TERM (BY END 2003)	MEDIUM TERM (BY END OF PROGRAM 2004)	LONG TERM (5-10 YEARS)
4	**Institutes of Public Health (Belgrade and Republican Institute)**	Initiate the detailed analysis (conjoint) of unexplained, congenital abnormailty and injury related deaths in children1 month to 5 years of age Identify multisectorial approaches to prevention and develop appropriate interventions Implement a child death review team to report annually to MOH and consumers on data analysis, needs, results, previous year's action 10, 11 Advocacy for E/R 1-8 and G/R 12, 13	Develop guidelines for method of reporting from regions in Serbia Ensure all multisectorial approaches to prevention are fully implemented Encourage development of a consumer organisation like Kids Safe Produce the first annual report, illustrating in graphs, tables, plain language the major achievements, main issues and unresolved problems G/R 9 (conjoint), 10, 11	Support development of consumer organisation and use them as an avenue for health promotion E/R 1 to 8 G/R 9 (conjoint), 10, 11
5	**Centre for Continuous Education (under MOH)**	E/R 1 to 8 Provide infrastructure (suitable building, teaching resources, manikins, computers, administrative support). Fund skills workshops for PHC trainers of IMCH program	E/R 1 to 8	E/R 1 to 8
6	**Nurse association**	Advocacy for R 1-13	Advocacy for R 1-13	Advocacy for G/R 9, 10, 11, 12
7	**UNICEF**	Continue with (i) revision of curriculum and (ii) training in selected areas Advocacy for R1-13	Provide skills education etc workshops as listed in E/R Handover responsibility of IMCH training to MOH at end 2004 Prepare to shift emphasis of training from professional to parent and community education	Continue to develop primary responsibility to parent and community education

Abbreviations in Table:

WFME: World Federation Medical Education
E/R: Educational recommendations from page 9 of report;
G/R: General recommendations from page 10 of report
CPE: Continuing Professional Education
IMCH: Integrated Maternal and Childhood Health
MOH: Ministry of Health
■ Colour code: primary responsibility
■ Colour code: support and advocacy role

UNICEF Aims for the Evaluation of the IMCH Program in Serbia (as per TOR)

- Evaluate the concept of the IMCH project and its relevance to UNICEF global goals and strategies.
- Evaluate the concept of the IMCH project and its relevance to the Serbian situational analysis.
- Evaluate the policy framework of the IMCH project with respect to international standards and the local situation in Serbia.
- Evaluate the appropriateness and quality of the training program of the IMCH project, including training materials, educational methodology and the organisation of seminars.
- Assess the impact of the project on Maternal & Child Health Care.
- Recommend measures for:
  - improvement and ways to mainstream project into Serbian health reform process;
  - ways of shifting toward community and parent involvement;
  - ensuring sustainability;
- Outline UNICEF's future role in these activities.
- Recommend measures to increase the capacity of the Ministry of Health, Serbia to continue evaluation and monitoring of the project.

Concept and history of the IMCH Program In Serbia

Key components in the evaluation of the IMCH concept and its application to the situational analysis in Serbia are summarised below.

1. IMCI global concept

A large proportion of childhood morbidity and mortality in low income countries is caused by five conditions: acute respiratory infections, diarrhoea, measles, malaria and malnutrition. The IMCI strategy encompasses a range of interventions to prevent and manage these conditions both in health facilities and the home.

The mother is integral to the prenatal, intrapartum and postnatal care of the child. A well mother is a pre-requisite for a well child. An integrated approach is needed to address the overall health needs of mothers and children as the causes of their health problems tend to reflect multiple aetiologies; medical, social, political and economic. A problem-orientated rather than disease-based approach is the preferred strategy to address such health issues.

The original IMCI concept, outlined in the WHO Bulletin in1997[1], focussed on the importance and education of basic health care workers and carers recognising and classifying the severity of signs of illness in children under 5 years of age. According to the classification of five conditions, namely, cough or difficult breathing, diarrhoea, fever, ear problems, nutritional status, a plan of treatment and/or referral was outlined. The strategy was aimed at countries with an infant mortality rate greater than 40 per 1000 live births. It united the previous WHO/UNICEF single targeted programs into an integrated approach, recognising the complexity of child ill health.

More recently, WHO has published an additional IMCI planning guide[2] and suggested that implementation of the IMCI strategy, to address the overall health needs of mothers and children in a country, involves educational programs for three components:

- Improvement in case management skills of health care staff.
- Improving overall healthcare systems
- Improving family and community health practices

This requires collaboration between health programs in a country at all levels of the health system and collaboration with parents, carers and the community.

In Serbia, the IMCH program incorporated the above concept and adapted the generic guidelines to both Serbian child and maternal health needs. The modifications in the Serbian IMCI strategy led to the terminology of IMCH. A focus on key areas of child and maternal mortality and morbidity has been derived from baseline statistics as found in the Statistical yearbook and the Multiple Indicator Cluster Survey (MICS) I[3] and II[4] undertaken and published by UNICEF in 1996 and 2000. In addition, the training curriculum

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1 Integrated management of childhood illness. WHO Bulletin 1997,75: Suppl 1

2 IMCI planning guide. Department of child and adolescent health and development. WHO 1999

3 FR Yugoslavia 1996 Multiple Indicator Cluster Survey, Institute of Public Health of Serbia, Institute of Public Health of Montenegro. UNICEF Belgrade, 1997

4 Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

was decided by National consensus and the health-care of mother and child considered as a whole.

2. History of the IMCH Program in Serbia

The IMCH program in Serbia followed the 1990 World Summit for Children Declaration[5], to which the Socialist Federal Republic of Yugoslavia was a signatory, and as such committed itself to:

- Setting child welfare goals for the year 2000
- Mobilising the necessary resources to achieve these goals
- Monitoring progress towards these goals throughout the decade

When the Socialist Federal Republic of Yugoslavia (SFRY) disintegrated in 1990, the Federal Republic of Yugoslavia initiated the underlying legislation in 1996 contained in the Decree on Mother and Child Healthcare, with the aim of integrating mother and childcare in teaching and practice in Primary Health Care (PHC).

Following this legislation, UNICEF initiated partnerships and funding for the development of core manuals and training packages for PHC doctors and nurses, incorporating the IMCI strategy. The teaching methods incorporated 'active learning' as opposed to 'passive learning' for the first time in healthcare in Serbia.

Comprehensive training seminars commenced in Kosovo in November 1997 and from 1997-99 seminars were principally in Kosovo as the child and maternal mortality and morbidity were highest. In late 1999, the seminar program for doctors was implemented throughout Serbia and continues with funding until the end of 2003. (In 2000, train the trainer workshops commenced in Montenegro and currently seminars are proceeding there with the support of the UNICEF Montenegro office). The nurses'seminars are reasonably similar in content, teachers and teaching methods but separated in location. The differences are due to the perceived needs and activities of nurses compared with doctors. They commenced in September 1999. Currently, as of early April 2003, 48 % (1206 of 2500) of PHC doctors and 88 % (1400 of 1600) of patronage nurses have undertaken IMCH training.

3. Implementation of the IMCH Program in Serbia

Institutions

UNICEF in partnership with the Ministry of Health, Serbia engaged two institutions to implement the IMCH program, namely

Serbian Institute for Mother and Child Health Care „Dr Vukan Cupic" (leading)
– whose paediatricians and obstetricians/gynaecologists are responsible for teaching of doctors in PHC – paediatricians, gynaecologists, GP's etc. The project co-ordinators of IMCH seminars for doctors included Professor Milos Banicevic 1997-1999 (for 2 years from implementation in November 1997), Dr Dragana Lozanovic 2000-2001 and Dr Miodrag Ignjatovic 2002-2003.

Institute of Public Health, Belgrade
This institute is responsible for the teaching of patronage nurses (nurses who are working in the community). The project coordinator of IMCH seminars for patronage nurses is Dr Dusica Matijevic. Two other programs which are a continuation of IMCH are: telephone counseling for a healthy child (coordinator, Dr Ljiljana Sokal Jovanovic – and home visiting (coordinator, Dr Dusica Matijevic). Chief nurse and secretary to the above projects is Ms Andjelka Kotevic.

[5] World Summit for Children 1990 http://www.unicef.org/wsc/declare.htm

Development of the IMCH curriculum
This was undertaken by national, 'active learning' experts, namely the Institute for Psychology and Pedagogy (University of Serbia) and the Institute for Social Medicine (Part of the Medical School, University of Belgrade). A multidisciplinary team comprised of two professors from the above institutes and two doctors each from UNICEF, the Serbian Institute for Mother and Child Health Care „Dr Vukan Cupic" and Institute of Public Health, Belgrade, together with two authors wrote the goals, objectives, material/resources needed, methodology for teaching, schedule and specific exercises for the doctors and the nurses manuals.

This material is contained in a 500 page book written in Serbian for facilitators/teachers. All materials for trainers are standardized and given in a folder as a set of overheads or power point presentation, with exercises and resources needed. The educational methods include primarily, a didactic, short power point presentation (varying 15 to 30 minutes) interspersed with case studies. In addition and less often there are games (matching for immunisation), role play, posters and occasionally demonstrations (eg with mannequin).

Train the trainers
First group of trainers commenced in 1997 and a second group in 1999, to date there are about 60 doctors and nurses trained, of whom about 15 are nurses. Each trainer is considered an expert and two are assigned to each module or topic, usually one older professor and one younger assistant from the Serbian Institute for Mother and Child Health Care „Dr Vukan Cupic" or from the Institute for Public Health Belgrade.

Training location
In a hotel out of town so as to encourage team work, socialization and networking.

Training package for trainees
Includes (i) various publications such as leaflets, brochures, manuals, relevant for subjects in the workshop, for each healthcare person e.g. patronage nurses who are engaged in health promotion, disease prevention, care of newborns and e.g. doctors in PHC (ii) protocols e.g. care of the newborn, acute respiratory infections, contained in a manual for doctors entitled „Primary mother and child health care" and in a manual for nurses entitled „Messages for life".

4. Complementary programs to IMCH

UNICEF has supported development of:

- Emergency Paediatrics Project for doctors in PHC, as the principal childhood mortality after 1 year of age is due to accidents and injuries. Includes training for one or two selected doctors from each centre, equipment and manuals for health professionals and parents
- Baby Friendly Hospital Initiative designed to improve infant nutrition
- Telephone Counseling for a healthy baby, which serves as a wide counseling service to the families with young children, run by selected patronage nurses and supported by doctors (appendix 8)
- Regular home visitation by trained patronage nurses for the most vulnerable families
- Community Health Education Units to work with parents such as mothers' support groups and parent support groups
- Growth monitoring
- Immunisation of marginalized population groups
- Child Rights in Health – a three-day training for health professionals on child rights issues

The complementary programs make specific evaluation of the IMCH program problematic in terms of health outcomes evaluation.

5. Situational Analysis in Serbia

used by UNICEF was based on desk review of routine statistics and field surveys: the Multiple

Indicator Cluster Surveys (MICS) 1996[6] (including Kosovo-Metohija) and 2000[7] (excluding Kosovo-Metohija). Due to the exclusions in the 2000 survey and differences in definitions for indicators, the data are not comparable and are thus presented separately. However, they provide clear indicators for planning and action (Table 1 and 2). The indicators are defined in Appendix 3.

TABLE 1: CHILD & MATERNAL HEALTH INDICATORS – BASED ON MULTIPLE INDICATOR CLUSTER SURVEY (INCLUDES KOSOVO & METOHIJA)[6]

INDICATOR	YEAR 1996
Infant Mortality Rate	15.0*
Under 5 Mortality Rate	17.7*
Safe Drinking Water	82%
Sanitary Excreta Disposal	73%
ARI Carer Recognition (under 5)	43.1%
ORT Diarrhoea (under 5) - pre 1993	98.5%
Exclusive Breastfeeding < 4 months	6.2%
Immunisation coverage:	
DPT	88%
Measles	91%
Polio	87%
TB	97%
Anthropometry (under 5)	
Underweight	1.6%

6. Recent data from the Republic Statistical Office, Belgrade

The following graphs highlight the areas where the major child mortality is occurring. In Serbia. The infant mortality is clearly greatest, exceeding all other combined age groups nearly fivefold (Fig 1). The most recent data for 2001 for all Serbia was unavailable but likely to be similar. In Fig 2, the age of death indicates that neonatal deaths (first 28 days of postnatal life) comprises 72% all infant deaths and deaths in the first 6 months, over 90% of all infant deaths. This pattern is repeated in the analysis of the statistical office data for Serbia for the four years from 1998 to 2001 (Appendix).

Specific perinatal and early infant strategies are needed to target the reduction in this infant mortality. The IMCH strategy does not address this specifically and hence the expected reduction in infant mortality will be minimal. The primary target needs to be

* Data from National Report on Follow-up to the World Summit for Children. Report of the Government of the FR Yugoslavia 2001

[6] FR Yugoslavia 1996 Multiple Indicator Cluster Survey, Institute of Public Health of Serbia, Institute of Public Health of Montenegro. UNICEF Belgrade, 1997

[7] Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

TABLE 2: CHILD & MATERNAL HEALTH INDICATORS – BASED ON MULTIPLE INDICATOR CLUSTER SURVEY 2000 [7] (EXCLUDES KOSOVO & METOHIJA)

INDICATOR	YEAR 2000
Infant Mortality Rate	10.6*
Under 5 Mortality Rate	10.2*
Maternal Mortality	8.6
Safe Drinking Water	98%
Sanitary Excreta Disposal	99%
ARI Carer Recognition (under 5) appropriate action	96.7%
ORT Diarrhoea (under 5) – pre 1993 definition	97.9%
Exclusive Breastfeeding < 4 months	10.6%
Immunisation coverage:	
DPT	95%
Measles	90%
Polio	99%
TB	98%
Anthropometry (under 5)	
Underweight	1.9%
Overweight	14%
Iodised Salt Consumption	73%
Iron Deficiency Anaemia in	
Women Child-bearing age	27%
Children 6-59 months	30%
Contraception married women 15-49	58%
Female knowledge HIV/AIDS prevention of sexual transmission	
15-49 years two methods	49%
15-19 years three methods	16%
Net primary school attendance	97%
IMCH monitoring % caretakers with children < 5 knowing two signs to seek immediate care	58%

intervention at the secondary and tertiary level and antenatal care at primary level.

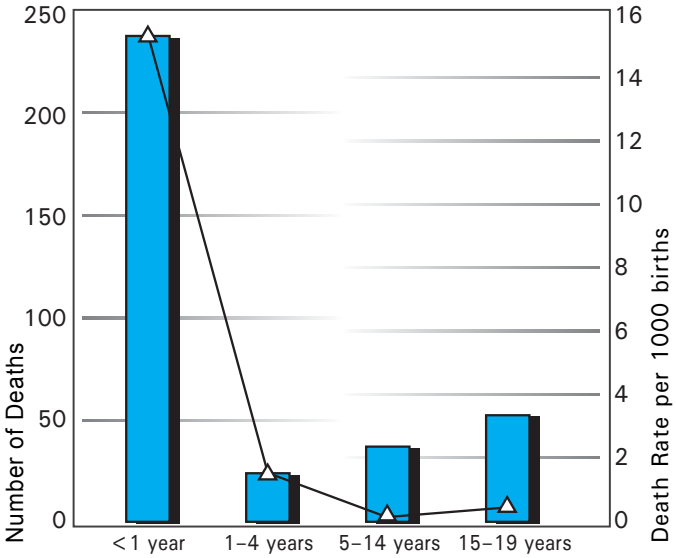
While further demographic and antenatal risk factors concerning infant and mother are needed, data provided by Dr Lj. Sokal (Institute of Public Health, Belgrade) for infant deaths in Belgrade in 2000 (Table 3) below are striking and likely to be more, not less exaggerated, in rural areas. The data for infant deaths in Serbia for 2000 are almost identical (Figure 3).

* Data from Republic Institute for Statistics, Serbia

[7] Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

The data suggest that neonatal and unexplained deaths (likely due to SIDS, unrecognized infection, child abuse) in particular require further analysis as targeted perinatal and postnatal prevention and treatment should reduce these deaths.

FIGURE 1: NUMBER OF DEATHS AND DEATH RATE IN CHILDREN, BELGRADE 1996



Source: *Statistical Year book for Belgrade, published by the Institute for Information and Statistics*

The profile of infant death, is very similar to that of Macedonia* where a perinatal strategy implemented over 2 years reduced early neonatal deaths (>1000 gms) by 36%, comparing 3 years before with the 2 years during implementation and reduced overall perinatal mortality (>1000gms) by 28%.[8] The reduction in early infant deaths in Macedonia was due largely to a targeted, multidisciplinary and broadly based educational program, aimed at secondary and tertiary level health care providers (doctors and nurses). The program employed evidence-based education to deliver evidence-based practice.

TABLE 3: CAUSE OF INFANT DEATHS IN BELGRADE 2000

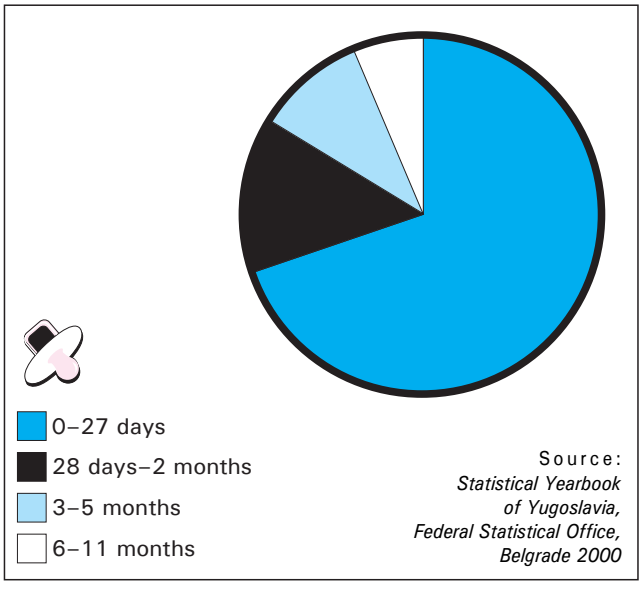
CAUSE OF INFANT DEATH	PERCENTAGE
1. Neonatal (0-28 days)	66%
2. Congenital abnormalities	19%
3. Unexplained	9.8%
4. Infectious disease	3.3%
5. Respiratory disease	0.7%
6. Other	1.3%

Source: *Institute of Public Health Belgrade (Lj. Sokal)*

Although data for infant mortality (and childhood mortality) by ethnic group are not available public health experts consider Roma infants are over represented in infant deaths and morbidity.

The leading causes of death in children aged 1 to 4 years (Figure 4) are coded in ICD10 as congenital

FIGURE 2: INFANT MORTALITY AND AGE GROUP IN SERBIA IN 2000



* Source: Statistics Institute for Maternal and Child health, Skopje, Macedonia

[8] Jeffery HE et al The impact of evidence-based education in a perinatal capacity-building initiative in Macedonia. Medical Education 2003 (accepted for publication subject to minor revisions.)

FIGURE 3: CAUSES OF INFANT DEATH IN SERBIA IN 2000

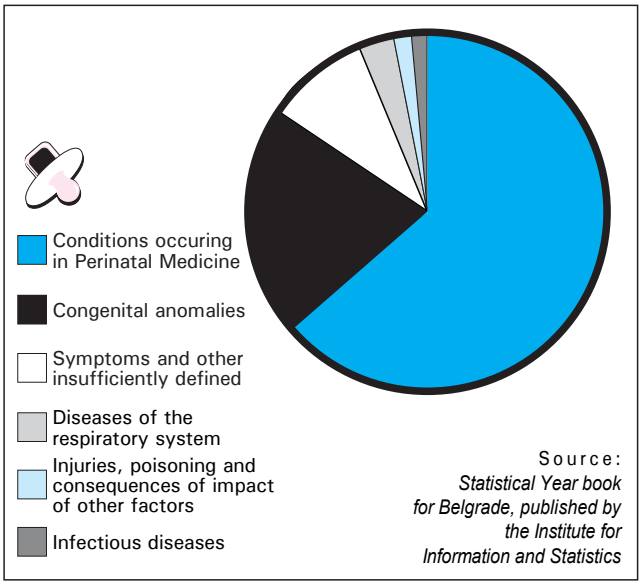
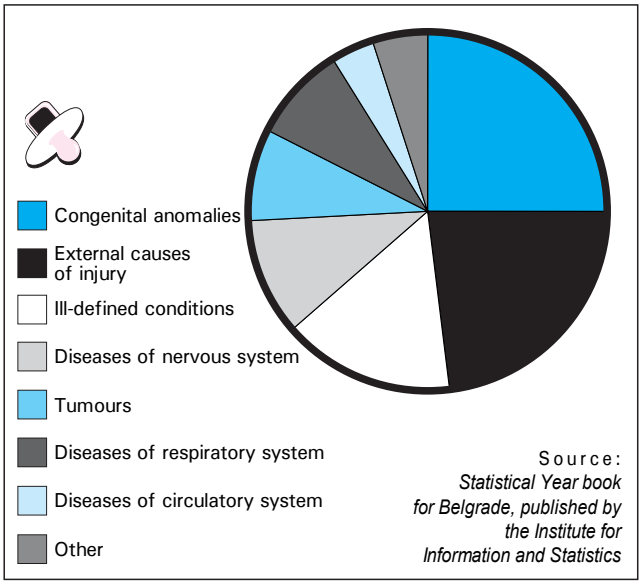


FIGURE 4: CAUSES OF DEATH IN 1-4 YEAR OLDS IN SERBIA IN 2000



anomalies (25%), external causes of injury such as motor vehicle accidents and injuries (23%) and ill defined conditions (15.6%), together accounting for two thirds of child deaths in this age group.

Therefore to reduce perinatal, neonatal, early infant mortality and 1-4 year mortality a more thorough analysis is firstly needed including:

- **National Perinatal Strategy derived from a situation analysis of Serbia**
- **Analysis of ill defined/unexplained deaths by case history and autopsy, in infancy, and children aged 1 to 4 years**
- **Analysis of infant and childhood injuries, especially motor vehicle accidents, by cause, place, age, ethnicity, maternal education**
- **Exact statistics of causes of congenital abnormality causing death and identification of preventive and treatment issues.**

The current IMCH strategy and the networking that has been so successfully establish between key institutions and more importantly, between key experts in these provides a solid foundation for enabling a further reduction in infant and perinatal mortality and morbidity. The ability to get key health messages and practices to PHC providers and to parents via an educational network, established via IMCH, is a most important underlying attribute for further action.

The Relevance of the IMCH concept in the context of UNICEF goals and strategies and the Serbian situational analysis

The design and implementation of the IMCH project are generally in accordance with UNICEF (MTSP, 2002-2005)[9] global and UNICEF Serbia guidelines as summarised in Appendix 3 and 4.

The organisational priorities are well developed in the education program in the areas of immunisation, micro-nutrient deficiencies, early childhood development and HIV/AIDS. Greater emphasis is necessary in the area of child protection including gender, abuse, neglect, labour and sexual exploitation issues.

The MTSP puts increasing emphasis on the use of clearly defined objectives and indicators. General objectives (goals) for the overall program are well developed but clear learning objectives, addressing all domains of learning, for the educational program have not been developed. The development of health indicators is well advanced (MICS II)[10] and this will facilitate achievement of the third objective, strengthening of evaluation functions.

Current politico-economic situation 2003

A decade of war, sanctions and political isolation has had a profoundly adverse effect on the lives of women and children. Most vulnerable are internally displaced persons (234,000), refugees (327,000), some ethnic minorities like Romas, children in institutions and those with low levels of education. Poverty in these groups is associated with high levels of domestic violence, child abuse and neglect, child labour and sexual exploitation.

There is extreme poverty in Serbia with about 800,000 inhabitants living on less than $2,4 per day and 1,6 million who are financially vulnerable. Inflation is high, with rates of 11% per annum predicted. The official statistics registers around 900,000 unemployed, out of the total of 7,5 million population in Serbia[11]. High national debt levels are hardly sustainable from an international perspective in a country making the transition from a planned to free market economy.

Priority areas

The IMCH project is very relevant to the national health needs for women and children in the context of the current politico-economic situation in Serbia.

The priority areas that should be further developed in the IMCH program or separately include:

- Strategies to reduce the under five morbidity and mortality rate particularly trauma due to motor vehicle accidents and injuries in the home. This trauma is a leading cause of death accounting for 23% of deaths between 1 to 4 years (Fig 4).
- Strategies to reduce the perinatal mortality rate and in particular, neonatal deaths (0-28 days)

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[9] Medium Term Strategic Plan (2002-2005) UNICEF Executive Board Document, ICEF/2001/13 & Corr. 1 2nd Edition

[10] Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

[11] First draft of Poverty Reduction Strategy Paper produced by Serbian Government in May 2003

which account for 72% of the infant mortality, most of this occurring soon after birth.

- Introduction of childcare practices to reduce Sudden Infant Death Syndrome, most likely part of the unexplained deaths or insufficiently defined deaths in infancy (Fig 3). This entails teaching parents and carers to sleep their infants on the back, with the face uncovered, in a smoke free environment.

The MICS 2000 study has clearly identified four other preventive areas to target. All four have both short and long term implications for health. These include:

- Prevention and treatment of iron deficiency anaemia (further development especially at community level
- Other nutritional problems including obesity
- HIV/AIDS education at a community level
- Increase in the breast feeding rate and duration

The education program is the key component of the IMCH project. Concepts concerning the most appropriate educational methodologies are not fully addressed in the UNICEF documentation.

If an integrated, problem-based approach to maternal and childhood care is adopted as a project goal then this should be complemented by an integrated, problem-orientated approach to knowledge and skills training.

These teaching and learning issues will be addressed by review of the literature on Medical Education and drawing on personal experiences with the Macedonian Perinatal Training Program.

Policy Framework With Respect To International Standards And The Situation in Serbia

The **Edinburgh Declaration** 1988[12] and subsequent refinements by the World Federation for Medical Education (WFME) in 1994,[13] 2001,[14] 2002[15] and 2003[16] were used as international benchmarks to evaluate the framework of the IMCH in the context of the Serbian health care system. The Edinburgh Declaration is a twelve point consensus statement by the World Federation for Medical Education and the World Health Organisation concerning goals for the process of global reform in medical education. The status of the IMCH program relative to the individual goals is tabulated below.

GOAL	YES / NO / PARTLY MEETS GOAL	WHY
1. Enlarge range of education settings to include activities outside the hospital	Yes	Focussed on integration of maternal and child health in a PHC setting
2. Curriculum should reflect National Health Priorities	Partial	Need to include more on prevention and treatment in the areas of perinatal, injury SIDS and child protection to all PHC providers
3. Shift emphasis from passive to active learning	Partial	Small group interactive activities which are more effective than didactic lectures[17] are in place but need further refinement. See 4.

[12] World Federation for Medical Education. Edinburgh Declaration. Lancet 1988, 8068, 464.

[13] World Federation for Medical Education. Proceedings of the World Summit on Medical Education. Medical Education 1994,28, (Suppl.1)

[14] Quality Improvement in Basic Medical Education – WFME Global Standards 2001. WFME Website: http://www.wfme.org

[15] Quality Improvement in Continuing Medical Education CME)/Continuing Professional Development (CPD) – WFME Global Standards, 2002. WFME Website: http://www.wfme.org

[16] Quality Improvement in Postgraduate Medical Education – WFME Global Standards. 2003. WFME Website: http://www.wfme.org

[17] Thomson O'Brien M A, Freemantle N, Oxman A D et al „Continuing Education Meetings and Workshops: effects on professional practice and health call outcomes" Cochrane Database of Systematic Reviews, Issue 2, 2002

GOAL	YES / NO / PARTLY MEETS GOAL	WHY
4. Curriculum to address cognitive, psychomotor and attitudinal skills	Partial	Higher cognitive (problem-solving), skills training and attitudinal domains need further development
5. Train and reward teachers as educators	Partial	An effective "train the trainers" program is in place but needs to address 4.
6. Curriculum - a balance of patient management, health promotion and disease prevention	Yes	These aspects well integrated.
7. Problem-solving a basis for learning	No	IMCH curriculum is essentially a traditional disease orientated program
8. Broaden the student selection process	Yes	IMCH program is unique in targeting all PHC doctors and nurses
9. Network Ministries of Health and Education	Yes	Successful integration of University teachers, Institute of Mother and Child Care, Public Health (Belgrade) and UNICEF
10. Doctors trained should meet National needs	No	Oversupply of doctors in general and specialist practice, particularly community paediatricians and obstetricians
11. Multi-professional training	No	Separate IMCH programs exist for doctors and nurses. Suggest doctors and nurses are involved together in teaching and in learning in PHC teams
12. Continuing Medical Education. Continuing Professional Development	Partial	IMCH initiative is a pioneering effort in CME/CPD in Serbia

Appropriateness and Quality Of The Training Program

The Program Objectives

The appropriateness and quality of the training program must be evaluated in the context of the stated objectives of the IMCH Project.

The Goal in the year 2002 was

- *to reduce morbidity and mortality of children and women by introduction of an integrated approach for control and treatment of childhood and maternal illnesses, as well as to promote practices which improve mother and child health.*

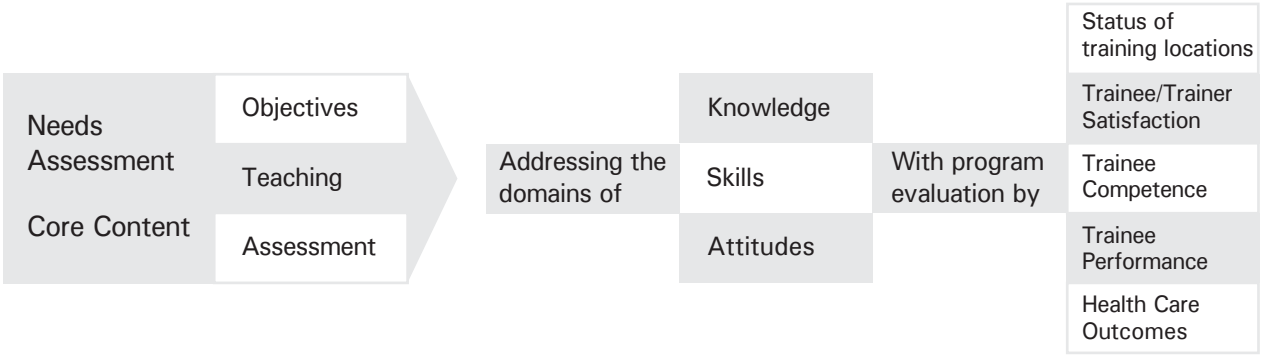
The program objectives for 2000/2001 included:

- *Ensure access of pregnant women to prenatal care and assistance during delivery.*
- *Ensure access for all couples to information and services which should help them avoid early, late, too frequent and closely spaced pregnancies.*
- *Ensure universal access to health education and a broad involvement of communities in self-help and self-reliance in health.*
- *Increase access of parents and care-takers on prevention of accidents and injuries and increase capacity of emergency paediatric services to provide basic life support.*
- *Strengthen patronage nurses service through training and provision of basic equipment and health promotional material.*

The stated objectives refer to many UNICEF projects in Serbia, not just IMCH. The specific objectives for the IMCH program need further refinement so that they are measurable and realistic for the defined timeframe.

The curriculum planning model out-lined below was used to analyse the components of the training program in the context of these stated objectives. The analysis of needs, content, objectives, teaching and assessment is considered in the main text while the detailed program evaluation of locations, questionnaires, competence, performance and Health Care Outcomes is presented in Appendices 6 and 7.

FIGURE 5: CURRICULUM PLANNING MODEL



Needs Assessment

Identification of the specific learning needs of the trainees is central to the appropriateness of the training program. This means identifying the gaps between current and desirable practice, analysing these gaps and identifying ways to close the gaps. The learning needs must address the domains of knowledge, skills and attitudes and be analysed in the context of the national health needs of Serbia as identified by situational analysis and the stated program objectives.

A formal needs assessment was not performed before the curriculum was developed. However needs assessment is a dynamic process that can be refined as the curriculum evolves.

The starting point is a situational analysis of the causes of morbidity and mortality in the sphere of maternal and child health in Serbia. This was documented at the time the initial program commenced in Kosovo, for a number of health indicators (Multiple Indicator Cluster Survey 1 UNICEF)[18] and a mid point assessment made in 2000 with the Multiple Indicator Cluster Survey II UNICEF.[19] The data from these surveys contributed to a rational basis for development of the program objectives and content of the curriculum.

The educational needs of the trainees could be analysed in greater depth with particular reference to the three domains of learning. It is apparent that for adult learners at the CME level more time should be devoted to development of the higher cognitive skill of problem solving in addition to the presentation of factual material. Similarly educational needs in the skills domain have not been fully assessed. It is likely that further training in the areas of communication, clinical assessment and procedural skills is necessary. Finally, needs in the attitudinal domain may require further assessment such as rights of the child, equity of access to health care and the ethics of resource allocation.

Core Content

The core content, for both doctors and nurses, is presented in the seminars and in the manuals entitled, „Primary Mother and Child Health Care", the IMCH manual for Doctors written by a team from the Mother and Child Health Care Institute of Serbia with UNICEF Belgrade and „Messages for Life on Health Care for the Mother and the Child", the IMCH manual for nurses by Drs Oliver Petrovic and Dragoslav Popovic with support from the team at the Mother and Child Health Care Institute of Serbia and Institute of Public Health, Belgrade. The material was compiled by reproducing original WHO and UNICEF materials in some parts and by development of original material in others. The original version of the doctors' manual was sent to WHO and comments incorporated. (eg Care of the Newborn, ARI).

The seminar for nurses includes the following topics: hygiene; communication skills; immunisation; family planning; safe motherhood; breast feeding; care of the newborn; growth and nutrition; acute respiratory infections; diarrhoea; AIDS and STD's; prevention of injuries in children; rights of the child and protection from abuse and neglect; stress in children; psychomotor development of children.

The nurses' manual follows the seminar program closely. Child rights, child abuse and prevention of injuries in children are not included in the manual which may relate to the translated edition read by the consultant, that is not the most recent edition.

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[18] FR Yugoslavia 1996 Multiple Indicator Cluster Survey, Institute of Public Health of Serbia, Institute of Public Health of Montenegro. UNICEF Belgrade, 1997

[19] Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

In general, the core content in the seminars and the manual reflects the needs identified by the situation analysis and is thus very relevant. For the same reason, suggested additions include: injury prevention guidelines, in addition to the manual on prevention of injuries prepared by the UNICEF office; prevention of smoking; childcare practices to reduce SIDS; modify nutritional problems concentrating on iron deficiency anaemia and obesity; add action needed in suspected child abuse; include recognition of postnatal depression (Edinburgh scale) with advice and when to refer.

The information is presented clearly in the manual, using bolding and tables but no illustrations. Practical, useful and applicable information is included. Principal changes needed in a new version are common to that of doctors and presented below in dot points.

The seminar for doctors includes the following topics: organisation of healthcare; basic principles of education in health; medical records and documentation; immunisation; basic principles of organisation of ante and postnatal care; family planning; STD's; acute respiratory infections; diarrheal diseases; principles of adequate nutrition including breast feeding; anaemia; physical growth and development; psychomotor development; clinical examination of the newborn; most significant pathological states in the newborn, acute urinary tract infection, acute neurological disorders.

The manual for doctors reflects the topics in the seminars. These are very relevant to the situation analysis of major causes of mortality and morbidity. However, as with the nurses, issues that need inclusion are: injury prevention guidelines (motor vehicle restraint use, bicycle helmet use, safe tap water temperature, smoke alarms, „child proofing the home") in addition to the existing manual on injury prevention for parents and providers; prevention of smoking; modify nutritional problems concentrating on iron deficiency anaemia and obesity; include childcare practices to reduce SIDS and action needed in suspected child abuse. Accurate reporting on causes of death should be included and why this is important to future prevention and counseling generally and specifically for the individual family.

In addition, recognition of postnatal depression (Edinburgh scale) with advice and when to refer needs inclusion.The latter is based on worldwide literature suggesting the unrecognised prevalence of postnatal depression in industrialised countries is about 10%.[20] The impact on infant mother interaction is likely to be significant, especially in the more severe and lasting maternal depression.

The information presented in many chapters is overloaded, with tables but no illustrations and uses varying layout so the reader cannot easily move to specific information required. Some chapters, on history and health education are out of date. While there is much relevant material in the manual, the suggested approach to assist readers would be to present both manuals as guidelines or provide one manual for all, commencing with priority issues causing significant mortality and morbidity. This needs a multidisciplinary approach engaging doctors and nurses, public health experts, paediatricians, obstetricians etc with clear goals as to priorities reflected in the core content.

Although UNICEF has implemented an emergency paediatric project which includes training of professionals, providing equipment for health centres and reorganization of services, this project targets a selected 1-2 doctors in each community centre. As the public health problem is so significant, in that the largest group of preventable deaths in the 1 to 4 age group, with a larger but unknown morbidity, is injury-related, including car accidents and injuries in the home, a broader approach is needed. This requires a multidisciplinary strategy involving public health experts for implementation of guidelines and

[20] Hoffbrand S, Howard L, Crawley H, „Antidepressant treatment for post-natal depression" Cochrane Depression, Anxiety and Neurosis Group, Cochrane Database of Systematic Reviews, 1, 2003

preventative strategies. All PHC workers should be trained in assessment and emergency treatment of the injured child using a skills based approach.

The infant mortality is dominated by the need for a National Perinatal Strategy as 72% of all infant deaths occur in the first 28 days, mostly in hospital, and 85% within 2 months of birth (Figure 2). Clearly this is not a major PHC issue. However reporting on causes of death is relevant.

The post neonatal mortality and morbidity is an issue for PHC and the data for 2000 illustrates that congenital abnormalities and ill defined conditions are significant causes of death. Both conditions need a detailed analysis to define causality better and thus prevention and timely treatment. Nutritional issues are currently addressed but need further specifc priority, with both a preventative and treatment focus, including breast feeding (the figures for maintenance of breast feeding are low and need further analysis/ needs assessment and a suitable educational response), iron deficiency anaemia in mothers and young children and obesity in the childhood population (a predictor of significant adult disease).

Guidelines (protocols) can be defined as „a systematically developed statement to assist the practitioner and patient in decisions about appropriate health care for specific clinical circumstances".[21] A systematic review of the literature found improvement in the process of care in 93% (55 of 59 randomised control trials) and in outcomes of care in 82% (9 of 11 randomised control trials).[22]

The key elements in developing guidelines that will enhance practice are:

1. Multidisciplinary representation by the „team" who use it
2. Based on a systematic review of the literature
3. Links the recommendations to supporting evidence

Examples of guidelines developed under these conditions are listed under medical protocols at http://www.cs.nsw.gov.au/rpa/neonatal/default.htm where the common format is as follows introduction, incidence, risk factors, consequences, prevention, diagnosis, intervention, treatment, key points, references. While the current ARI and diarrhoea guidelines in the manual most readily fulfill the definition, they are not explicit in actual level of evidence. Guidelines need to be developed for all topics in the manual with a common format for ease of reader use.

Effectively, guidelines link best evidence to practice so that implementation should result in health gains and improved health outcomes with reduction in harmful practices. The suggested changes include:

- Development of evidence based guidelines for both manuals or preferably a common manual
- Development of a web based manual that can be rapidly accessed and updated
- Use of illustrations and colour especially with a web based presentation
- A significant part of the information can be updated using an evidence based approach
- Common problems using scenarios in keeping with a problem based approach would assist the reader
- Common theme to layout so that cross referencing is easy
- Web based references

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[21] Institute of Medicine. Guidelines for clinical practice from development to use. Eds. Field MJ and Lohr KN. Washington: National Academy Press 1992

[22] Grimshaw J M, Russell T, Systematic review of guidelines, Lancet 1993; 342: 1317-1322

Objectives, Teaching and Assessment

These three components of the teaching sequence are interrelated and must be integrated to optimise learning.

1. **Learning Objectives** are clear statements of what trainees should be able to do as a result of a course of study. They must be distinguished from aims which are statements of what a teacher intends to do and goals which indicate what a course is seeking to achieve.[23] Objectives addressing the three domains of learning should be written and read by teachers and trainees alike before any teaching module. Optimally they should be included in future revisions of the UNICEF teaching manuals and be explicit at the beginning of each teaching module. As these are a dynamic part of core content, they are best displayed on a web page for the ongoing IMCH project.

2. **Teaching strategies** used should vary according to the stated learning objectives of each module. As a general principle, interactive, small group teaching methods will be most appropriate for a mature age, CME cohort of 30 trainees.

   Knowledge objectives range from simple recall of factual information to understanding to problem-solving. The didactic, large group lecture is the traditional way to teach facts and understanding but is to a large extent redundant for the seminar groups of 30 given the comprehensive trainee manuals produced by UNICEF. Learning would be enhanced by allocating more time to small group problem-based learning (PBL) activities.[24]

   Skill objectives include such things as the learning of effective communication, physical examination and procedural skills. They can be effectively taught in a small group setting using the sequence „tell, show, do, feedback". Generally this domain of learning is not formally addressed in the IMCH seminar program. Some exceptions were noted such as the use of a baby manikin to demonstrate aspects of examination (doctors) and bathing (nurses). However skills training was limited to „telling & showing" rather than having trainees „do with feed-back" to ensure mastery of learning has occurred.

   Attitudinal objectives can be incorporated into communication skills within SCORPIO and/or developed as part of a separate workshop incorporating a mix of brainstorming, role play, discussion. This is particularly effective for large topics such as the Rights of the Child and for Child abuse which inherently contain ethical and attitudinal aspects.

   The SCORPIO teaching method[25 26] provides a structured means to integrate teaching and learning in the domains of knowledge, skills and attitudes in small group settings. It could be used with great effect for many of the modules in the IMCH program. The acronym refers to teaching that is Structured, Clinical, Objective Referenced, Problem-orientated, Integrated and Organised.

   The module consists of a Study Guide, Teaching Stations and Formative Assessment. Small groups of up to six trainees rotate around typically five teaching stations spending 25 minutes at each. A tutor at each station conducts a teaching sequence which addresses a pre-determined learning objective which is written up in the study guide.

   The objectives may vary from a problem solving activity at one station to communication skills

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[23] Newble D & Cannon R A Handbook for Medical Teachers. 2nd Edition MTP Press, Lancaster, England. 1987

[24] Walton H S & Matthews M B: „Essentials of Problem-Based Learning", Medical Education 1989, 23:542-558

[25] Hill D A. SCORPIO: a system of medical teaching. Medical Teacher 1992; 14: 37-41

[26] Hill D A. A strategy for teaching and learning in the PBL clerkship. Medical Teacher 1997; 19:24-28

training at the next to physical examination to learning a procedure and so on. At some time after the teaching rotations a performance-based formative assessment is held to ensure trainees have mastered the learning objectives.

This form of teaching is logistically possible if the teaching is de centralised to regional centres. This would facilitate access to more trainers, prevent 'burn out' of the current limited number of teachers and ensure sustainability of the whole IMCH program. The Institutes would provide a train the trainers responsibility, update and manage the curriculum based on national needs, provide assessment of teachers' methods of teaching and performance assessment of trainees.

3. **Assessment** is the third component of the learning sequence and like the teaching should be multi-dimensional given that different methods are necessary to assess objectives in the different learning domains.

Generally, assessment methods fall into three classes; pen and paper tests, performance-based tests and personal learning portfolios. Multiple Choice Questionnaires (MCQ) and Short Answer Questions are two commonly used pen and paper tests. They are a reliable method to assess a knowledge base and are the principal modalities used in the IMCH program.

The Objective Structured Clinical Examination (OSCE)[27] is a widely used performance-based test. It is a valid and reliable way to assess competence in the skills domain. The Personal Learning Portfolio is a self managed assessment tool, recommended by the WFME[28] for trainees to reflect on actual learning and enhanced competence in addition to just participation in CME activities.

The educational value of formative assessment is highlighted in the IMCH program with formal pre and post testing of trainees in all modules since September 2002 (doctors) and 2001 (nurses).

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[27] Harden RM & Gleeson FA Assessment of clinical competence using an objective structured clinical examination. Medical Education 1979;13:41-54

[28] Quality Improvement in Postgraduate Medical Education – WFME Global Standards. 2003. WFME Website: http://www.wfme.org

Impact Of The IMCH Project On Maternal And Child Health Care

A Process-Outcomes methodological approach was used to carry out the Impact Evaluation.

The IMCH project is regarded as worthwhile and justified on the basis of the situational analyses performed in the Federal Republic of Yugoslavia in 1996 and 2000 (MICS I[29] and II[30]) . Analysis of the health indicators revealed the presence of major problems in the areas of Maternal and Child health. The magnitude of the health problems, in the context of the politico-economic instability in Serbia fully justified the involvement of international agencies to fund, develop and implement the project (UNICEF).

An effective post-graduate training program should be attractive to the trainees; it should increase their competence and the newly acquired knowledge, skills and attitudes should be transferable to the workplace. The final outcome should be a measurable improvement in health care outcomes.

After a decade of social, economic and political turmoil, the trainees have responded enthusiastically to the opportunity to participate in a structured CME/CPD program. This will have an overwhelmingly beneficial effect on their self-esteem and motivation to contribute positively to maternal and child health care reform. Flow on effects can be predicted concerning the involvement of other healthcare workers, parents and the community at large. These beneficial effects will be magnified by the high proportion of Serbian maternal and child PHC doctors and nurses participating in the IMCH program.

Measurable improvements, both early and medium-term (one year) have been observed in the competence of nurses who have completed the IMCH program. Successful incorporation of enhanced competence into workplace practice has been demonstrated at Kragujevac. Similar favourable results are predicted for the participating doctors but data are not available as yet. These observations provide a basis for a predicted improvement in maternal and child health care outcomes.

Major advances have been demonstrated in the areas of water and sanitation, immunisation, ARI, diarrhoeal diseases, IDD and professional assistance at childbirth. These improvements have resulted from multiple interventions initiated by the Institute of Public Health and other government agencies together with UNICEF support. It is probably too early yet to identify quantitative improvements due to the IMCH program alone. If the MICS methodology was repeated in 2004 this should provide some indicators that can be attributed to the IMCH program.

The impact of the IMCH initiative will be most noticeable if the project is focused on high mortality and morbidity areas. Preventive strategies to reduce the high perinatal mortality rate can be targeted at PHC level but most case management activities are a secondary and tertiary health care issue. The morbidity and mortality due to childhood accidents requires further critical analysis of injury related deaths in order to target preventive strategies at PHC level.

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[29] FR Yugoslavia 1996 Multiple Indicator Cluster Survey, Institute of Public Health of Serbia, Institute of Public Health of Montenegro. UNICEF Belgrade, 1997

[30] Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

Regular home visitation by trained patronage nurses to vulnerable families, if widened to include identification antenatally and follow up to two years of age, should have a significant impact on medium and long term outcomes for children and families, as predicted from large randomised trials.[31]

It is predicted that the IMCH initiative will have a major impact on educational reform in Serbia. An attitudinal shift is already occurring towards acceptance of interactive, small group teaching methods and a self-directed responsibility for continuing professional development.

Educational reform will lead to an enhanced effect on health care outcomes if the momentum is maintained and Evidence Based Practice is introduced into the core curriculum together with an integrated approach to knowledge and skills training.

[31] Olds D L, Eckenrode J, Henderson C R, et al, Long Term Effects of Home Visitation on Maternity Life Course and Child Abuse and Neglect: Fifteen Year follow-up of a Randomised Trial *JAMA* 1997; 278.

Measures For Mainstreaming the Project Into The Serbian Health Reform Process

It is essential to move the IMCH project and other PHC education into the Serbian government's plans for CPE. With further development of all aspects of the curriculum, IMCH could be used as a model to demonstrate the method of educational reform needed both with undergraduate medical and nursing curricula and with postgraduate teaching and learning generally.

There will need to be purpose built CPE units in at least four regions of the country. This might follow the location of the four Universities and University Hospitals in Serbia so that academic and expert teachers can fuel the teacher requirements. Most importantly in designing centres for CPE the educational needs must include appropriate rooms for small group work and one plenary area for groups of 30-36. This might also be used for visiting speakers and may need to have a bigger holding capacity.

Measures For Shifting Toward Community & Parent Involvement

Educating PHC providers

The good health of children depends on a wide range of social, economic, environmental and other factors, beyond the influence of the health system. It is essential that health care providers at primary health care, secondary and tertiary level, recognise this fact and encourage partnerships in the government, non-government and community sectors. Parents, children and communities not only have a right to influence provision of health care services but will benefit significantly from doing so. Recognition of this requires a challenging attitudinal shift in most doctors, nurses and other health care providers.

To facilitate this change an additional module needs to be developed for PHC providers, outlining why and how consumer representation, both at an individual and community level, is beneficial for many health care outcomes. The evidence is well summarised at http://www.participateinhealth.org.au/clearinghouse and supports:

- Active consumer participation in decision-making in individual care, leads to improvements in health outcomes.
- Access to quality information facilitates decision-making and supports an active role for consumers in managing their own health.
- Active consumer participation leads to more accessible and effective health services.
- Effective consumer participation in quality improvement and activities in health services is achieved through the adoption of a range of methods.
- Effective consumer participation uses methods that facilitate participation by those traditionally marginalised by mainstream health services.
- Active involvement of consumers at all levels of the development, implementation and evaluation of health strategies and programs is integral to their success. (http://www.participateinhealth.org.au/clearinghouse/docs/cfcevidence.pdf)

In such a teaching module the trainees would apply the knowledge and skills of how to plan and evaluate community involvement in, for example, reducing childhood injuries. There are many web-based resources to support such a module (for example, http://www.greenweb.com.au/kidsafe/html/about_kidsafe.html).

There are many examples of parent-led organisations that not only provide support, advice, education, funding (for example, Multiple Births Association, Nursing Mothers Association, SIDS and KIDS in other countries) but can also be effectively used in teaching.

Strengthening home visitation

Increasingly, evidence indicates that professionals providing services to families within their own home can improve socialisation, health and education outcomes. This is especially true for high risk families. Olds et al[32] found that for low-income unmarried mothers, prenatal (from booking) and early childhood home visits up to 2 years of age can reduce the following:

[32] Olds D L, Eckenrode J, Henderson C R, et al, Long Term Effects of Home Visitation on Maternity Life Course and Child Abuse and Neglect: Fifteen Year follow-up of a Randomised Trial *JAMA* 1997; 278.

the number of subsequent pregnancies, the use of welfare, child abuse and neglect, problems associated with drug use and alcohol, criminal behaviour. Early intervention services can augment the IMCH concept by producing a sustained improvement in children's health, education and welfare.

Thus the following is recommended:

1. The home visitation by patronage nurses needs to extend to antenatal identification of high-risk mothers and families with early initiation of home visitation throughout pregnancy and up to 2 years after birth of the child.

2. The patronage nurses develop universal programs where volunteers support parents at home. The nurses would be responsible for training volunteers and networking between families identified by them as in need. Baker et al 1991[33] found that families in the UK who were supported at home by volunteers had improved family functioning.

[33] Baker W, Anderson R and Chalmers C, *Child Protection: the Impact of the Child Development Programme,* Bristol, University of Bristol, 1991.

Measures To Increase The Capacity Of Serbia To Continue Evaluation And Monitoring Of The Project

This requires a consideration of the components of the **capacity-building** process to ensure sustainability. These have been eloquently summarised by Hawe et al[34] as the implementation of measures to develop:

- Health infrastructure and service development
  - Educated workforce
  - Equipment & communication systems
  - Buildings
- Networks to maintain a program
  - Local
  - National
  - International
- Problem solving skills of organisations and communities

Infrastructure developmental priorities should focus on education (personnel development) rather than bricks and mortar in the context of a stressed economic environment. A skilled workforce both medical and administrative is central to sustainability of the project.

A formal Quality Improvement process should be incorporated into the project design. This is essential for development of the results-based management style advocated by UNICEF.

Skills training in the areas of objectives design, use of indicators and evaluation will be necessary and best carried out in a workshop setting.

Funds should be allocated for further development of electronic communication systems for both managerial and educational purposes.

Modern computer technology is a prerequisite for running an objectives/indicator based QI program and for teaching resources. Similarly computers are today essential for trainees to access international databases.

Networking is an integral part of the capacity - building process. UNICEF has provided the lead by implementing strategies to network with government, NGOs and other UN agencies in project development.

Regarding the IMCH project strong administrative links must be developed between municipal, regional and central (Belgrade) stakeholders. This is a pre-requisite for maintenance of effective monitoring and evaluation functions.

Strong international networks should be forged to acquire consultative expertise in key areas such as monitoring and evaluation in medical education.

Problem-solving skills should be actively developed in all groups involved with the project. This will require an attitudinal change towards learning methodology from acceptance of the passive, large group to interactive, small-group techniques.

The hypothetico-deductive reasoning model should form a template for teaching problem-solving skills, again best done in a workshop setting.

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[34] Hawe P, Noort M, King L, Jordens C. Multiplying health gains: the critical role of capacity-building within health promotion programs Health Policy 1997; 39: 29-42

Outline Of UNICEF's Future Role In the IMCH Program

The MOH Serbia needs to assume responsibility for all CPE including the IMCH initiative in PHC. However there is still considerable change needed to this program to align it with international best practice, particularly in the development of and incorporation of evidence based practice, educational refinement and the use of information technology applied to both of these. Change-management, education strategies should also be developed and implemented.

The current, highly committed coordinators and teachers (doctors and nurses) would benefit from a workshop addressing the following topics:

- Critical appraisal and literature review
- Educational theory and practice
- Educational assessment and evaluation
- Information technology in CPE
- Change management methods, education and PHC
- Quality improvement and PHC

Funding is needed, either from UNICEF, MOH, or other sources in order to provide trainers with the skills required for rewriting the manuals and with the skills to address methods for skills based and problem solving approaches to teaching. The investment so far in the IMCH program has been significant and the early results justify additions to meet international standards.

Appendices

APPENDIX 1: DIARY OF CONSULTANCY – CONSULTANT FIRST VISIT – 27.11.02 TO 12.12.02

27.11.02 Wednesday	–	Departed Sydney for Belgrade
28.11.02 Thursday	–	Arrived Belgrade
29.11.02 Friday	9.00am – 11.00am	Discussion with Dr Oliver Petrovic regarding the IMCH program and meeting of all UNICEF personnel at the Belgrade office
	12.00pm – 2.00pm	Meeting with IMCH coordinators - Dr Dusica Matijevic, Dr Ljiljana Sokal Jovanovic, Mrs Andjelka Kotevic, Dr Miodrag Ignjatovic
	3.00pm – 5.00pm	Further discussions with Dr Oliver Petrovic and Dr Mary Black
30.11.02 Saturday	–	Visit to the anniversary celebration of the Telephone Counselling Service for a Healthy Child with the Project Director, Dr Ljiljana Sokal and Mrs Andjelka Kotovic
2.12.02 Monday	9.00am – 10.00am	Meeting with Professor Milos Banicevic (Director of Family Planning Centre for Serbia) and Professor Rudolph Papic (Director of the Institute for Mother & Child) with Dr Oliver Petrovic and Valentina Vasic from UNICEF
	10.00am – 11.00am	Discussions with Professor Banicevic
	11.00am – 4.00pm	Background of the IMCH program with Professor Miodrag Ignjatovic and a tour of the Paediatric wards and NICU
	5.00pm – 6.00pm	Further discussion with Dr Oliver Petrovic
3.12.02 Tuesday	9.00am – 1.00pm	UNICEF - summarising and discussions with Dr Oliver Petrovic
	1.00pm – 3.00pm	Travel to Topola
	4.00pm – 7.00pm	Observation of the education of the patronage nurses
	8.00pm	Dinner
4.12.02 Wednesday	–	Observing education of patronage nurses and discussion with teachers and nurses, and discussion over dinner in the evening. Accompanied by translator Vesna Dadic-Zivojinovic

5.12.02 Thursday	–	Visit to Kragujevac Health Centre - discussion with doctors and nurses. Visited the home of 14 day old male child and his parents to observe the patronage nurse and the evaluation assessment
	3.30pm	Departed for Belgrade
6.12.02 Friday	–	Morning meeting with Professor Snezana Simic, Assistant to the Minister for Health
	–	Meeting with Dr Mary Black (Program Director UNICEF) afternoon - summary of events
7.12.02 Saturday	11.00am - 6.00pm	Summarising information at UNICEF
8.12.02 Sunday	–	Departure at 3.30pm for Kikinda
9.12.02 Monday	–	Observation of the doctors teaching and interacting with trainees at commencement IMCI seminar. Accompanied by translator Ms Vesna Dadic-Zivojinovic
	–	Discussion over lunch
	–	Return to Belgrade late Monday
10.12.02 Tuesday	–	Discussion with Ann-Liss Svensson, UNICEF Area representative for Serbia and Montenegro, including Kosovo and Croatia
	–	Departure from Belgrade for Sydney in the afternoon
12.12.02 Thursday	–	Arrival in Sydney

APPENDIX 1: DIARY OF CONSULTANCY – CONSULTANT SECOND VISIT – 23.3.03 TO 5.4.03

23.3.03 Sunday	–	Depart Sydney for Belgrade
24.3.03 Monday	–	Arrive in Belgrade in the evening
25.3.03 Tuesday	–	Meeting at UNICEF in the morning and departure for Sopocani at 12 midday with arrival at 7.00pm
26.3.03 Wednesday	–	Observation, discussion, interaction with teachers and trainees at the doctors' IMCH seminar. Accompanied by translator Vesna Dadic-Zivojinovic Wednesday and Thursday
27.3.03 Thursday	–	
28.3.03 Friday	–	
29.3.03 Saturday	–	Further discussion in the early morning followed by departure at 10.30am for Belgrade, arrival in the late afternoon
30.3.03 Sunday	–	Discussion with Dr Mary Black and overview of the program
31.3.03 Monday	–	Discussion with the psychologist and consultant and with Dr Oliver Petrovic regarding the educational implementation of the IMCH program
1.4.03 Tuesday	–	Further discussion with Dr Oliver Petrovic
2.4.03 Wednesday	–	Morning meeting with Professor Banicevic
	11.00am – 5.00pm	Overview and final discussion of the contents of the report with the stake holders Heather Jeffery and David Hill. Demonstration of the Edinburgh declaration
3.4.03 Thursday	–	Finalisation and discussion at UNICEF in the morning
	1.00pm	Departure from Belgrade for Sydney
5.4.03 Saturday	–	Arrival in Sydney

APPENDIX 2: INFANT MORTALITY BY TERRITORY AND AGE GROUP

YEAR	TERRITORY	LIFE BIRTHS	TOTAL	UNDER 24 HOURS	1-6 DAYS	7-27 DAYS	28 DAYS TO 2 MONTHS	3-5 MONTHS	6-11 MONTHS
1998	Central Serbia	56436	689	187	232	92	81	51	46
1998	Vojvodina	19894	193	40	68	21	21	26	17
1998	Serbia	76330	882	227	300	113	102	77	63

YEAR	TERRITORY	LIFE BIRTHS	TOTAL	UNDER 24 HOURS	1-6 DAYS	7-27 DAYS	28 DAYS TO 2 MONTHS	3-5 MONTHS	6-11 MONTHS
1999	Central Serbia	53536	602	181	191	79	76	41	34
1999	Vojvodina	18686	190	34	59	35	30	16	16
1999	Serbia	72222	792	215	250	114	106	57	50

YEAR	TERRITORY	LIFE BIRTHS	TOTAL	UNDER 24 HOURS	1-6 DAYS	7-27 DAYS	28 DAYS TO 2 MONTHS	3-5 MONTHS	6-11 MONTHS
2000	Central Serbia	54972	587	138	224	80	66	51	17
2000	Vojvodina	18792	198	37	64	24	37	24	12
2000	Serbia	73764	785	175	288	104	103	75	40

YEAR	TERRITORY	LIFE BIRTHS	TOTAL	UNDER 24 HOURS	1-6 DAYS	7-27 DAYS	28 DAYS TO 2 MONTHS	3-5 MONTHS	6-11 MONTHS
2001	Central Serbia	58290	607	164	193	88	87	39	36
2001	Vojvodina	20145	192	35	60	37	34	16	10
2001	Serbia	78435	799	199	253	125	121	55	46

APPENDIX 3: UNICEF GOALS AND STRATEGIES (GLOBAL)

Source: *UNICEF Belgrade*

Key features as stated in UNICEF's global **Medium Term Strategic Plan** (2002-2005) include a shift to programming integrating a **results and human rights based management approach.**[35]

The new plan includes the following innovations:

1. Five organisational priorities

- Girls' education
- Integrated early childhood development
- Immunisation plus to include vaccine preventable and micro-nutrient preventable diseases
- Fighting HIV/AIDS
- Improved protection of the child from violence, exploitation, abuse and discrimination

2. Clearly defined objectives and indicators

3. Strengthen the strategic use of evaluation functions.

The five organisational priorities are linked to a three phase **life cycle** approach to children:

- A good start to life
- Access to basic education
- Young peoples' health, development and participation

Strategies for achieving the organisational priorities at country, regional and headquarters locations include:

- Program excellence
- Effective country programs of cooperation
- Partnerships for shared success
- Influential information, communication and advocacy
- Excellence in internal management and operations

[35] Medium Term Strategic Plan (2002-2005) UNICEF Executive Board Document ICEF/2001/13 and Corr. 1 2nd Edition

APPENDIX 4: UNICEF GOALS AND STRATEGIES (SERBIA)

Source: *UNICEF Belgrade*

Major public health achievements in Serbia during past decade include:

- High vaccination coverage
- Elimination of polio
- Elimination of iodine deficiency diseases
- Reduction in low birth weight newborns
- Reduction in the infant and under five mortality rate, especially to decrease in deaths due to:
  - Respiratory infection (58%)
  - Diarrhoeal diseases (38%)
- Skilled health personnel attend nearly all deliveries
- One third of all deliveries take place in Baby-Friendly Hospital Initiative maternities

Priority problems to be addressed by the UNICEF Early Childhood Development Program on analysis of the data in the situational analysis – official statistics and (MICS 2000)[36]:

- Perinatal mortality rate
- Injury related mortality of children under 5 years of age
- Lack of an integrated early childhood care & development policy
- Sustainability of immunisation services
- Equality of access to PHC by ethnic minorities, IDPs, refugees and other marginalised groups
- Deterioration in the nutritional status of women & children
- Low breast-feeding rates
- HIV/AIDS education at a community level
- Prevention of iron deficiency anaemia
- The weakness, lack of variety and low coverage of the early childhood care and education services
- The existing shortfalls in the PHC service regarding in-service training in several mother and child health care procedures and approaches

UNICEF Combined Strategies to Achieve the Above:

1. **Advocacy**
   - Integrated policy for early childhood development
   - Human rights approach regarding non-discrimination and best interests of the child
2. **Capacity-building**
   - Child centred approach to service development
3. **Support to service delivery**
   - Provision of vaccines and cold chain equipment
   - Emergency paediatric equipment
   - Development of information technology
4. **Empowerment**
   - Home/community based services to strengthen parenting skills, including:
     - Interaction and helping children to learn

[36] Multiple Indicator Cluster Survey II, The Report for the Federal Republic of Yugoslavia, UNICEF, Belgrade, 2000

- Prevention of accidents
- Awareness of a child's basic health and nutritional needs

This UNICEF strategy is based on the premise that the survival, growth and development of young children depend on three main factors:

- Quality of family care
- Effective access by families to good quality basic health services
- Health policy and community support

APPENDIX 5: GLOSSARY OF TERMS

Infant Mortality Rate	Number of deaths per 1000 livebirths in the first 12 months (up to the first birthday)
Perinatal Mortality Rate	Number of perinatal deaths per 1000 total births (fetal deaths + livebirths). Deaths occurring during late pregnancy (22 completed weeks and over, or >500 grams, during childbirth and up to 7 completed days of age)
Early Neonatal Deaths	Deaths within first 7 days after birth
Fetal Deaths (Stillbirths)	Birth of a fetus weighing at least 500 grams (or where birthweight is unavailable of at least 22 weeks gestation) which shows no sign of life. Commonly referred to as stillbirths
Postneonatal Deaths	Deaths after 28 days and up to 1 year
Under 5 Mortality Rate	The number of children under 5 years who die in a year, per 1000 live births during the year. It is a combination of the infant mortality rate, plus the age 1-4 mortality rate
Maternal mortality	Number of deaths from maternal causes per 100 000 confinements
SIDS	"The sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including the performance of a complete autopsy, examination of the death scene, and review of the clinical history"[37]

[37] Cordner SM and Willinger M (1995). The definition of the sudden infant death syndrome. Sudden Infant Death Syndrome. New Trends in the Nineties. Ed: Rognum T. Scandinavian University Press, Oslo. 3: 17-20

APPENDIX 5: INDICATORS USED MICS 1996 & 2000 SURVEYS

Safe Drinking Water	Proportion of population who use an improved drinking water source
Sanitary Excreta Disposal	Proportion of population who use a sanitary means of excreta disposal
ARI Carer Recognition (under 5) appropriate action	1996 Proportion of mothers (carers) with children under 5 years who see major ARI symptoms – difficult and fast breathing – as reasons for taking the child to a doctor without delay 2000 Proportion of under-five children who had acute respiratory infections in the last 2 weeks and were taken to an appropriate health
ORT Diarrhoea (under 5)	1996 Proportion of under-five children who have received oral rehydration salts and/or other recommended fluids (pre 1993 ORT definition) during an episode of diarrhoea 2000 Proportion of under-five children who had diarrhoea in the last 2 weeks and were treated with oral rehydration salts or an appropriate household solution
Exclusive Breastfeeding <4 months	Proportion of infants aged less than 4 months who are exclusively breastfed
Immunisation coverage:	
Exclusive Breastfeeding <4 months	Proportion of infants aged less than 4 months who are exclusively breastfed
DPT	Proportion of children immunised against diphtheria, pertussis and tetanus by age of one year
Measles	Proportion of children immunised against measles by age of one year
Polio	Proportion of children immunised against polio by the age of one year
TB	Proportion of children immunised against tuberculosis by the age of one year

Anthropometry (under 5):	
Underweight	Proportion of under-fives more than 2 standard deviations below the mean reference (NCHS/WHO)
Overweight	Proportion of under-fives more than 2 standard deviations from the mean reference (NCHS/WHO)
Iodised Salt Consumption	Proportion of population consuming adequately iodised salt
Iron Deficiency Anaemia in:	
Women Child-bearing age	Proportion of women aged 15-49 with a haemoglobin level below 12 g/100 ml.
Children 6-59 months	Proportion of children aged 6-59 months with a haemoglobin level below 11g/100 ml.
Contraception married women 15-49	Proportion of married women aged 15-49 who use a contraceptive method
Female knowledge of preventing HIV/AIDS prevention:	
15-49 years two methods	Proportion of women aged 15-49 who correctly state the 2 main ways of avoiding HIV infection
15-19 years three methods	Proportion of women aged 15-19 who correctly state the 3 main ways of avoiding HIV infection
Net primary school attendance	Percentage of children of primary school age who attended primary school (at end 1999/2000 school year)
IMCI monitoring: % care-takers with children <5 knowing two signs to seek immediate care	Proportion of caretakers of under-five children who know at least 2 signs for seeking care immediately

APPENDIX 6: EVALUATION OF THE DOCTORS' IMCH PROGRAM

The indicators used to evaluate the IMCH training program included the WFME recommendations for evaluation of postgraduate medical education[38] and those used to evaluate the Macedonian Perinatal Training Program.[39]

1. Evaluation of training locations: site visits

Kikinda Seminar program, 1 day visit, December 2002
The venue for the seminars was a comfortable hotel near the town centre in Kikinda, north east of Belgrade and close to the Romanian border with Serbia.

The accommodation, meals and hotel service were excellent.

The teaching room was comfortable with no distractions and tables with 5 doctors arranged three across, allowing easy access by teachers.

A flipchart and power point facilities were available and used throughout presentations.

Introduction employed 'ice breaking' techniques with each person writing their name on the flipchart and talking a little about themselves.

The teachers used a range of interactive techniques and group work with some innovative ways of discussing a potentially 'dry' topic, health organisation and medical record documentation. However in the time from 9 to 2pm there were only two short breaks and a large content of knowledge discussed.

Sopocani Seminar program, 4 day visit March 2003
The venue for the seminars in a converted monastery in the mountainous region of south-west Serbia provided a tranquil setting, conducive to learning.

Accommodation and meals provided for participants and trainers were excellent.

The teaching room was a little small for the small group activities but could be remedied by utilisation of the adjoining dining room.

The ambient temperature was comfortable and there were no distracting noise levels.

The audio-visual facilities were excellent as was the quality of the projected materials.

Provision of computer facilities to enable trainees to access educational resources would be advantageous.

There was a paucity of resources such as manikins, radiologic reproductions and pathology specimens all of which can enhance the learning process.

The teachers, all experts in their fields, were well trained in educational methodology and were enthusiastic in their interactions with the trainees. The logistics of bringing four teachers usually from Belgrade for each day of the program is quite demanding.

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[38] Quality Improvement in Postgraduate Medical Education – WFME Global Standards. 2003. WFME Website: http://www.wfme.org

[39] Jeffery HE et al The impact of evidence-based education in a perinatal capacity-building initiative in Macedonia. Medical Education 2003 (accepted for publication subject to minor revisions.)

The tempo of the daily programs was rigorous and the trainees showed evidence of fatigue during the latter part of the week. The program coordinator skilfully managed this by arranging recreational activities on-site and visits to adjoining towns.

The trainees quickly bonded together and were productive in the small group activities.

The overall organisation and time management of the six day program was excellent.

2. Trainee/Trainer satisfaction

Trainee satisfaction
The IMCH program was assessed by questionnaire by the 918 PHC physicians who completed the seminars November 1997 – December 2001. Seventy-six per cent (76%) of the respondents were female and 24% male. Sixty-four percent (64%) were paediatricians, 23% general practitioners, 9% gynaecologists and 6% others. Questionnaires included both items ranked on a 5 point Likert scale and open-ended questions.

Trainer satisfaction
was not formally evaluated but informal discussion with a sample of teachers revealed an over-whelming enthusiasm with regard to their involvement. This should form part of ongoing evaluation in addition to trainees.

3. Daily program evaluation

of five items concerning content, lectures, group activities and leadership were given an average score 4.93

An average score 4.96 was given concerning the content matter of 16 modules

Assessment of seminar usefulness was rated 92% (highly useful)

4. Final Program Evaluation consisted of 14 items.

Selected responses are listed below.

- 94% respondents rated the program as absolutely useful and excellently organised
- 80% of participants predicted obstacles to application of their new knowledge in the workplace
- 97% regarded the teaching methods used as adequate
- 97% regarded the teaching aids as appropriate but thought that more videos and other teaching resources would be desirable
- Workshops with educational games were popular
- Longer and more frequent breaks requested

Analysis of these data indicate that the participating doctors were very satisfied with most aspects of the IMCH training program. Their desire for more inter-active small group activities and a more varied array of teaching resources is noted. The problem of content overload leading to fatigue should be addressed. Perceptions of difficulty in introducing the new knowledge and skills into the workplace must be investigated.

A Focus group discussion
was conducted with six trainee representatives at Sopocani on completion of the seminar program. Discussion centred on their perception of a range of pertinent issues.

Key conclusions included:

- Location excellent for educational purposes
- Additional continuing medical education sessions, 2 to 3 per year
- Aware of general program goals but not specific learning objectives
- Content satisfactory

- Liked small group, interactive teaching methods with less didactic teaching
- Wanted more practical work (skills training) and resources (manikins)
- Assessment was, in general, useful
- Overall program evaluation was excellent
- Positive impact on Serbian healthcare but some barriers to incorporation into the workplace

5. Trainee Competence

A comprehensive assessment strategy was developed and implemented as part of the seminar program from September 2002. It included both formative and summative components.

A five question MCQ pre-test was completed in a formative setting at the start of each module to assess prior knowledge. Feed-back regarding the correct answers was given during the course of the lecture. The content of the MCQ was reviewed and thought to be consistent with the teaching aims of the respective modules ensuring the validity of the assessment.

A summative assessment was held at the completion of each six day seminar again using the MCQ methodology evaluated as representing a valid sample of the teaching content.

The individual topics and the overall mark of the pre and post tests results for doctors for seminars 40, 41, 42 (January to March 2003) with 28-30 participants were as follows. The 9 individual topics showed an up to twofold increase from pre to post test and the overall average mark increased from 61%, 63%, 52% pre test to 86%, 88%, 92% for each seminar group, respectively.

The assessment program used has a high level of validity and reliability but was restricted to assessing knowledge in the cognitive domain.

6. Trainee Performance

The successful incorporation of new knowledge, skills and attitudes into workplace practice is an important indicator to consider in evaluation of a post-graduate training program. This level of evaluation is part of the project design but has not been formally implemented to date.

7. Health Care Outcomes

The WHO concept of good medical education is that it enhances medical practice and it is reflected in improved health care outcomes.

The success of the IMCH program in Serbia will be reflected by achieving the stated objectives of the project, in particular, reduction of morbidity and mortality of women and children within a defined time-frame. The difficulty however in attributing any reduction in outcomes to the IMCH program per se is the confounding by other complementary programs. However, indicators where no potential confounding would have occurred and where the topic was included in doctors and nurses training should be valid.

These include indicators that scored in the low to medium range on the MICS II survey undertaken from mid June to mid July 2000, about 7 months after IMCH training had commenced in Serbia. In particular, iron deficiency anaemia in women of child bearing age and in children 6-59 months of age; percentage of caretakers with children less than 5 years knowing two signs to seek immediate care; female knowledge of HIV/AIDS, use of contraception in married women 15-49 years. This would require the same methodological approach as used in MICS II survey in 2004 but incorporated into a national monitoring system. However although all nurses will have completed the IMCH training (end May 2003) only 58% doctors will have completed training (if one assumes 8 further seminars in 2003).

APPENDIX 7: EVALUATION OF PATRONAGE NURSES' IMCH PROGRAM

The indicators used to evaluate the IMCH training program were the same as the doctors' program, namely the WFME recommendations for evaluation of postgraduate medical education[40] and those used to evaluate the Macedonian Perinatal Training Program.[41]

1. Evaluation of training location: site visit

Topola Seminar program, 3 days Nov/Dec 2002

The venue for the seminars is in a hotel, located south of Belgrade in central Serbia and in the tranquil, historical and beautiful setting of the residences of the royal family, the site of Karadjordj's Serbia.

Accommodation, meals and service were excellent.

The teaching room was comfortable, spacious, allowing 6 tables with 5 nurses and easy movement of the teachers between groups.

The coordinator, Dr Dusica Matijevic clearly outlined the goals; a decrease in child mortality and morbidity and a decrease in problems of mother and baby/child.

A flipchart, power point facilities, overhead and several pieces of equipment and manikin were available and used during the teaching.

The coordinators and teachers were warm, encouraging and conducive to a non threatening learning environment.

Some teachers were aware of skills and did initiate skills teaching but the skills sequence of „Tell, show, do feedback" was incomplete. This can easily be rectified. Other teachers, although very experienced, were more didactic and often did not allow time for questions. Such teachers need a stopclock and alarm to stop content overload and inability of adult learners (nurses) to discuss their difficult issues. Some of the doctors visual material could be improved.

Coordinators very aware of creating the „right" environment for teaching and learning, for networking, for relaxing. Time management over the 3 days was very good.

2. Trainee/Trainer satisfaction

This was assessed at different points in time. Firstly, after the first 3 seminars with UNICEF representatives. Secondly, after the first 10 seminars a summary report was made. Thirdly, the consultant had the opportunity to ask the 27 patronage nurses from Kragujevac, who completed the course more than 12 months previously their rating of the seminar. All methods suggest a very high rating although definitive data not available.

Trainer satisfaction with the program was not formally evaluated.

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[40] Quality Improvement in Postgraduate Medical Education – WFME Global Standards. 2003. WFME Website: http://www.wfme.org

[41] Jeffery HE et al The impact of evidence-based education in a perinatal capacity-building initiative in Macedonia. Medical Education 2003 (accepted for publication subject to minor revisions.)

3. Daily program evaluation

After the first 10 seminars engaging approximately 300 nurses, of the 4 items scored on an anonymous Likert scale, all scored highly (over 4.95 out of 5) for content, introductory lectures, moderator role, workshops with discussion with an overall average mark of 4.98.

4. Final Program evaluation

After the first 10 seminars engaging approximately 300 nurses, of the 5 items scored on an anonymous Likert scale, the participants rated on average

Usefulness of the seminar	4.97
Seminar content	4.92
Teaching method	4.90
Applied teaching methods	4.93
Seminar organisation	4.98

In answer to an open ended question, almost all nurses would recommend the seminar to their colleagues without hesitation.

The data here and subsequently suggest the nurses were very satisfied with the seminar program. The strategic approach with the nurses was different to that of doctors in the selection of who was educated. All nurses from a health centre/municipality were educated together (eg all 27 nurses form Kragujevac certified) whereas several doctors were selected from a number of different municipalities (eg 7 of 35 paediatricians and 3 of 52 GP's certified from Kragujevac). Thus in a focus group with the nurses and doctors in Kragujevac implementation and barriers to change of new knowledge and skills for the nurses was not as major an issue as it was for the doctors. See 4 above under doctors' seminar program.

In the focus group with nurses, when asked to identify the most important skills they needed the following were listed:

- How to bathe the baby
- Correct positioning for breast feeding
- How to know if breast feeding was adequate
- How to manage the umbilical problems
- How to manage pyoderma
- How to manage conjunctivitis
- How to manage episiotomy
- How to care for sore and cracked nipples
- How to manage infants burping
- How to express and store milk correctly
- How to manage school children with other issues

When asked if extra skills/knowledge was needed, they indicated the following:

- Communication skills
- Skills with other children at school and other family members
- Management of smoking
- Management of drug use such as heroin, benzodiazepines, ecstasy, alcohol

As this question is asked in the evaluation of nurses in the field (about 90 completed so far) the information will assist in further development of the perceived learning needs of patronage nurses.

5. Trainee Competence Nurses' program

A comprehensive assessment strategy to assess knowledge was developed and implemented as part of the seminar program from 2001. It included both formative and summative components.

A five question MCQ pre-test (and some short answer questions) was completed in a formative setting at the start of each module to assess prior knowledge. Feedback regarding the correct answers was given

during the course of the lecture. The content of the MCQ was reviewed and thought to be consistent with the teaching aims of the respective modules ensuring the validity of the assessment.

A summative assessment was held at the completion of each six day seminar again using the MCQ methodology, evaluated as representing a valid sample of the teaching content.

The 14 topics and 121 correct answers for the groups of 28, 30, 28 nurses in seminars in March and April 2003, showed an average increase in marks from pre test to post test of 49 to 88%, 47 to 88% and 47 to 88% respectively.

The assessment program used has a high level of validity and reliability but was restricted to assessing knowledge in the cognitive domain.

The evaluation of nurses in the field has commenced. When retested on a sub section of 3 topics and 67 correct answers in October, February and March this year, results indicated a similar performance for the same questions with scores of 96, 93, 95%, suggesting very good retention of knowledge over time (>1 year).

6. Trainee Performance

The successful incorporation of new knowledge, skills and attitudes into workplace practice is an important indicator to consider in evaluation of a post-graduate training program. This level of evaluation is part of the project design and results for about 90 nurses are available.

The written results for the first field evaluation in Kragujevac included that of two supervisors who assessed, the work infrastructure, the performance in the home with parents and child, the nurses' self evaluation, nurses' recall of knowledge. Feedback was given individually and to the group, and supervisors advocated and attempted to resolve barriers to change with senior health providers at the health centre.

- **Structured questionnaire completed by the supervisor (2 pages) on the operation and organisation of the patronage nurses.**

  Findings were of very limited space in the health centre, no individual telephone access for the patronage nurses, no health education office and thus group activities could not be observed. Nurses suggested additional equipment for their bags including gloves, disposable aprons and masks.

  One interview at the health centre was observed and reported by the supervisor as most satisfactory in terms of communication skills, content and recommendations to the father of an 8 month old baby.

  New innovations, directly related to suggestions at the seminar, was the establishment by nurses, with the support of the Red Cross facilities, of a „School for Pregnant Women". This was witnessed by the consultant, where a small group of pregnant women, some with partners, were receiving interactive teaching and learning in a comfortable, easy environment about different issues associated with pregnancy and delivery. Opportunity for many questions was seized by the mostly first time parents.

- **Structured questionnaire completed by the supervisor (1 page) of the nurse during a visit** to a mother with a healthy newborn and to a mother with child-at-risk.

  This was reported in detail with a very satisfactory outcome for assessment of performance for both visits, relating performance to the seminar content.

- **Patronage nurse self-evaluation questionnaire to assess how seminar information was translated into practice.**

  This was summarized for the 27 nurses as follows:

  All used knowledge and skills acquired at the seminar in their everyday work.

Most (95%) used all skills but emphasized especially breast feeding, nutrition, care of the newborn (100%), family planning and safe motherhood (95%), diarrhoea and ARI (94%) communication skills (92%), prevention of injuries to the child and immunization (91%) and psychomotor development and stress (65%).

Overall, this is a detailed and thoughtful evaluation of performance, allowing for feedback and correction of difficulties in change management. The summary data is not yet available. It can be further improved once the manuals are rewritten in an evidence based format. The knowledge and skills that are based on highest level of evidence are crucial to implementation and should take priority in evaluation. Equally, where there is evidence of harm, these behaviours (interventions) should be eliminated.

7. Health Care Outcomes

The outcomes cannot be considered independently as the program for doctors and nurses is similar. Thus the statement under this heading in the doctors' seminar program pertains to nurses as well.

It is recommended that a questionnaire be designed for parents to give their feed-back about the program.

APPENDIX 8: TELEPHONE COUNSELLING FOR A HEALTHY BABY

This service, currently operating in Belgrade, is integral to the concept of the IMCH program and was observed and evaluated by the consultant. The goal was to improve communication and continuity of care between health services and families with newborns and young children and provide immediate advice for concerned parents. The stated aims were:

1. Improvement of mother & child health care through health services which are more open to families and community

2. Inform pregnant women on safe motherhood and family planning

3. Contribute to the empowerment of women to breastfeed their children

4. Provide parents with appropriate knowledge on the proper care, stimulation of growth and development of their children

5. Provide parents with information on proper home treatment of an infant and small child

6. Timely identification, registration and monitoring of children born with factors that pose a risk for development

7. Reduction of unnecessary visits of parents and children to primary health care centers

8. Strengthening integration of health and other sectors and organizations that take care of children

The service commenced in the Institute of Public Health, Belgrade on December 3, 2001, involving selected, senior patronage nurses and paediatric nurses trained in the IMCI plus seminar program. The Call Centre targets families with children up to 6 years of age covering issues of healthcare, social medicine and education.

The program entails telephone counseling to mothers, just discharged home from maternity hospitals in Belgrade, and to relevant services at health centers, to notify both of the impending home visitation by patronage nurses and correct addresses. Particular attention is paid to families at risk. Effectively this covers 96% of families with newborns in Belgrade. The addresses of the remaining 4% are given to the local health centre. Families are called on arrival home of their newborn (14 000 phone calls or 40 per day in 2002) and nurses respond to calls from families (44 600 or 122 per day in 2002 of which 34% were night calls).

The call center operates 24 hours/day with 5 registered nurses and weekly on call support of experts in paediatrics/neonatology, gynecology and child psychiatry. Such back-up has allowed rapid action if needed eg admission to hospital (1.6% all calls). Audit of the Call Centre in 2002 has established:

- Visit of a nurse next day after discharge from the maternity hospital has increased from 70 to 95%
- Calls to families considered at risk has increased from 30 to 60%
- Parental visits with newborns to health centers has decreased by 5%.

This most impressive service has been remarkably effective. The audit has provided information to allow further evaluation of the service and better targeting of high risk families. It would be valuable for the Ministry of Health to extend the service to all regions of Serbia using this unique service as the blueprint. The telephone counseling service fulfills a vital function in the program for IMCH.