

REVIEW OF INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS (IMCI) IN EUROPE



By: Susanne Carai
Aigul Kuttumuratova
Martin Weber



ABSTRACT

In 1995, WHO and the United Nations Children's Fund (UNICEF) launched the Integrated Management of Childhood Illness (IMCI) as a global strategy to end preventable child mortality and promote child health and development. A global review of IMCI implementation was carried out in 2016. To complement the global review, the WHO Regional Office for Europe conducted an in-depth review of the status of IMCI implementation in the WHO European Region, where IMCI was introduced in the late 1990s. This report sets out findings of the review of IMCI implementation in 15 countries of the WHO European Region and Kosovo (in accordance with United Nations Security Council resolution 1244 (1999)), highlighting strengths, weaknesses, opportunities and threats. It also presents vignettes describing review findings at individual country/area level.

Keywords

CHILD
CHILD HEALTH SERVICES
DELIVERY OF HEALTH CARE, INTEGRATED
MANAGEMENT OF CHILDHOOD ILLNESS
PROGRAM EVALUATION
EUROPE

Address requests about publications of the WHO Regional Office for Europe to:

Publications

WHO Regional Office for Europe

UN City, Marmorvej 51

DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (<http://www.euro.who.int/pubrequest>).

© World Health Organization 2018

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

CONTENTS

CONTENTS	iii
Acknowledgements	iv
Study team	iv
Report-writing team	iv
Acronyms	v
Executive summary	vi
Background	vi
Objectives	vi
Methodology	vi
Findings	vii
Conclusion and way forward	x
Review of Integrated Management of Childhood Illness (IMCI) in Europe	1
Background	1
Objectives	2
Methodology	2
Findings	4
Taking a closer look: IMCI and the use of antibiotics.....	18
Proposed improvements of IMCI	20
Discussion	20
Further reflection on review findings: children’s rights.....	23
Conclusion.....	25
References	27
Annex 1. Integrated Management of Childhood Illness (IMCI) impact model	28
Annex 2. Vignettes from selected countries	29
Albania – IMCI review	29
Armenia – IMCI review.....	33
Azerbaijan – IMCI review.....	38
Georgia – IMCI review.....	43
Kazakhstan – IMCI review	46
Kyrgyzstan – IMCI review	51
The Republic of Moldova – IMCI review	55
The Russian Federation – IMCI review.....	59
Tajikistan – IMCI review.....	63
Turkey – IMCI review.....	66
Ukraine – IMCI review.....	69
Uzbekistan – IMCI review	73
Annex 3. Vignettes from selected areas	86
Kosovo (in accordance with United nations Security Council Resolution 1244 (1999)) - IMCI review	

Acknowledgements

This report presents the analytical work completed within the European Review of Integrated Management of Childhood Illness (IMCI), administered by the WHO Regional Office for Europe and supported by the Bill & Melinda Gates Foundation.

Many national experts, academics, policy-makers, doctors and nurses contributed to the review and the study team and report-writing team thank them for their valuable inputs and support. We would especially like to thank colleagues in the WHO country offices of Albania, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan (Saltanat Yegeubayeva), Kyrgyzstan, Republic of Moldova, Romania, Russian Federation (Tatiana Kolpakova), Tajikistan, Turkey, Turkmenistan, Ukraine (Anastasiya Dumcheva), Uzbekistan (Elena Tsoy), and the WHO Office in Pristina for their expertise and support provided prior to and during the review missions.

Our gratitude also goes to Ana Guerreiro for contributing to a chapter on review findings in view of child rights. We appreciate technical advice and inputs to the review tools and methodology provided by Juan Tello and Erica Barbazza from the WHO European Centre for Primary Health Care of the WHO Regional Office for Europe. Mikael Ostergren, WHO headquarters, Eva Kudlova, Prague, Czech Republic, Ekaterina Stasii, Chisinau, Republic of Moldova and Laura Masiello, Rome, Italy contributed to the discussion of the findings and putting them into perspective. Christoph Henking, WHO intern, compiled country background information and participated in the Georgia country visit.

Study team

Susanne Carai (lead WHO consultant)

Larisa Boderscova, National Professional Officer, WHO Country Office in the Republic of Moldova

Henrik Khachatryan, National Professional Officer, WHO Country Office in Armenia

Ivan Lejneev, WHO consultant

Kubanychbek Monolbayev, National Professional Officer, WHO Country Office in Armenia

Sami Uka, Professional Officer, WHO Office in Pristina

Aigul Kuttumuratova, Technical Officer, Child and Adolescent Health, WHO Regional Office for Europe

Martin Weber, Programme Manager, Child and Adolescent Health, WHO Regional Office for Europe

Report-writing team

The report was written by Susanne Carai, Aigul Kuttumuratova and Martin Weber, with contributions and review from the study team.

Acronyms

CRP	C-reactive protein test
EIC	education, information and communication
ICD-10	International Classification of Diseases 10
IMCI	Integrated Management of Childhood Illness
LBW	low birth weight
MDG	Millennium Development Goal
SDG	Sustainable Development Goal
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

Executive summary

Background

In 1995, WHO and the United Nations Children's Fund (UNICEF) launched the Integrated Management of Childhood Illness (IMCI) as a global strategy to end preventable child mortality and promote child health and development. The IMCI strategy provides guidance on treatment and care for the major causes of childhood mortality, such as pneumonia, diarrhoea and conditions with fever, and consists of three components: 1) improving health-worker skills; 2) strengthening health systems; and 3) improving family and community practices.

A global review of IMCI implementation was carried out in 2016. To complement the global review, the WHO Regional Office for Europe conducted an in-depth review of the status of IMCI implementation in the WHO European Region, where IMCI was introduced in the late 1990s. The review included 15 Member States and Kosovo.¹ While huge disparities in childhood mortality existed (and persist) in the Region, high mortality was not the main concern in countries and areas that considered implementing IMCI. Low quality of care, absence of evidence-based guidelines, polypharmacy and overhospitalization warranted the promotion of IMCI. Health-system inefficiencies were common. Twelve countries have been transitioning from the former Soviet Union to independence,² with considerable health-system changes.

Objectives

The objectives of the IMCI review were to:

- review and summarize the status of IMCI implementation and its relevance and effectiveness in providing quality health care to children based on reviews in 15 European IMCI countries and Kosovo;¹
- gain an in-depth understanding of factors leading to adoption of IMCI and its sustainability, or why IMCI was not scaled up and sustained; and
- collate lessons learnt and inform future steps in providing primary and referral care to children in Europe.

Methodology

A framework to guide the review, outlining detailed questions and semi-structured questionnaires for key informant interviews and focus group discussions at national, district and facility levels, was developed. Desk reviews of relevant materials were completed prior to the data collection in the countries and areas, including information

¹ All references to Kosovo in this chapter should be understood as references to Kosovo in accordance with Security Council resolution 1244 (1999).

² The 12 independent countries of the former Soviet Union involved in the IMCI review are Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Countries of the former Soviet Union not involved in the review are Estonia, Latvia and Lithuania.

collected through a pre-visit questionnaire. Investigators carried out interviews and focus group discussions during 2–4-day visits to the countries and areas (on three occasions by Skype). Findings were discussed and summary conclusions drawn during an investigators' meeting in Chisinau, the Republic of Moldova.

Findings

IMCI was introduced in 15 countries in the European Region and Kosovo¹ through orientation meetings at national level. Fourteen decided to go ahead with piloting IMCI in 2–3 districts. Reasons cited for deciding not to pilot included IMCI not being considered relevant and being deemed too basic for the respective contexts and competing priorities of public health authorities.

Only eight implemented IMCI at national scale. The three components were introduced unevenly: there was a strong focus on training for primary care health workers, with the health-system and community components lagging behind. Subsequently, 11 countries and areas also introduced activities to improve quality of care at hospital level.

IMCI drugs were included in the national essential drug lists of almost all, but consistent availability of IMCI drugs free of charge, as stipulated in the policy for children, was reported in only four.

IMCI implementation stalled in most countries and areas when external support ceased and stopped completely in six that had gone ahead with IMCI implementation. Integration into pre-service training or continuous professional education was achieved in only a limited number, to different extents and with varying quality.

The following common themes arose from studies in the countries and areas.

Strengths

IMCI – where implemented – was perceived as having contributed to the reduction of under-5 mortality, particularly from pneumonia and diarrhoea. It was also perceived as having improved quality of care for children by promoting the use of standard management guidelines that were based on evidence, which led to improvement in the rational use of antibiotics, and decreased polypharmacy and unnecessary hospitalization. In countries and areas with rural areas where often only nurses are available, IMCI was appreciated for supporting systematic identification of danger signs and children in need of referral.

Weaknesses

The sustainability of IMCI was found to be limited in many settings. Implementation was often donor-driven and stalled or was discontinued when external funding ceased. Systematic integration into pre-service training and postgraduate education was achieved in only a limited number of countries and areas.

Incompatibilities between IMCI and existing policy requirements and regulations were not consistently addressed to enable IMCI implementation: examples include inconsistencies between International Classification of Diseases 10 and IMCI classifications, policy

requirements to admit children with diarrhoea to infectious diseases hospitals, and practices for investigating stool samples in countries of the former Soviet Union.

Extensive paperwork requirements and the assumption that the entire algorithm should be repeated at every child–health provider contact were reported as obstacles to IMCI implementation.

While the IMCI algorithm was not designed to be relevant for all types of health workers in all settings, its positioning was sometimes perceived as dogmatic. Some saw the algorithm as being too basic, particularly for trained physicians.

The focus on health-worker training, based on the assumption that training leads to implementation of IMCI, with the community and health-system components reportedly not being fully defined or understood, led to imbalanced implementation of the three IMCI components.

Key informants noted that IMCI was viewed as being more relevant for remote areas where only nurses or feldshers were providing care. This might signal acceptance of the provision of lower quality care as being adequate for children in remote areas who could not access other services. IMCI implementation may therefore have contributed to persisting inequities within countries and areas where it was not rolled out over the whole area.

Threats

Key informants in many settings reported that parents' preferences and expectations of care for their children leaned towards medicalized care (preferring intravenous treatment over oral rehydration therapy and several drugs over one, for instance). Parents reportedly often skipped primary care and took their child directly to specialists at secondary or tertiary care level (if accessible), seeking more sophisticated diagnostic tests and treatments. Primary care was often perceived as not offering any services for sick children and was used only for preventive measures, such as immunizations and monitoring visits.

The fact that IMCI training had not been sustained in many countries and areas and had not expanded to undergraduate education indicated that political support for IMCI had been lacking. Findings also suggested that academia, particularly senior university professors and professional associations, had been opposing IMCI for being too simple, which had an impact on its effective integration into pre-service training.

Treatment choices were not always led by evidence-based decisions and national guidelines for management of sick children were not always based on the best available evidence. Additionally, health-worker motivation and performance seemed to be strongly linked to incentives (or adverse incentives), such as aggressive pharmaceutical industry marketing of costlier (and more profitable) drugs and formulations.

Frequent parallel training for the same health workers on different childhood aspects, such as IMCI, early childhood development, immunization and breastfeeding, led to overlap and fragmentation of knowledge required for providing quality care to children.

Systems issues affecting IMCI implementation

Overall, increasing privatization of health services or for-profit medicine and the need to consider economic aspects in the provision of care could be observed in almost all

settings. This influenced not only health workers' performance and their ability to adhere to guidelines, but also the development of guidelines.

Difficult working conditions, with low salaries and the absence of opportunities for continuous education and career development, also seem to have had an influence on health-worker performance and motivation. Poor working conditions in relation to infrastructure, such as lack of heating during winter, were reported in some of the countries and areas, particularly in rural and more remote areas. These conditions created difficulties for performance and provision of quality care.

The findings strongly suggest that performance-payment schemes and indicators, as well as punishing policies and the lack of supportive supervision, were likely to have had an impact on practices. Health systems were often constructed in a way that incentivized hospitalization instead of outpatient care, overtreatment instead of appropriate use of drugs, and use of expensive drugs instead of indicated drugs.

Payment schemes also seem to have promoted hospitalization in some countries and areas with, for example, doctors' salaries being paid according to the number of patients hospitalized, or health insurance schemes covering drugs and diagnostic services for inpatient but not outpatient care. These constituted incentives for hospitalization from the patient (demand) side. Many health systems "no longer desire[d] a healthy child", as one key informant put it, as they required the child to be sick to create revenue through carrying out diagnostic test and prescribing medications.

IMCI drugs were included in the national drug lists in almost all reviewed countries and the Kosovo¹ drug list and were nominally provided free to children. However, parents were often required to pay out-of-pocket for different (and not necessarily superior) drugs prescribed by health workers whose interest was to create revenues or derive other benefits from pharmaceutical companies.

Systems for dealing with children in parallel to the family doctor or paediatrician under public health authorities (such as neuropaediatricians in some of the countries of the former Soviet Union, or ministries of defence running their own health systems) also influenced the overall quality of care provided to children.

Generally, the health sectors in many of the former Soviet Union countries were underfunded, with both expenditure as a proportion of gross domestic product and absolute expenditure remaining low.

Opportunities

Several of the system issues could be addressed by taking advantage of the strengths of the IMCI strategy and its implementation. IMCI is widely recognized by all stakeholders as an evidence-based and scientifically sound approach to child health and a tool for improving quality of care for children by promoting the use of standard management guidelines, the rational use of antibiotics, and decreased polypharmacy and unnecessary hospitalization.

At global level, Member States have adopted the United Nations 2030 Agenda for Sustainable Development. The Sustainable Development Goals (SDGs) set out an ambitious agenda for child health and development. If these commitments are to have true meaning in children's and adolescents' lives in the WHO European Region, there must

be stronger and more innovative investment in primary health care, bringing together different sectors, enabling national ownership of the processes and leading to more accountable systems, which will ensure sustainability of the work implemented.

IMCI can be the starting point to define what is meant by universal health coverage for children and adolescents. It can further be used as a basis for:

1. conceptualizing child and adolescent health for the European Region;
2. preparing of technical guidelines on essential health care for newborns, children and adolescents at primary health care level;
3. strengthening pre- and postgraduate education for primary care providers dealing with children and adolescents; and
4. ensuring health systems are responsive to the needs of children and adolescents, taking into account the rights of children and adolescents.

In 2018, the world's nations will be celebrating 40 years of the adoption of the Alma-Ata Declaration on Primary Health Care. This presents as an appropriate time for revising and expanding IMCI.

Conclusion and way forward

The IMCI strategy has gone a long way in promoting evidence-based medicine and the rational use of drugs in Europe.

Despite large improvements and in contradiction to obligations under the Convention on the Rights of the Child, the following issues persist in the European Region:

- non-evidence-based practices, particularly the indiscriminate use of antibiotics
- inappropriate medicalization
- unnecessary treatment and hospitalization.

Discussions on health-system requirements and the need for reforms when introducing IMCI were neglected in most countries and areas, a situation that needs to be rectified. Health workers should be sufficient in number, receive appropriate remuneration and be trained in evidence-based practice before deployment, and be able to access continuous medical education thereafter. Health-worker training by itself does not lead to performance improvement; this also depends on other components of the health system in ensuring optimal health outcomes for children.

The renewed IMCI approach must build on supporting health workers in making evidence-based decisions, meeting parents' expectations and promoting health literacy.

Poor planning and insufficient public health authority resources for follow-up visits after IMCI training led to a loss of acquired knowledge and skills. The lack of supportive supervision further reflects the overall weak quality improvement systems in place across countries and areas. Innovative tools and mechanisms to support implementation of standard treatment guidelines, such as supportive supervision and collaborative approaches, and the use of modern technology, should be considered.

A potential matrix approach for IMCI was developed during review of the findings. This delineates tasks and competencies required for managing common childhood conditions, based on the capacity for prescribing antibiotics and available diagnostic facilities. The matrix can help during implementation to address issues in training, professional

privileges, referral pathways and use of antimicrobials, and therefore contribute to better treatment for children.

The renewed IMCI approach must put the rational provision of drugs in general and antibiotics in particular at its core. More must be done to end the indiscriminate use of antibiotics and ensure that children get antibiotics only when they need them. Provider training, patient and parent education, and adequate enforced regulations will go a long way to reducing unnecessary antibiotic use. Access to reliable and affordable point-of-care tests, which can differentiate between bacterial and viral infections, would further improve the situation.

Public health authority ownership will remain paramount and must be advocated. Public health authorities need to honour their responsibilities under the Convention on the Rights of the Child to provide adequate care for all children.

Review of Integrated Management of Childhood Illness (IMCI) in Europe

Background

In 1995, WHO and the United Nations Children's Fund (UNICEF) launched the Integrated Management of Childhood Illness (IMCI) as a global strategy to end preventable child mortality and promote child health and development. The IMCI strategy provides guidance on treatment and care for the major causes of childhood mortality, such as pneumonia, diarrhoea and conditions with fever, and consists of three components: 1) improving health-worker skills; 2) strengthening health systems; and 3) improving family and community practices. Since the launch of IMCI, over 100 countries and areas have implemented some or all of the three components.

A global review of IMCI implementation was carried out in 2016. To complement the global review, the WHO Regional Office for Europe conducted an in-depth review of the status of IMCI implementation in the WHO European Region, where IMCI was introduced in the late 1990s. The review settings comprised 15 Member States and Kosovo.³ While huge disparities in childhood mortality were found to exist (and persist) in the Region, high mortality was not the main concern in countries and areas that considered implementing IMCI. Low quality of care, absence of evidence-based guidelines, polypharmacy and overhospitalization (1) warranted the promotion of IMCI. Health-system inefficiencies were common. Twelve countries have been transitioning from the former Soviet Union to independence with considerable health-system changes (2).⁴

IMCI was introduced in the WHO European Region in 1998, with 15 countries and Kosovo³ considering it at some stage and introducing it to varying extents. Table 1 summarizes the introduction and implementation of IMCI in the 16 European countries and areas, highlighting those that had considered IMCI, the extent of scaling up, and whether it was sustained. It also indicates whether the community component or hospital component was implemented.

WHO, UNICEF, the United States Agency for International Development (USAID) and the Bill & Melinda Gates Foundation carried out a global review of IMCI in 2016. It collected information from only five countries in the WHO European Region (Armenia, Kazakhstan, Kyrgyzstan, the Republic of Moldova and Tajikistan) and Kosovo,³ with an in-depth study performed in Kazakhstan. The WHO Regional Office for Europe conducted an in-depth review of the status of IMCI implementation in the 16 European countries and areas that considered implementing IMCI to complement the global review. The review also aimed to identify factors facilitating or hindering implementation and the relevance and limitations of IMCI to support improvements in access to, and quality of, services delivered to children in the European Region.

³ All references to Kosovo in this chapter should be understood as references to Kosovo in accordance with Security Council resolution 1244 (1999).

⁴ The 12 independent countries of the former Soviet Union involved in the IMCI review are Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Countries of the former Soviet Union not involved in the review are Estonia, Latvia and Lithuania.

Table 1. Status of IMCI in 15 European countries and Kosovo^a

Country/area	Implementation	Still active	Community	Hospital
Albania	+	–	+	–
Armenia	++	++	+/?	++
Azerbaijan	+	?	+	–
Belarus	(+)	–	–	–
Georgia	+	?	–	+
Kazakhstan	++	++	++	++
Kyrgyzstan	++	++	++	++
Republic of Moldova	++	++	++	++
Romania	(+)	–	–	–
Russian Federation	+	(+)	–	+
Tajikistan	++	++	+	++
Turkmenistan	+	+	+	+
Turkey	+	+	–	+
Ukraine	+	+	(+)	+
Uzbekistan	++	++	++	++
Kosovo ^a	++	++	+	++

+ = aspect reported.

++ = national scale.

(+) = only introductory/fragmented activities.

– = aspect reported not present.

? = no information available.

^aIn accordance with United Nations Security Council resolution 1244 (1999).

Objectives

The objectives of the IMCI review were to:

- review and summarize the status of IMCI implementation and its relevance and effectiveness in providing quality health care to children based on reviews in 15 European IMCI countries and Kosovo;³
- gain an in-depth understanding of factors leading to adoption of IMCI and its sustainability, or why IMCI was not scaled up and sustained; and
- collate lessons learnt and inform future steps in providing primary and referral care to children in Europe.

Methodology

Preparatory phase

Summaries on IMCI status in the countries and areas were developed from available documents and a pre-visit questionnaire was administered to obtain background information on the status and process of IMCI implementation, define relevant documents and identify suitable key informants and participants for focus group discussions, to be held during the visits. The information obtained was used for desk reviews by respective reviewers. Subsequently, semi-structured questionnaires were developed for the key informant interviews and focus group discussions at national, district and facility levels during the phase of visits to countries and areas.

Phase of visits to countries and areas

Semi-structured questionnaires were used to conduct interviews with key informants and focus group discussions. The IMCI impact model (Annex 1) was used to enquire into the status of IMCI implementation, and barriers and shortcomings of IMCI within specific contexts.

Collation and reporting phase

The outcomes of the key informant interviews and focus group discussions were transcribed and classified into categories of responses; these were then used to summarize the findings within and between countries and areas to answer the questions shown in Box 1.

Box 1. Key questions	
1. Relevance and input	Was the implementation of IMCI likely to deliver the desired results and have the desired impact? What is the current status of IMCI/child health? To what extent does IMCI suit realities and requirements in Europe? Why did countries and areas decide to (or decide not to) adopt IMCI? What initiatives were planned (training (in-service/pre-service), community component, health-system component)?
2. Efficiency and process	How well is/was IMCI implemented? Process and description of decisions to adopt IMCI as well as its implementation: what happened since inception? Why?
3. Efficiency and output	Were implemented activities delivered with sufficient quality and coverage? Was IMCI scaled up, and if so, how? Was it included in pre-service training? If not, why not?
4. Effectiveness and outcome	Did the implemented activities lead to the desired outcome? What were the strengths and weaknesses of IMCI in specific contexts?
5. Impact^a	Did the implemented activities have the desired impact? If so, what are the lessons learnt? If not, what needs to be done differently?
6. Sustainability	Were services sustainable? If services and training were not sustained, why not?
^a Given the scope of the review, a full impact analysis was impossible. Questions on perceived impact and plausible causes were nevertheless discussed with stakeholders.	

Assessors analysed the findings across countries and areas during the review meetings and drew conclusions and lessons for future steps.

Publication phase

A meeting report and an intercountry/ area (horizontal analysis) report synthesizing findings will be shared widely. In addition to the meeting and final report, a scientific paper will be drafted for publication in a peer-reviewed journal to share the experience and lessons for the future improvement of child health in Europe.

Findings

IMCI was introduced in 15 countries in the European Region and Kosovo³ through orientation meetings at national level (Table 2). Fourteen decided to go ahead with piloting IMCI in 2–3 districts. Reasons cited for deciding not to pilot included IMCI not being considered relevant and being deemed too basic for the respective contexts and competing priorities of public health authorities.

Only eight implemented IMCI at national scale. The three components were introduced unevenly: there was a strong focus on training for primary care health workers, with the health-system and community components lagging behind. Subsequently, 11 also introduced activities to improve quality of care at hospital level.

IMCI drugs were included in the national drug lists of almost all and the Kosovo³ drug list, but consistent availability of IMCI drugs free of charge, as stipulated in the policy for children, was reported in only four.

Table 2. Status of IMCI implementation in 15 countries of the WHO European Region and Kosovo^a

Status	Overall	Albania	Armenia	Azerbaijan	Belarus	Georgia	Kazakhstan	Kosovo ^a	Kyrgyzstan	Republic of Moldova	Romania	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan
Geographic scale																	
Introductory meeting at national level	16	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Implementation in pilot districts	14	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	+
Nationwide scale-up	8	-	+	-	-	-	+	+	+	+	-	-	+	-	-	+	+
Improving health-worker performance																	
Training of health workers on IMCI algorithm	14	+	+	+	na	+	+	+	+	+	na	+	+	+	+	+	+
Follow up after training	14	+	+	+	na	+	+	+	+	+	na	+	+	+	+	+	+
IMCI in hospital																	
Introduction of WHO pocket book	12	-	+	-	na	+	+	+	+	+	na	+	+	+	+	+	+

Table 2 (contd)

Status	Overall	Albania	Armenia	Azerbaijan	Belarus	Georgia	Kazakhstan	Kosovo ²	Kyrgyzstan	Republic of Moldova	Romania	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan
Hospital assessment	11	-	+	-	na	+	+	+	+	+	na	+	+	-	+	+	+
Training on WHO pocket book	11	-	+	-	na	+	+	+	+	+	na	+	+	-	+	+	+
Pocket book used as national treatment guideline	6	-	+	-	na	-	+	-	+	+	na	-	+	-	-	-	+
Implementation of improvement activities	8	-	+	-	na	-	+	+	+	+	na	+	+	-	-	-	+
Health-systems strengthening																	
Inclusion of IMCI drugs in national essential drug list/Kosovo ^a drug list	12	+	+	+	na	-	+	+	+	+	na	+	+	-	+	+	+
All IMCI drugs	4	-	-	-	na	-	+	-	+	+	na	-	-	-	+	-	-

available free of charge at all times																	
Community component																	
Pilot activities	12	+	+	+	na	-	+	+	+	+	na	+	+	-	+	+	+
Full scale	5	-	-	-	na	-	+	-	+	+	na	-	+	-	-	-	+
Sustainability																	
IMCI activities still ongoing	8	-	+	-	na	-	+	-	+	+	na	-	+	-	+	+	+
IMCI activities stopped when external support stopped	6	+	-	+	na	+	-	+	-	-	na	+	-	+	-	-	-
IMCI considered sustainable	4	-	-	-	na	-	+	-	+	+	na	-	-	-	-	?	+
IMCI integrated into pre-service training	7	-	-	-	na	-	+	-	+	+	na	-	+	-	+	+	+
IMCI integrated into continuous education	7	-	-	-	na	-	+	++	+	+	na	-	+	-	+	+	+
Legislative base for IMCI implementation	7	-	+	-	na	-	+	-	+	+	na	-	+	-	-	+	+

na = not applicable.

+ = aspect reported.

- = aspect reported not present.

? = no information available.

++ = only for nurses.

^a In accordance with United Nations Security Council resolution 1244 (1999).

IMCI implementation stalled in most countries and areas when external support ceased and stopped completely in six that had gone ahead with IMCI implementation. Integration into pre-service training or continuous professional education was achieved in only a limited number, to different extents and with varying quality.

Relevance

The findings across the 15 countries and Kosovo³ were reviewed and analysed to answer the following question: to what extent does IMCI suit realities and requirements in Europe for decreasing under-5 mortality and/or for improving quality of care?

Table 3 summarizes the findings of the reviews in relation to the extent to which IMCI was considered relevant by key informants.

Table 3. Relevance of IMCI in countries and areas

Countries and areas with under-5 mortality over 40/1 000 at IMCI introduction		
Country/area	Relevance at start of implementation	Relevance at time of IMCI review in 2016
Turkey (42/1 000)	IMCI was not implemented beyond pilots, so not considered relevant	Not considered relevant (but an approach to improve adherence to evidence-based standards is

		considered relevant)
Uzbekistan (75/1 000)	Considered relevant	Still considered relevant
Kyrgyzstan (51/1 000)	Very relevant	Still relevant (except capital)
Azerbaijan (75/1 000)	Considered relevant	Still relevant in rural/remote areas
Tajikistan (83/1 000)	Considered very relevant	Still considered relevant
Turkmenistan (86/1 000)	Highly relevant (but limited activities)	Highly relevant (but no activities)
Kazakhstan (45/1 000)	Very relevant	Still considered relevant
Kosovo^a	Very relevant	Partly relevant, but not for paediatricians
Countries with under-5 mortality below 40/1 000 at IMCI introduction		
Country	Relevance at start of implementation	Relevance at time of IMCI review in 2016
Belarus (4/1 000)	Did not implement, so not considered relevant	Not considered relevant
Republic of Moldova (23/1 000)	Considered very relevant	Mostly considered relevant
Georgia (38/1 000)	Considered relevant	Considered non-relevant from some stakeholders, relevant from others
Romania (25/1 000)	IMCI was not implemented, so not considered relevant	Given the brain drain, considered relevant for rural areas
Albania (26/1 000)	Considered relevant (but implementation was limited)	Still considered useful and relevant, but country does not consider implementation

Table 3 (contd)

Countries with under-5 mortality below 40/1 000 at IMCI introduction		
Country	Relevance at start of implementation	Relevance at time of IMCI review in 2016
Russian Federation (21/1 000)	Never considered relevant for the whole country; very relevant for some areas	Still relevant for some regions however considered not relevant for most of the country
Ukraine (13/1 000)	Considered very relevant in 2011 at a rate of 13/1 000 for quality of care	Very relevant – IMCI implementation is still ongoing
Armenia (28/1 000)	Very relevant	Still very relevant

Full implementation**Limited implementation****No implementation**

Late implementation (implementation took place only five years ago – as opposed to implementation 17 years ago in most of the other countries and areas).

^a In accordance with United Nations Security Council resolution 1244 (1999).

Efficiency

The three components of IMCI were often not implemented comprehensively, with a strong emphasis being placed on health-worker training. Political support and coordination was strong in some countries and areas and lacking in others. IMCI training implementation was donor-driven in most and when external support ceased, implementation of training stalled or often came to a complete stop. The integration of IMCI training in pre-service education was attempted in almost all countries and areas, but feedback from 14 suggests that it was only effectively implemented in seven. Even in those that reported integration into pre-service training, only one stated that full IMCI training was taught at university. Most others included only some components, such as management of diarrhoea or respiratory infections, in the curriculum (which cannot be considered as full integration of the IMCI approach based on the algorithms into pre-service training).

It was also reported that IMCI training was shortened to different lengths, such as 2–3 or 6–7 days, in some countries and areas and/or lacked the practical component. Reasons indicated by key informants were lack of IMCI training for teaching faculty from universities and medical colleges, lack of trained medical staff in clinical settings, poor leadership, and academic scepticism regarding IMCI, especially among leading professors in paediatrics. Overall, IMCI was taught in pre-service curricula either in a fragmented way (selected topics) or was reduced in length.

Table 4 summarizes these findings.

Table 4. Information provided by key informants about integration of IMCI into pre-service and postgraduate training

Status of integration	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan	Kosovo ^a
Integration into pre-service training:	-	-	-	-	+	+	+	-	/	-	+	/	+	-
university curricula	-	/	/	/	/	/	+	-	/	-	+	/	/	-
medical colleges for nurses	-	-	-	-	+	-	?	-	?	-	?	/	/	+
Integration into postgraduate training:	-	-	-	/	+	+	+	-	?	-	+	/	/	-
for family doctors	-	-	-	/	+	+	+	-	?	-	+	/	/	-
for nurses	-	-	-	?	+	+	?	+	?	-	?	/	/	-
Integration into ongoing medical education:	-	/	-	-	+	/	+	-	?	-	?	/	/	+
for family	-	/	-	-	/	/	+	-	?	-	/	/	/	/

Status of integration	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan	Kosovo ^a
doctors	-	/	-	-	+	?	?	-	?	-	?	/	/	+
for nurses	-	/	-	-	+	?	?	-	?	-	?	/	/	+

+ = aspect reported.

- = aspect reported not present.

? = no information available.

/ = partially.

^a In accordance with United Nations Security Council resolution 1244 (1999).

Effectiveness

The findings of the review across the 14 countries and Kosovo³ that started IMCI implementation were reviewed and analysed. The following strengths, weaknesses, threats and systems issues that are affecting implementation of IMCI were identified as common.

Strengths

IMCI – where implemented – was perceived as having contributed to the reduction of under-5 mortality, particularly from pneumonia and diarrhoea. It was also perceived as having improved quality of care for children by promoting the use of standard management guidelines that were based on evidence, which led to improvement in the rational use of antibiotics, and decreased polypharmacy and unnecessary hospitalization. In countries and areas with rural areas where often only nurses are available, IMCI was appreciated for supporting systematic identification of danger signs and children in need of referral.

Key points

- IMCI was perceived as having contributed to the reduction of mortality.
- IMCI promoted the use of standard management guidelines that are based on evidence and, particularly, the rational use of drugs, improving the rational use of antibiotics and decreasing polypharmacy.
- In countries and areas with rural areas where often only nurses are available, IMCI was appreciated for supporting systematic identification of danger signs and children in need of referral.
- IMCI was perceived as having improved quality of care for children.

Perceived strengths are summarized in Table 5.

Table 5. Strengths

Themes	Countries and areas in which the theme was mentioned (number out of 14) ^a
IMCI is perceived as having contributed to reduction of mortality	Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan, Ukraine, Uzbekistan (8)
IMCI promotes the use of standard management guidelines that are based on evidence and, particularly, the rational use of drugs	Albania, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Kosovo ^b (14)
Identification of the severely ill: IMCI is appreciated for the systematic identification of danger signs and children in need of referral in countries and areas with rural areas where often only nurses are available	Albania, Armenia, Georgia, Kazakhstan, Republic of Moldova, Tajikistan, Uzbekistan, Kosovo ^b (8)
Beyond survival: IMCI is perceived as having improved quality of care for children	Albania, Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkey, Ukraine, Uzbekistan, Kosovo ^b (12)

^a Excluding Belarus and Romania, as information collection was not finished or IMCI had not been introduced.

^b In accordance with United Nations Security Council resolution 1244 (1999).

Weaknesses

Sustainability of IMCI was found to be very limited in many settings. Implementation was often donor-driven and stalled or was discontinued completely when external funding ceased. Systematic integration into pre-service training and postgraduate education was achieved in only a limited number of countries and areas.

Incompatibilities between IMCI and existing policy requirements and regulations were not consistently addressed to enable IMCI implementation: examples include inconsistencies between International Classification of Diseases 10 (ICD–10) and IMCI classifications, policy requirements to admit children with diarrhoea to infectious diseases hospitals, and practices for investigating stool samples in former countries of the Soviet Union.

Extensive paperwork requirements and the assumption that the entire algorithm should be repeated at every child–health provider contact were reported as obstacles to IMCI implementation.

While the IMCI algorithm was not designed to be relevant for all types of health workers in all settings, its positioning was sometimes perceived as dogmatic. Some saw the algorithm as being too basic, particularly for trained physicians.

The focus on health-worker training, based on the assumption that training leads to implementation of IMCI, and the community and health-system components reportedly not being fully defined or understood led to imbalanced implementation of the three IMCI components.

The IMCI strategy did not sufficiently consider equity concerns: the provision of lower quality care for children in remote areas who cannot access other services was accepted.

Key points

- IMCI was often donor-driven, so when external funding ceased, implementation stopped. If there is no champion/leader, there is no success.
- IMCI forms are usually not completed.

- There was an assumption that the entire algorithm had to be repeated every time the child had contact with a provider, even in repeat visits to or by the provider.
- IMCI was not integrated in national health information systems and there was incongruence between ICD-10 and IMCI classifications.
- Inconsistencies with existing policy requirements and regulations were not addressed (such as the requirement for stool examination and hospitalization of all children with diarrhoea by the Sanitary Epidemiological Services (SES))
- IMCI training included in medical education varied from a few days' orientation, omitting the clinical component, to a 12-day training course.
- The IMCI algorithm was not designed to be relevant for all types of health workers in all settings, but sometimes it was believed that it had to be followed at all levels.
- The focus on health worker training was based on the assumption that training leads to IMCI implementation.
- Implementation of the three IMCI components was unbalanced, with often weak implementation of the community and health-system components reportedly not being fully defined and/or understood.
- The levels of the health system were not synchronized, with inadequate referral linkages (hospitals did not admit children whose referrals were based on IMCI criteria because of inconsistency between the IMCI and hospital admission criteria).
- Updates of IMCI guidelines were infrequent.
- The evidence base to support checking for cough, diarrhoea and fever at all times, even if the presenting complaint is cough, was missing.
- The provision of lower quality of care for people in remote areas was accepted (equity issue).

Perceived weaknesses are summarized in Table 6 and implementation of the three IMCI components in Table 7.

Table 6. Weaknesses

Themes	Countries and areas in which the theme was mentioned (number out of 14) ^a
Limited sustainability in many settings: often donor driven when external funding stopped, implementation stopped	Albania, Armenia, Azerbaijan, Georgia, Russian Federation, Tajikistan, Turkey, Kosovo ^b (8)
Extensive paperwork requirements: IMCI forms are usually not filled	Albania, Armenia, Azerbaijan, Kyrgyzstan, Republic of Moldova, Ukraine, Uzbekistan, Kosovo ^b (8)
Inconsistencies with existing policy requirements and regulations or national protocols not addressed (such as sanitary epidemiological services)	Armenia, Azerbaijan, Georgia, Kyrgyzstan Uzbekistan (5)
ICD–10 versus IMCI classification	Georgia, Kyrgyzstan, Republic of Moldova, Turkey, Uzbekistan, Kosovo ^b (6)
Quality of IMCI training included in medical education varying from few days' orientation (omitting the clinical part) to 12 days' training	See Table 4
Unbalanced implementation of the three IMCI components, with often weak implementation of the health-systems and community components, and these components reportedly not being fully defined and/or understood	See Table 7

^a Excluding Belarus and Romania, as information collection was not finished or IMCI had not been introduced.

^b In accordance with United Nations Security Council resolution 1244 (1999).

Table 7. Implementation of the three IMCI components^a

	Overall	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kosovo ^b	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan
1. Improving health worker performance															
At the primary health care level															
Health workers training on IMCI algorithm	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Follow up after training	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
At the hospital level															
Introduction of WHO pocket book	12	-	+	-	+	+	+	+	+	+	+	+	+	+	+
Hospital assessment	11	-	+	-	+	+	+	+	+	+	+	-	+	+	+
Training on WHO pocket book	11	-	+	-	+	+	+	+	+	+	+	-	+	+	+
PB adopted as national treatment guideline	6	-	+	-	-	+	-	+	+	-	+	-	-	-	+
Implementation of improvement activities	8	-	+	-	-	+	+	+	+	+	+	-	-	-	+
2. Health systems strengthening															
Inclusion of IMCI drugs in National Essential drug list/Kosovo ^b drug list	12	+	+	+	-	+	+	+	+	+	+	-	+	+	+
IMCI drugs are available free of charge at all times	4	-	-	-	-	+	-	+	+	-	-	-	+	-	-
Supportive supervision mechanism	1	-	-	-	-	/	-	-	-	-	/	-	-	-	+

Addressed inconsistencies of classification vs ICD 10	2	-	-	-	-	+	-	-	-	-	-	-	-	-	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 7 (contd)

	Overall	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kosovo ^b	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan
Addressed policy inconsistencies ^c	2	-	-	-	-	+	-	-	+	-	-	-	-	-	-
3. Community component															
Campaigns	9	+	-	+	-	+	-	+	+	-	+	-	+	+	+
Home visits (integration of IMCI messages)	8	-	+	-	-	+	+	+	+	-	+	-	+	-	+
EIC materials for parents	11	+	+	+	-	+	-	+	+	+	+	-	+	+	+

Legend:

+ = Aspect reported

- = Aspect reported not present

/ = Aspect reported as partially present

^a Excluding Belarus and Romania, as information collection was not finished or IMCI had not been introduced.^b In accordance with United Nations Security Council resolution 1244 (1999).^c For example: sanitary epidemiological services' requirements for diarrhoea management

Threats

Key informants in many settings reported that parents' preferences and their expectations of the care provided to their children were oriented towards medicalized care (for instance, preferring intravenous treatment over oral rehydration therapy and several drugs over one, skipping primary care and taking their child directly to specialists at secondary or tertiary care level (if accessible), and seeking more sophisticated diagnostic tests and treatments), which is contrary to the spirit of IMCI. Primary care was often perceived as not offering any services for sick children and was used only for preventive measures, such as immunizations and monitoring visits.

The fact that IMCI training had not been sustained in many countries and areas and had not expanded to undergraduate education indicated that political support for IMCI had been lacking. Findings also suggested that academia, particularly senior university professors and professional associations, had been opposing IMCI for being too simple, which had an impact on its effective integration into pre-service training.

Treatment choices were not always led by evidence-based decisions and guidelines for management of sick children were not always based on the best available evidence. Additionally, health-worker motivation and performance seemed to be strongly linked to incentives (or adverse incentives), such as aggressive pharmaceutical industry marketing of costlier (and more profitable) drugs and formulations.

Frequent parallel training for the same health workers on different childhood aspects, such as IMCI, early childhood development, immunization and breastfeeding, led to overlap and fragmentation of knowledge required for providing quality care to children.

Key points

- Parents' preferences and expectations of care to be provided to their children often veered towards medicalized care. In many settings, parents are skipping primary care and, if accessible, going directly to specialist or tertiary level (it is often perceived that no services are offered for sick children in primary care).
- Political support for IMCI was lacking in several countries and areas.
- Resistance from academia was encountered: if professors were not on board, implementation stalled.
- Countries and areas often did not use evidence-based approaches and guidelines.
- Fragmentation was evident due to parallel training of the same health workers in areas such as IMCI, early childhood development, immunization and breastfeeding.
- Health-worker motivation and performance seemed to be strongly linked to incentives (or adverse incentives), such as aggressive pharmaceutical industry marketing of costlier (and more profitable) drugs and formulations.

Perceived threats are summarized in Table 8.

Table 8. Threats

Themes	Countries and areas in which the theme was mentioned (number out of 14) ^a
Parents' perceptions and expectation are often against the spirit of IMCI and veer towards medicalized care: in many settings, parents are skipping primary care and going directly to specialist or tertiary level (if accessible); often it is perceived that no services are offered for sick children in primary care	Albania, Georgia, Kyrgyzstan, Turkey, Uzbekistan, Kosovo ^b (6)
Political support for IMCI lacking in several countries and areas	Albania, Azerbaijan, Georgia, Russian Federation, Turkey, Kosovo ^b (6)
Resistance from academia (if professors were not on board, implementation stalled)	Armenia, Azerbaijan, Georgia, Kyrgyzstan, Republic of Moldova, Russian Federation, Turkey, Uzbekistan, Kosovo ^b (9)
Countries and areas are often not using evidence-based approaches and guidelines	Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan, Uzbekistan, Kosovo ^b (6)
Health-worker motivation for implementation and incentives or adverse incentives (e.g. from pharmaceutical industry)	Albania, Armenia, Azerbaijan, Georgia, Republic of Moldova, Russian Federation, Uzbekistan, Kosovo ^b (8)

^a Excluding Belarus and Romania, as information collection was not finished or IMCI had not been introduced.

^b In accordance with United Nations Security Council resolution 1244 (1999).

Systems issues affecting implementation of IMCI

Overall, increasing privatization of health services or for-profit medicine and the need to consider economic aspects in the provision of care could be observed in almost all settings. This influenced not only health workers' performance and their ability to adhere to guidelines, but also the development of guidelines themselves.

Difficult working conditions, with low salaries and the absence of opportunities for continuous education and career development, also seem to have had an influence on health-worker performance and motivation. Poor working conditions in relation to infrastructure, such as lack of heating during winter, were reported in some of the

countries and areas, particularly in rural and more remote areas. These conditions created difficulties for performance and provision of quality care.

The findings strongly suggest that performance-payment schemes and indicators, as well as punishing policies and the lack of supportive supervision, were likely to have had an impact on practices. Health systems were often constructed in a way that incentivized hospitalization instead of outpatient care, overtreatment instead of appropriate use of drugs, and use of expensive drugs instead of indicated drugs.

Payment schemes also seem to have promoted hospitalization in some countries and areas with, for example, doctors' salaries being paid according to the number of patients hospitalized, or health insurance schemes covering drugs and diagnostic services for inpatient but not outpatient care. These constituted incentives for hospitalization from the patient (demand) side. Many health systems "no longer desire[d] a healthy child", as one key informant put it, as they required the child to be sick to create revenue, both in relation to carrying out diagnostic test and prescribing medications.

IMCI drugs were included in the national drug lists in almost all reviewed countries and the Kosovo³ drug list and were nominally provided free to children, but parents were often required to pay out-of-pocket for different drugs prescribed to create revenues or other benefits through pharmaceutical companies.

Systems for dealing with children in parallel to the family doctor or paediatrician under public health authorities (such as neuropaediatricians in some of the countries of the former Soviet Union, or ministries of defence running their own health systems) also influenced the overall quality of care provided to children.

Generally, the health sectors in many of the former Soviet Union countries were underfunded, with both expenditure as a proportion of gross domestic product and absolute expenditure remaining low.

Key points

- Increasing privatization of health services and for-profit medicine was seen.
- Health-worker performance and motivation were affected by poor working conditions, low salaries and no opportunities for continuous education/career development.
- Poor working conditions were also seen in relation to infrastructure with, for example, no water, heat or electricity in some primary health care facilities and hospitals.
- Performance-payment schemes and indicators, as well as punishing policies and the lack of supportive supervision, were likely to have had an impact on practices.
- Incentives are in place to promote hospitalization, such as drugs and diagnostic services being provided for free at hospital and payment schemes promoting hospitalization in some countries and areas.
- Competing interests, adverse incentives and external influences have led some informants to suggest that some health systems do not desire healthy children, as they require sick children to create revenue.
- The health sector is underfunded in former Soviet Union countries, with both expenditure as a proportion of gross domestic product and absolute expenditure remaining low.

- Out-of-pocket payments were required in some settings.
- Parallel systems for dealing with children were in place, such as neuropaediatricians in some countries of the former Soviet Union and ministries of defence having their own health systems.

Systems issues affecting implementation of IMCI are summarized in Table 9.

Table 9. Systems issues affecting implementation of IMCI

Themes	Countries and areas in which the theme was mentioned (number out of 14) ^a
Poor working conditions, including low salaries but also no water, no heat, no electricity in some primary health care facilities	Kyrgyzstan, Republic of Moldova, Uzbekistan (no information from Georgia, Russian Federation, Turkey, Kosovo ^b) (3)
Privatization of health services and/or for-profit medicine	Albania, Armenia, Azerbaijan, Georgia, Kyrgyzstan, Republic of Moldova, Russian Federation, Turkey, Uzbekistan (no information from Kosovo ^b) (9)
Incentives for hospitalization, as drugs and diagnostic services are free at the hospital and/or because payment schemes promote hospitalization	Georgia, Kyrgyzstan, Russian Federation, Turkey (no information from Republic of Moldova, Uzbekistan, Kosovo ^b) (4)
Competing interests/adverse incentives or external influence: perception that some health systems do not desire healthy children, as they require sick children to create revenue	Georgia, Russian Federation, Turkey, Uzbekistan (no information from the Kyrgyzstan, Republic of Moldova, Kosovo ^b) (4)
Insufficient drug availability	Albania, Azerbaijan, Kyrgyzstan, Russian Federation, Kosovo ^b (5)
Out-of-pocket payments	Albania, Azerbaijan, Georgia, Republic of Moldova, Russian Federation, Uzbekistan, Kosovo ^b (7)
Parallel system dealing with children (neuropaediatrician in some countries of the former Soviet Union)/ministries of defence having own health system	Georgia, Uzbekistan (2)

^a Excluding Belarus and Romania, as information collection was not finished or IMCI had not been introduced.

^b In accordance with United Nations Security Council resolution 1244 (1999).

Impact

The findings were reviewed and analysed to answer the following question: did the implemented activities lead to the desired outcome and impact?

Mortality reduction and beyond: under-5 mortality

Given the scope of the review, a full impact analysis is impossible. Questions on perceived impact and plausible causes were nevertheless discussed with stakeholders.

All countries and areas have reduced under-5 mortality over the past 20 years, whether IMCI was introduced or not. In the eight in which IMCI was implemented at national scale, under-5 mortality reduced and key informants believed unanimously that IMCI contributed to the reduction, particularly in relation to death from pneumonia and diarrhoea, with IMCI reportedly contributing to the decrease in child mortality at home.

In those not implementing IMCI to a scale at which mortality reduction due to IMCI would be plausible, mortality was reduced regardless. No mortality data or estimates for Kosovo³ are available.

Quality of care for children

IMCI was perceived as having contributed to reductions in unnecessary hospitalization, polypharmacy and the irrational use of antibiotics (Table 10). It was also perceived as having contributed to improved breastfeeding rates and increased parents' knowledge, particularly about danger signs, home care and nutrition.

Importantly, IMCI promoted the adoption and implementation of evidence-based national protocols and their integration into pre-service training curricula. It also contributed to the implementation of other programmes in areas such as immunization and nutrition and the adoption of a policy making drugs available to children under 5 years of age free of charge in many countries and areas.

Table 10. Reported promotion of rational use of drugs in IMCI-implementing countries and areas in the WHO European region

Type of promotion	Countries/areas reporting	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan	Kosovo ^a
IMCI promoted the rational use of antibiotics	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
IMCI decreased polypharmacy	11	+	+	+	+	+	+	+	?	+	?	+	+	+	?
IMCI decreased polypharmacy by:															
- improving prescribing practice through adherence to IMCI algorithm	10	?	+	?	+	+	+	+	?	+	?	+	+	+	+
- addressing parents' expectations through education and counselling	11	+	+	+	?	+	+	+	?	+	?	+	+	+	+

+ = aspect not reported.

? = no information available.

^a In accordance with United Nations Security Council resolution 1244 (1999).

Sustainability

The findings of the review were analysed to answer the following questions.

- Were IMCI services sustainable?
- If services and training were not sustained, why not?

The following criteria were used for assessing the sustainability of IMCI in the 14 countries and Kosovo³ that had started to implement IMCI:

- the legislative base, and rules and regulations for IMCI implementation
- inclusion of IMCI in pre-service and postgraduate training.

Based on the findings, countries and areas were grouped in relation to the sustainability of IMCI (Table 11). Belarus and Romania were excluded from the analysis, as they had not started implementation, and Ukraine was also excluded, as implementation had started only recently and no conclusion could be drawn on whether IMCI implementation will be sustainable in the longer term.

Table 11. Sustainability of IMCI

Countries where IMCI stalled or stopped completely when external support stopped	Countries and areas where IMCI was introduced into pre-service and postgraduate education or where legislative base was adopted	Countries where IMCI implementation was considered sustainable
Albania	Armenia	Kazakhstan
Azerbaijan	Tajikistan	Kyrgyzstan
Georgia	Turkmenistan	Republic of Moldova
Russian Federation	Kosovo ^a (nurses only)	Uzbekistan
Turkey		

^a In accordance with United Nations Security Council resolution 1244 (1999).

It was noted that none of the countries and areas was making available full support for implementation of all three IMCI components.

Taking a closer look: IMCI and the use of antibiotics

While IMCI reportedly improved the rational use of drugs, key informants in most countries and areas reported that overuse of antibiotics persisted. Aspects reported to have influenced this misuse included: (1) circumstantial factors, such as the accessibility of antibiotics over the counter; (2) demand-side factors, such as parents pressuring doctors to prescribe antibiotics and circumventing primary care by accessing secondary specialized care directly; and (3) supply-side or push factors, such as doctors prescribing antibiotics to create additional revenues, being pushed by the pharmaceutical industry, or just to be on the safe side (Box 2).

Box 2. Key informants' comments relating to inappropriate antibiotic use

"There are no incentives to use antibiotics rationally but rather how to optimize your income."

"Parents want antibiotics [even] for viral cases as well as parenteral rehydration and if one doctor does not do [as asked], they go to the next."

"The doctor is coming to the village once a week for *prescription day*."

"Doctors would need to know that one is safe when not prescribing antibiotics."

"Pharmaceutical industry providing incentives to doctors prescribing specific drugs. I can tell by type of drugs who was the doctor who treated the patient."

"[To many parents] quality of care means expensive drugs, [intravenous] treatment and [intramuscular] antibiotics."

"There is a problem with aggressive marketing by pharmaceutical companies – a parent going to pharmacy can be advised to purchase another drug than prescribed by the doctor."

"IMCI provided systematic knowledge allowing to prescribe the treatment confidently. [However,] overdiagnostics and overmedicalization is still a problem."

Table 12 summarizes the number of countries and areas in which key informants reported each of the mentioned aspects.

Table 12. Reported aspects influencing prescription of antibiotics in IMCI-implementing countries and areas

Influencing aspect	Countries/areas reporting	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan	Kosovo ^a
Overuse of antibiotics persists	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Antibiotics can be purchased over the counter	13	+	+	+	+	+	+	+	+	+	?	+	+	+	+
Parents pressure doctors for antibiotics	11	+	+	+	+	+	+	+	+	?	+	?	+	+	?
Parents reported to access secondary care directly	11	?	+	?	+	+	+	-	+	+	+	+	+	+	+
Pharmaceutical industry influences doctors' decisions	13	?	+	+	+	+	+	+	+	+	+	+	+	+	+
Doctors prescribe antibiotics to increase revenues	12	?	+	+	+	+	+	+	+	+	+	?	+	+	+

+ = aspect not reported.

- = aspect reported not present.

? = no information available.

^a In accordance with United Nations Security Council resolution 1244 (1999).

Key informants consistently reported improved prescribing patterns when IMCI training was first implemented, but this was not sustained over time.

Misuse of antibiotics in treating viral upper respiratory infections and watery diarrhoea persisted. In addition to parents' expectations and the just-in-case attitude of doctors, considerations of economic aspects in the provision of care influenced health workers' performance and ability to adhere to guidelines. Often health systems "no longer desire a healthy child", as one key informant put it, as they require the child to be labelled sick to create revenues through carrying out diagnostic tests and prescribing medication. IMCI drugs were included in the national drug lists in almost all reviewed countries and the Kosovo³ drug list and were nominally provided free to children, but parents were often required to pay out-of-pocket for different drugs prescribed to create revenues or other benefits through pharmaceutical companies.

This example shows the need for a more effective implementation framework and monitoring and evaluation systems. Specifically, laws, policies and regulations should be formulated to ensure nondiscrimination, but should also be equitable in their effect. Health systems, throughout their layers and with all stakeholders, must ensure that the principles of nondiscrimination and equality apply to all adopted legislation and that the needs of children who are particularly vulnerable are addressed.

Proposed improvements of IMCI

Several updates and additions to the content of IMCI training were requested or proposed by the key informants and are summarized in Box 3.

Box 3. Areas for potential improvements in IMCI training proposed by key informants

Key informants suggested the following topics be considered for inclusion:

- care for the healthy baby
- congenital problems
- ear, nose and throat conditions
- early childhood development
- counselling for families on the excessive use of electronic devices
- diseases with rashes, including chickenpox
- heart problems
- helminthiasis
- hepatitis
- integrated care of children above 5 years and adolescents
- management of child abuse
- management of nutritional status
- renal problems
- rheumatic diseases
- Salmonella infection
- the premature baby
- the role of vitamin D
- violence against children
- well-child monitoring, including growth-monitoring charts.

Key informants also suggested:

- expanding the syndromic approach of IMCI to include available laboratory tests and diagnostic tools, including the use of stethoscope, otoscope and expansion of symptoms/syndromes;
- adjusting IMCI algorithms with ICD–10, bridging the inconsistencies between the classifications;
- combining the IMCI algorithm and the WHO pocket book for hospital care; and
- developing a pocket book for outpatient care, including online training.

Discussion

Limitations

Many of the reviewers and key informants had an intellectual interest in IMCI, as they have been involved in its development and implementation: this was taken into account when the findings were analysed. Particular care was taken to differentiate between what was considered to be a good idea on a theoretical basis and what was observed to have worked well, and to disentangle policy from what was happening in reality: for example, in many countries and areas, drugs for treating common childhood illnesses were free of charge to parents on paper, but in reality were not.

Opportunities

Several of the system issues could be addressed by taking advantage of the strengths of the IMCI strategy and its implementation. IMCI is widely recognized by all stakeholders as an evidence-based and scientifically sound approach to child health and a tool for improving quality of care for children by promoting the use of standard management guidelines, the rational use of antibiotics, and decreased polypharmacy and unnecessary hospitalization.

At global level, Member States have adopted the United Nations 2030 Agenda for Sustainable Development. The Sustainable Development Goals set out an ambitious agenda for child health and development. If these commitments are to have true meaning in children's and adolescents' lives in the WHO European Region, there must be stronger and more innovative investment in primary health care, bringing together different sectors, enabling national ownership of the processes and leading to more accountable systems, which will ensure sustainability of the work implemented.

IMCI can be the starting point to define what is meant by universal health coverage for children and adolescents. It can further be used as a basis for:

1. conceptualization of child and adolescent health for the European Region;
2. preparation of technical guidelines on essential health care for newborns, children and adolescents at primary health care level;
3. strengthening pre- and postgraduate education for primary care providers dealing with children and adolescents; and
4. ensuring health systems are responsive to the needs of children and adolescents, taking into account the rights of children and adolescents.

In 2018, the world's nations will be celebrating 40 years of the adoption of the Alma-Ata Declaration on Primary Health Care. This presents as an appropriate time for revising and expanding IMCI.

Way forward

The findings of the IMCI review were further analysed in relation to how to improve child health care in the European context with or without IMCI, and how to promote evidence-based treatment, health promotion and disease prevention. The way forward was further discussed and defined during the regional meeting on child health redesign at the WHO Regional Office for Europe, 31 October–2 November 2017.

Several updates and additions to the content of IMCI training were requested or proposed to take account of changing epidemiology, but the inclusion of additional topics will have to be balanced against the risk of including too many issues and losing the focus of IMCI. It was noted that doctors often do not like to deal with care for development, counselling and breastfeeding promotion as they have insufficient time and receive no reimbursement for their inputs: this may have to be addressed.

An outpatient pocket book promoting a child-centred approach and featuring differential diagnosis and when to refer may be considered useful. Guidelines should remain algorithmic but should include differential diagnosis and delineate competencies for different levels of health workers who see children. A revised approach to IMCI is proposed

in Fig. 1. The matrix it presents defines tasks and competencies required for managing common childhood conditions based on prescribing privileges for antibiotics and available diagnostic facilities.

Fig. 1. The proposed revised IMCI approach

	Cough	Diarrhoea	Fever	Young infant	Counselling, health promotion
Nurse without right to prescribe IMCI minus	Assess, refer fast breathing	Assess, manage watery diarrhoea	Assess and refer	Assess and refer, counsel feeding problems	Breastfeeding, nutrition, danger signs, when to seek care, care for development
Nurse with right to prescribe/fieldsher IMCI	Treat pneumonia	Treat dysentery, treat severe dehydration			
Family doctor, general practitioner IMCI plus			Assess child with fever, viral illness, UTI, ear infection, sore throat, urine dipsticks		
Paediatrician	Differential diagnosis pneumonia, bronchiolitis, asthma	Differential diagnosis persistent diarrhoea, diarrhoea and malnutrition		Differential diagnosis, possible sepsis	Diagnosis of developmental delay, failure to thrive
Hospital	Viral tests, X-ray, CRP		Viral tests, CRP	Observation, management, possible sepsis, jaundice, LBW	Lab tests, further diagnostic tests

Note: arrows indicate potential task-shifting according to health-system set-up and requirements.

^a IMCI minus is IMCI for nurses who are not allowed to prescribe. It will include counselling, breastfeeding, assessing for danger signs and referral.

^b IMCI plus is for trained doctors and will include the use of diagnostic tools (such as stethoscopes, otoscopes and laboratory tests) to move to a differential diagnosis and take into consideration the patient's history, as known to the family physician or paediatrician.

C-reactive protein test (CRP), urinary tract infections (UTI), low birth weight (LBW).

Innovative tools and mechanisms to support implementation of standard treatment guidelines, such as supportive supervision and collaborative approaches employing modern technology, may also be promoted.

Regulations, particularly in relation to the prescription of antibiotics (but also for other drugs), incentives (including medical conferences financed by pharmaceutical companies) and selling of over-the-counter drugs, should be enforced. Lessons learnt from implementation of the WHO Framework Convention on Tobacco Control should be drawn on and applied to this context.

Public health authority ownership will remain paramount and must be advocated. The quality of pre-service training is very poor in many settings (no in-service training will ever be able to replace sound pre-service training). United Nations agencies should push for stronger collaboration between public health authorities and academia to ensure that IMCI and other evidence-based guidelines, as well as aspects of quality of care, are introduced to pre-service training.

Children will continue to have several episodes of respiratory infections and diarrhoea (viral or bacterial) during the first years of life, and antibiotics will continue to be the most commonly prescribed medications given to children (3). The renewed IMCI approach must build on its sound foundations to support health workers in making evidence-based decisions and confronting parents' expectations.

More must be done to end the indiscriminate use of antibiotics and ensure that children get antibiotics only when they need them. The renewed IMCI approach must put the rational provision of antibiotics to children at its core.

In addition to continued support to improve and enable health-worker performance, patient and parent education and improved regulations, concerted efforts are required to develop point-of-care tests that reliably differentiate between viral and bacterial infections in children. These must be made available urgently to low- and middle-income countries and areas at affordable prices to end the misuse of antibiotics in children.

Further reflection on review findings: children's rights

The regional review has demonstrated the impact of IMCI in the countries and areas assessed in terms of the implementation of evidence-based medicine and outcomes for children. As the report emphasizes, success must be sustained and more needs to be done to ensure that children receive health care that is appropriate to their health, well-being and development in a holistic way. To achieve this, it is useful to contextualise the study findings in the broader framework of children's rights and child well-being.

All children have needs that are inherent to them as human beings and which change with their age and development. These needs are complex and interact with one another, so must be addressed together.

When treating a child, health professionals will not only be dealing with a specific disease, but also with an individual who has a background, culture and views, as well as physical, mental, emotional and spiritual needs. The Convention on the Rights of the Child states that the best interest of the child should take primary consideration in all decisions affecting children. This principle entails that all actions should be read in light of all children's needs and rights and, in particular, the vision of childhood presented in the Convention. This report has shown that systems are often constructed in a way that incentivizes hospitalization instead of outpatient care, overtreatment instead of appropriate use of drugs, and use of expensive drugs instead of indicated drugs. This construct of the system must be assessed in terms of the impact it has on children's health and well-being and improved accordingly.

A rights-based approach to child health requires systematic attention to children's rights and related principles. The IMCI study has found the following areas of concern (Table 13):

- low consistent availability of free-of-charge drugs for children;
- equity concerns in relation to children living in remote areas;
- integration of IMCI into pre-service training has been achieved in a limited number of countries and areas;
- inconsistencies with existing policy requirements and differences between what is provided by policy or guidelines and what is effectively delivered;
- a strong preference among parents for medicalized care; and
- persistent use/overuse of antibiotics.

Table 13. Themes arising from IMCI review in relation to children's right to health

Theme	Countries/areas reporting	Albania	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan	Republic of Moldova	Russian Federation	Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan	Kosovo ^a
Low consistent availability of free-of-charge drugs for children	10	+	+	+	+	-	-	-	+	+	+	-	+	+	+
IMCI strategy did not sufficiently consider equity concerns	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
IMCI implementation stopped once external support ceased	6	+	-	+	+	-	-	-	+	-	+	-	-	-	+
Integration into pre-service training was not achieved	7	+	+	+	+	-	-	-	+	-	+	-	/	-	+
Focus on health-worker training	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Incongruences with existing policy requirements	6	-	-	+	+	-	-	-	+	?	-	+	+	+	-
Preference of parents for medicalized care	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Persistence of overuse of antibiotics	14	+	+	+	+	+	+	+	+	+	+	+	+	+	+

+ = aspect not reported.

- = aspect reported not present.

? = no information available.

^a In accordance with United Nations Security Council resolution 1244 (1999).

Article 24 of the Convention, on children's right to the highest attainable standard of health, states that health care services should be available, accessible, affordable and acceptable, without discrimination of any kind. This means that functioning public health and health care facilities, goods and services must be **available** in sufficient quantity within a country or area. They must be **accessible physically** (in safe reach for all sections of the population, including children, adolescents, older people, people with disabilities and other vulnerable groups, and people living in remote areas) as well as **financially**, and be delivered on the basis of nondiscrimination. Accessibility also implies the right to seek, receive and impart health-related information in an accessible format (for all, including people with disabilities), but does not impair the right to have personal health data treated confidentially. Facilities, goods and services should also respect medical ethics, and be gender-sensitive and culturally appropriate. In other words, they should be medically and culturally **acceptable**. Finally, they must be scientifically and medically appropriate and of **good quality**. This requires, in particular, trained health professionals, scientifically approved and unexpired drugs, and functioning equipment, adequate sanitation and safe drinking water (4).

Children's needs are complex, and so must be health-system responses. The Convention provides for a comprehensive framework based on the rights of the child. The implementation of this framework should entail:

- a rights-based national regulatory framework, including legislation, policies and programmes (5);
- an implementation framework, including effective monitoring and evaluation systems, data-collection mechanisms and analysis (6, 7);
- sustained investment towards implementation of an effective health care system;
- training of the workforce in areas including evidence-based medicine and regulatory frameworks; and
- programmes for parents to ensure appropriate health-seeking behaviour (8).

Conclusion

The IMCI strategy has come a long way in promoting evidence-based medicine and the rational use of drugs in Europe. IMCI implementation in most countries and areas, however, showed insufficient consideration of health-system requirements and need for reforms, which needs to be addressed. Health workers should be sufficient in number, receive appropriate remuneration and be trained in evidence-based practice before deployment, and be able to access continuous medical education thereafter. The assumption that health-worker training by itself leads to performance improvement is misleading and neglects the role of other components of the health system in ensuring optimal health outcomes for children.

The renewed IMCI approach must build on its sound foundations to support health workers in making evidence-based decisions and confronting parents' expectations.

Poor planning and insufficient public health authority resources for follow-up visits after IMCI training eventually led to dissolution of acquired knowledge and skills. The lack of supportive supervision reflects overall weak quality improvement systems in place. Innovative tools and mechanisms to support implementation of standard treatment guidelines, such as supportive supervision and collaborative approaches employing modern technology, may be worth promoting.

A matrix approach is proposed for IMCI, delineating tasks and competencies required for managing common childhood conditions based on prescribing privileges for antibiotics and available diagnostic facilities. This matrix can help address issues in training, professional privileges, referral pathways and use of antimicrobials, and result in better treatment for children.

The renewed IMCI approach must put the rational provision of drugs in general and antibiotics in particular at its core.

More must be done to end the indiscriminate use of antibiotics and ensure that children get antibiotics only when they need them. Provider training, patient and parent education, and adequate enforced regulations will go a long way to reducing unnecessary antibiotic use. The game-changer, however, would be to enable access to reliable and affordable point-of-care tests that can differentiate between bacterial and viral infections, should they become available.

Public health authority ownership will remain paramount and must be advocated. Public health authorities need to honour their responsibilities under the Convention on the Rights of the Child to provide adequate care for all the children in the country. IMCI is not an excuse for providing substandard care to parts of the population.

Vignettes of IMCI implementation from selected countries are presented in Annex 2 and from Kosovo³ in Annex 3.

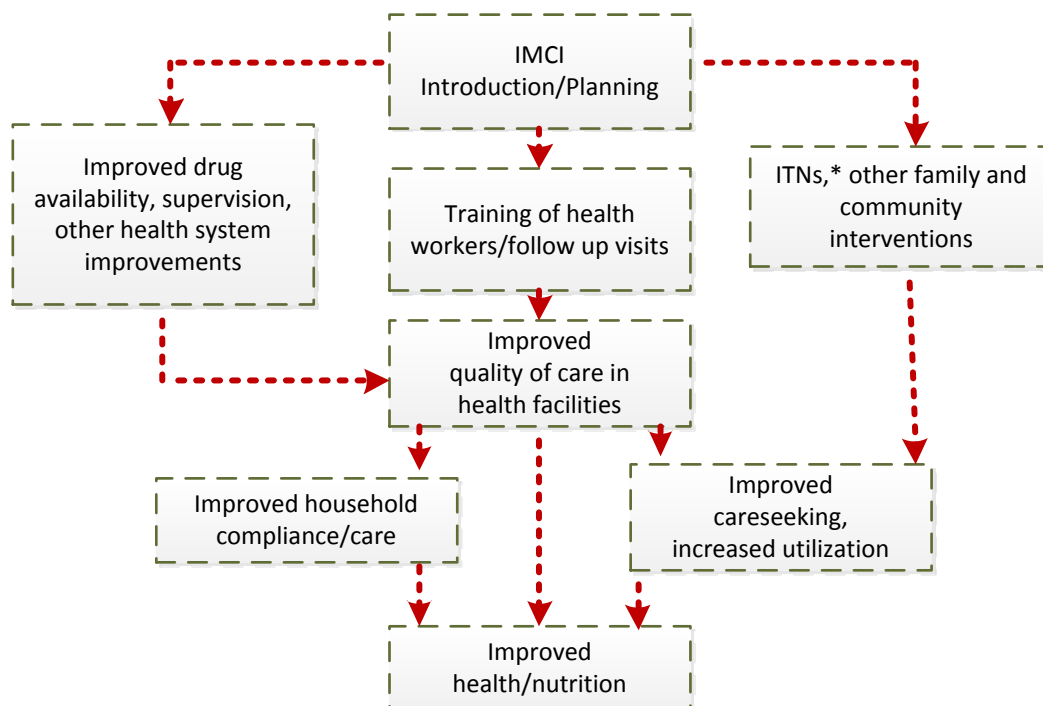
References

1. Duke T, Keshishiyan E, Kuttumuratova A, Ostergren M, Ryumina I, Stasii E et al. Quality of hospital care for children in Kazakhstan, Republic of Moldova, and Russia: systematic observational assessment. *Lancet* 2006;367(9514):919–25.
2. Rechel B, Richardson E, McKee M. Trends in health systems in the former Soviet countries. *Eur J Public Health* 2014;24 (Suppl_2). Chapter 1, p.1 Copenhagen: WHO Regional Office for Europe; 2014 (<http://www.euro.who.int/en/publications/abstracts/trends-in-health-systems-in-the-former-soviet-countries-2014>, accessed 8 December 2017).
3. Rogawski E, Platts-Mills J, Seidman J, John S, Mahfuz M, Ulak M et al. Use of antibiotics in children younger than two years in eight countries: a prospective cohort study. *Bull World Health Organ.* 2016;95(1):49–61.
4. Office of the United Nations High Commissioner for Human Rights, World Health Organization. The right to health. Geneva: Office of the United Nations High Commissioner for Human Rights; 2008 (Fact Sheet No. 31; <http://www.ohchr.org/Documents/Publications/Factsheet31.pdf>, accessed 8 December 2017).
5. Technical guidance on the application of a human rights-based approach to the implementation of policies and programmes to reduce and eliminate preventable mortality and morbidity of children under 5 years of age. Geneva: Office of the United Nations High Commissioner for Human Rights; 2014 (<http://www.ohchr.org/EN/Issues/Children/TechnicalGuidance/Pages/TechnicalGuidanceIndex.aspx>, accessed 8 December 2017).
6. Children's rights in primary health care. Volume 1. Manual and tools for assessment and improvement. Copenhagen: WHO Regional Office for Europe; 2015 (<https://www.kompetansebroen.no/wp-content/uploads/2016/12/Childrens-rights-PHC-Volume-1-Manual-and-Tools-en.pdf>, accessed 8 December 2017).
7. Guerreiro A, Kuttumuratova A, Monolbaev K, Boderscova L, Pirova Z, Weber MW. Assessing and improving children's rights in hospitals: case studies from Kyrgyzstan, Tajikistan and Moldova. *Health Hum Rights* 2016;18(1):235–48.
8. General comment No. 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health (art. 24). Geneva: United Nations Committee on the Rights of the Child; 2013 (<http://www.refworld.org/docid/51ef9e134.html>, accessed 8 December 2017).

Annex 1. Integrated Management of Childhood Illness (IMCI) impact model

An outline of the IMCI impact model is shown in Fig. A1.1.

Fig. A1.1. IMCI impact model



Source: The multi-country evaluation of IMCI effectiveness, cost and impact (MCE). Progress report May 2001–April 2002. Geneva: World Health Organization; 2002 (WHO/FCH/CAH/02.16; <http://apps.who.int/iris/handle/10665/67381>).

*INTs – Insecticide-Treated Mosquito Nets.

Annex 2. Vignettes from selected countries

Albania – IMCI review

Background

The strategy for Integrated Management of Childhood Illness (IMCI) was introduced in Albania in 2001 to address high child mortality rates caused by preventable diseases, the poor quality of health care provision in rural areas and the widespread misuse of drugs (including under- as well as overuse). Child health care in urban areas is mainly the responsibility of paediatricians, while family physicians provide care for children in rural areas.

With support from WHO, the United Nations Children’s Fund (UNICEF) in Albania and the WHO office in Pristina, a national IMCI orientation meeting was held in 2001 and IMCI was piloted in two districts (Bulçiza and Pogradec). Several paediatricians working in hospitals were included in IMCI training activities to ensure their understanding of the IMCI classification and to facilitate referrals. Despite the Ministry of Health’s endorsement of IMCI and a successful launch, nationwide expansion did not occur after donor support ceased.

The hospital-care component was never introduced, but some efforts were made to introduce the IMCI community component; this did not, however, extend beyond a project approach implemented by nongovernmental organizations (NGOs) and was limited in time and reach.

Findings according to the conceptual framework

Relevance and input

Key informants considered the IMCI strategy relevant for the Albanian context at the time of introduction. Neither the notion of IMCI being relevant only to low-resource settings nor the experience of academic resistance on the grounds of IMCI being too basic were reported. While none of the IMCI components is now being implemented, key informants stated that IMCI would still be relevant at primary health care level: family physicians feel strongly that additional professional training is required to support them in responding to the health care needs of their paediatric patients, especially in rural areas.

While most of the IMCI drugs were officially included in the national essential drug list, not all are considered relevant, as providers prescribe different drugs.

Efficiency and process

Health-worker training and the community and health-system components were piloted but not implemented systematically, and hospital IMCI was never introduced.

Training coverage of primary health care providers (general practitioners and nurses) was very high (more than 90%) in covered districts, but IMCI was not included in individual health care staff contracts with the national health insurance fund and only a few regions (Pogradec, Kukës, Korça, Elbasan, Bulçiza and Dibra) were covered with training. Supportive supervision and monitoring were in place as long as external financial resources were made available. Training, however, was considered more important than supervision, and at some stage the budget made available for supervision was used for additional training.

While most of the IMCI drugs are included in the national essential drugs list, emergency drugs are not available around the clock at health facilities, including pre-hospital treatment. The national health insurance fund reimburses all IMCI drugs if they are prescribed by a family physician. Key informants stated that Ministry of Health support was strong. In-service IMCI training of 11 days was considered too long and difficult to implement due to lack of sufficient health care workers to backfill for the trainees. The IMCI Computerized Training and Adaptation Tool (ICATT)⁵ is unknown to key informants and seems never to have been introduced. They suggested that nationwide coverage was never envisioned due to lack of donor support.

Efficiency and output

None of the IMCI components has been implemented in Albania since 2007.

Effectiveness and outcome

Key informants stated that IMCI was among the first initiatives promoting evidence-based medicine. It is reported to have changed the mind-sets of most trained health workers, while reported reasons for nonimplementation related to issues such as lack of IMCI supporting documents, forms and mothers' cards.

While key informants reported some parental resistance to IMCI's promotion of reduced use of drugs, IMCI generally seems to have been well accepted by parents.

Impact

Given the limited implementation, no impact on national under-5 mortality rates can be expected. In districts where IMCI was implemented, however, key informants reported that family physicians had increased competence and confidence in addressing common childhood conditions (as observed during follow-up visits), had improved diagnostic skills and were more likely to make rational referrals and admissions to hospitals. Parents' improved child-care skills, which included awareness of danger signs, resulted in improved care-seeking and better nutrition for children.

Sustainability

While reportedly considered a useful approach to children that had full Ministry of Health support, activities ceased as soon as external support (mainly from UNICEF) ended. Neither records of a review meeting nor the development of an exit strategy are available.

⁵ ICATT is an innovative software application to support the implementation of the WHO/UNICEF strategy on IMCI. The tool provides the possibility to adapt the generic IMCI guidelines at national and subnational levels, and to develop ICATT-based training courses that fit into various training approaches.

No legislation, policies or strategic documents were developed to support IMCI implementation. Supervision was neither included in job descriptions nor supported financially, so regular monitoring/follow-up visits after training stopped.

Reportedly, IMCI was adapted to meet medical-school requirements for introduction into the undergraduate medical education curriculum, but no evidence could be found during the review to support this claim.

Key themes arising from IMCI review in Albania

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants stated that use of the IMCI algorithm in primary care promoted the rational use of drugs, particularly antibiotics. It was also considered to have contributed to changing families' perceptions towards recognizing that treatment with drugs is not always required or beneficial. Population behaviour changed towards less use of antibiotics and, especially, fewer injections. As a consequence, IMCI has reportedly decreased overtreatment.

Promoting evidence-based and systematic care

Key informants stated that IMCI has advanced the implementation of evidence-based medicine. IMCI systematized the approach to children and improved health workers' confidence in caring for children.

There are, however, no data available in Albania supporting the claim that IMCI implementation decreased unnecessary hospitalization or lengths of hospital stays.

Identification of severely ill children

Key informants reported that IMCI is considered a reliable way of identifying severely ill children timeously and avoiding serious conditions being missed through its systematic identification of danger signs.

Beyond survival

IMCI improved and standardized counselling skills on, and approaches to, treatment, danger signs and immunization aspects, and improved understanding of the importance of a patient-centred holistic approach. In doing so, it contributed to improvements in quality of care. IMCI reportedly also increased parents' knowledge about feeding practices, danger signs, vaccination, antibiotic administration, and preparation and administration of oral rehydration therapy. Key informants asserted that improved counselling skills specifically helped to increase nurses' roles.

Shortcomings

ICD-10 versus IMCI classifications

The use of IMCI classifications was not officially regulated, so International Classification of Diseases 10 (ICD-10) was used instead, although classification of the degree of severity in primary health care was based on IMCI. These incongruences between IMCI and ICD-10 classifications created misunderstandings and miscommunication among health care levels. No efforts to address this issue were made and the relationship between IMCI classification and ICD-10 was neither officially reviewed nor discussed.

Dogmatic positioning of IMCI and professional resistance

While academia in Albania reportedly did not dismiss IMCI as being too basic or resisted it actively in other ways, the enthusiastic support needed for successful inclusion of IMCI in undergraduate curricula could not be found.

Health centres are usually equipped with a set of basic laboratory tests, stethoscopes, otoscopes and other equipment that is not included in IMCI, and often do not have a sustainable supply of drugs on the essential drug list. Both factors may render IMCI implementation difficult.

Unrealistic requirements/incongruence with other policies

Child health care in cities and/or urban primary health care facilities is the exclusive responsibility of paediatricians. IMCI is therefore not being implemented, as paediatricians were not included in training.

Materials required for IMCI implementation (IMCI forms, health education materials, chart booklets) were not made available on a regular basis and not at all after donor support stopped.

Competing interests/external influence

General practitioners have reported improved competencies and confidence, but it was stated that they also remain under considerable pressure from parents to prescribe drugs, even when they are not needed. While improved, parents' expectations regarding unnecessary treatment with drugs and diagnostic procedures persist, fuelled by private practices not following IMCI recommendations. Reportedly, better-off parents skip primary health care and go directly to district or regional hospitals, where there are better conditions and diagnostic facilities. It is suggested that generally, the inclination is towards a preference for specialist over primary health care. The population believes more in paediatricians' capabilities and remains reluctant to bring children to general practitioners or family physicians in primary health care facilities, mostly because of the inherent perception that quality of care equals treatment with expensive drugs, intravenous treatment and/or treatment with intramuscular antibiotics.

Specialists reportedly are disposed to accommodate parents' wishes to increase their income. Key informants stated that doctors and nurses generally do not earn sufficiently to provide for their families (anecdotally, the monthly salary of a family physician and paediatrician at primary health care level is €200–300). Doctors and nurses are given money or gifts to deliver better treatment and information, both crucial aspects in the use of health services and facilities.

Except for the reimbursement procedure for drugs through the national insurance fund, no control mechanism exists to monitor over-the-counter sales of drugs in pharmacies.

Deficiencies in medical education constitute a key issue; the current focus is on memorization rather than practical approaches.

Private sector and out-of-pocket payments

Key informants referred to the national data that indicated that the lowest income quintile, the share of total out-of-pocket spending on inpatient services has risen to 60% of total monthly household expenditure; patients visiting public health centres are still required to pay out of pocket for many services and drugs that otherwise would be free of

charge. Patients have been required to pay a small fixed co-payment per visit for primary health care visits or specialized treatment in hospital since 2008. The incidence of catastrophic out-of-pocket payments remains high, although it has decreased proportionately for the poorest quintile (from 29.9% in 2002 to 28.7% in 2005 and 20% in 2008).

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- linking IMCI implementation to appropriate payment systems for doctors and nurses;
- adapting IMCI standards of care and algorithms so they can be adopted by the health insurance fund and included in its contracts with health care staff;
- making IMCI documentation and forms part of medical records in primary health centres and including IMCI in the monitoring and quality evaluation of services carried out by the health insurance fund;
- integrating IMCI training (and/or ICATT) into continuing medical education for primary health care workers; joint doctor–nurse training would be desirable; and
- adjusting IMCI algorithms with ICD–10 and developing a pocket book for outpatient training, including online training.

Armenia – IMCI review

Background

At the time of the introduction of IMCI in 1999, Armenia had an under-5 mortality rate of 28/1000.

Training materials were adapted and IMCI was included in the UNICEF action plan by the end of 1999. IMCI was piloted in Ijevan (Tavush marz) in 2001, with consecutive training in Martuni (Gegharkunik marz) and Artik (Shirak marz) and, a year later, in Ijevan. After evaluation of the pilot projects, the IMCI strategy was adopted as a national programme in 2003 and nationwide implementation took place, with all districts involved. All three components were implemented and the hospital component was introduced.

Currently, the IMCI programme is being implemented in Yerevan. About 1500 primary health care providers nationwide have been trained and are using IMCI approaches in the management of child health problems. An attempt was made to integrate IMCI into pre-service training, but with limited success. Some components of IMCI health-worker training have nevertheless been included in continuing medical education.

Most of the training and the IMCI drug supply for primary health care facilities were provided through financial and technical support from UNICEF. World Vision, the United Methodist Committee on Relief (UMCOR) and International Relief and Development contributed to implementation of the IMCI strategy in some regions. Under-5 mortality went down to 13/1000 in 2015 and reportedly IMCI contributed to this reduction.

Findings according to the conceptual framework

Relevance and input

Key informants considered the IMCI strategy very relevant for the Armenian context. IMCI was and remains useful for the country, especially for nurses working at primary health care level in rural areas, where no doctor is available. While relevant for nurses who carry out home visits and refer children to the doctor, however, IMCI is considered insufficient for doctors. Key informants believed that IMCI presented a clear algorithmic approach for case management that is especially useful for the management of diarrhoea, but less so for the management of pneumonia. Doctors report that they need more detailed guidelines and sophisticated approaches than is covered by IMCI. X-ray is easily accessible.

Key informants asserted that IMCI allows medical staff to ensure any serious conditions are not missed, but it should be harmonized with other guidelines. When the child's condition is not covered by the IMCI algorithm, differential diagnosis should be applied. Key informants considered the involvement of parents and increasing their knowledge of danger signs particularly relevant. They believed that IMCI is still relevant today, as there is a lack of human resources, high turnover of medical staff, and no paediatricians at primary health care level (paediatricians were re-qualified as family doctors). Family doctors with no paediatric background avoid consulting children, whenever possible.

Efficiency and process

According to key informants, all three components of the strategy have been implemented nationwide, with the exception of Yerevan. The mother and child health (MCH) department of the Ministry of Health, IMCI coordinator and relevant experts were involved in implementing the programme.

IMCI implementation started in the pilot districts and was then scaled up to 10 districts. Most (but not all) staff from primary health care level in the implementing districts were trained. The capital city of Yerevan was involved only partially (family doctors from two ambulatory clinics were trained). The focus was on district-level implementation, as problems there were more severe in 1999. Later, the community component was implemented and the hospital component was introduced.

Efficiency and output

Training covered mainly family doctors and paediatricians and, in the regions, nurses who provide care through feldsher-accoucher posts; they are supervised by medical doctors from primary health care facilities.

IMCI training initially was provided as a 13-day course, including two days for the community component. Later, the course was shortened to five days. According to key informants, the efficiency of IMCI implementation was much diminished by high staff turnover. There was an attempt to integrate IMCI training modules into the pre-service curriculum for the medical university and colleges, but its extent is unknown and its effectiveness questionable; key informants suggested this was due mainly to resistance from representatives of the academic community. They also reported that new graduates are unable to apply the IMCI chart booklet.

An IMCI review was conducted in 2008 and another in 2015 in five regions and in Yerevan. The biggest challenge in IMCI implementation was monitoring. An attempt was made to

establish a supportive supervision system, but the current health inspectorate is a more controlling and punitive mechanism. A second problem mentioned by key informants was IMCI not being implemented in primary health care in Yerevan city, although one third of children live in the capital. International organizations supported IMCI implementation at district level, but not in Yerevan; IMCI and breastfeeding-programme implementation were more successful in the regions. The WHO pocket book of hospital care for children was updated and re-printed in 2015 with support from WHO.

Training on IMCI and nutrition (10-day training programme – five days' IMCI and five days' nutrition) was conducted with UNICEF support at primary health care level in all regions (except for Yerevan) in 2014 and 2015.

Key informants stated that IMCI was in line with other programmes and that there are no contradicting policies. The last IMCI training was carried out in combination with training on nutrition for children.

Effectiveness and outcome

IMCI has been endorsed as the national standard of care for primary health care level and all children up to 7 years are entitled to receive medical care and drugs free of charge at all levels of care. Children older than 7, however, have access to free medication only for special conditions, or if they are included in vulnerable groups. IMCI drugs have been included in the national essential drug list, but there is no mechanism for IMCI drug procurement. IMCI helped to reduce unnecessary use of antibiotics in primary health care.

Key informants asserted that IMCI helped rationalize the use of intravenous injections and antibiotics.

Unnecessary hospitalization rates went down after IMCI implementation. After implementation of the child health certificate programme in 2011, however, state financing for paediatric hospital care to improve access to hospital doubled. As financing of hospitals is allocated on a case basis, unnecessary hospitalizations became an issue again.

IMCI implementation strengthened other health programmes linked to IMCI, such as immunization and nutrition. Key informants reported, however, that doctors do not follow the IMCI algorithms strictly.

Impact

An analysis of IMCI implementation in 2002 showed a decrease in child mortality in hospitals as well as at home. Mortality and morbidity from diarrhoea and pneumonia were considerably decreased, and very severe cases are no longer seen as often. The same study reportedly showed the cost-effectiveness of IMCI in the Armenian setting.

Sustainability

According to key informants, implementation of the IMCI strategy receives considerable support from the Ministry of Health at national level, as well as from administrators at regional and health-facility levels. However, the Government/Ministry of Health is unable to assure scaling up without further donor support. Except for drugs, no state financing is made available: WHO and UNICEF support IMCI implementation.

Attempts to include IMCI modules in medical university training curricula started in 2004, but current undergraduate and postgraduate medical curricula include only some IMCI elements, mostly related to the management of diarrhoea and acute respiratory infections. Training on the WHO pocket book of hospital care for children is reportedly not included.

Key informants concluded that IMCI in Armenia is only partly sustainable.

Key themes arising from IMCI review in Armenia

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants stated that rational use of drugs improved and fewer intravenous injections are prescribed, particularly due to the use of rehydron.⁶

Promoting evidence-based and systematic care

Key informants stated that IMCI has been endorsed as the national standard of care at primary-care level and promotes evidence-based medicine and a systematic approach to the child. Referrals to hospitals have been systematized, based on IMCI criteria, and unreasonable hospitalization decreased after IMCI implementation. The introduction of the child health certificate programme in 2011, however, seems to have counteracted part of this progress. Social admissions to hospitals for children from vulnerable groups who would not receive proper care at home were also reported.

Identification of severely ill children

Key informants appreciated IMCI as a useful algorithm that helps with triage of patients, especially where no other tools are available. IMCI supports the provision of quality services and helps to avoid mistakes and missing serious conditions.

Beyond survival

No information was available in this area.

Shortcomings

ICD–10 versus IMCI classifications

According to key informants, discrepancies between IMCI and ICD–10 classifications pose some challenges. While the decision for referral is based on IMCI classification, the referral diagnosis needs to be formulated according to ICD–10 for the child to be accepted for admission to hospital. Standard IMCI medical records and forms are not in line with ICD-10. No attempt has been made to reconcile the two systems or conduct special training. Key informants, however, consider IMCI classification to be important, as the degree of severity of the child's condition is identified through IMCI classification.

Dogmatic positioning of IMCI and professional resistance

Key informants reported that resistance from professional associations and specialists from universities and colleges in the capital has hindered IMCI implementation, causing delays

⁶ Rehydron in one litre of water contains: 10 g glucose, 2.9 g natriumcitrat, 3.5 g natriumchlorid, and 2.5 g kaliumchlorid. The WHO recommendation for oral rehydration therapy in 1 litre of water is: 13.5 g glucose, 2.9 g natriumcitrat, 2.6 g natriumchlorid, and 1.5 g kaliumchlorid.

and diverting resources to conflict-resolution. Professional associations were not involved in adaptation of the IMCI algorithms or the pocket book. While IMCI protocols for primary health care level have been approved by the Ministry of Health, they are not recognized by all professionals, and the WHO pocket book is not accepted as a standard treatment guideline for hospital care. Doctors reject the pocket book, as they consider that it does not advocate appropriate management of severe cases. Many hospitals use European and/or United States guidelines, and specialists often promote their own visions and protocols. Key informants also reported that professionals working at primary health care level in the capital were not included in IMCI training; they now reject IMCI as being too basic and arguably only suitable for district level.

Unrealistic requirements/incongruence with other policies

Key informants reported that a range of guidelines exists. Often, it is not clear to doctors which are Ministry of Health-recommended protocols: three types of protocols exist for anaemia management, for example. Laboratory tests are usually used to confirm diagnosis of anaemia based on palmar pallor (which is not included in the IMCI algorithm). While IMCI does not foresee referrals of children to otorhinolaryngologists, this nevertheless is happening, as otorhinolaryngologists are available at some polyclinics. When a child has ear pain, high fever and pus in the ear, practitioners do not wait 14 days (as suggested by the IMCI protocol in Armenia), but release the pus and prescribe antibiotics. Otorhinolaryngologists' and ophthalmologists' prescriptions reportedly sometimes conflict with IMCI protocols. Key informants also reported discrepancies between drugs to be prescribed based on IMCI protocols and available drugs: for example, phenobarbital is not registered in the country, but is advocated for use by the WHO pocket book. In addition, drugs recommended by national protocols are not in line with IMCI and the pocket book. Ministry of Health ordinances issued in relation to the management of the 'flu epidemic also contradict IMCI protocols, as they require 100% hospitalization of children with unspecific symptoms during the epidemics.

Key informants also noted concerns regarding IMCI reporting, as primary health care facilities are required to print IMCI forms from the institution's budget, and IMCI forms reportedly are often unavailable. Even when available, IMCI forms are often either completed inappropriately or not at all: the forms are optional and, given that many doctors in primary health care report being overloaded with paperwork, priority is given to those medical forms/records made mandatory by Ministry of Health orders.

IMCI indicators are not included in the national health information system.

Competing interests/external influence

Primary health care professionals reportedly receive a low salary, are overloaded with paperwork and are not very motivated to work with children: they find it much easier to refer children to hospital rather than treat them at primary health care level.

One of the barriers to IMCI implementation reported by key informants is that parents sometimes insist on antibiotics and injections and/or ask to be prescribed more drugs. Aggressive marketing by pharmaceutical companies promotes use of non-IMCI drugs. No prescription is needed to buy drugs in pharmacies (except for opiates and neuroleptics), and pharmacists reportedly often suggest drugs other than those prescribed by the doctor.

Key informants also reported that the child health certificate programme introduced in 2011 incentivizes unnecessary hospitalization.

Some IMCI indicators are included in the performance-based remuneration system for primary health care providers, and they receive bonuses. There is no evidence available on how these affect IMCI implementation and adherence to protocols.

Private sector and out-of-pocket payments

All IMCI drugs have been included in the national essential drug list and all children up to 7 years are entitled to receive medical care and drugs free of charge at all levels care. Children older than 7 have access to free medication only for special conditions or if they are included in vulnerable groups. Reportedly, it is difficult to access free medication, as many documents signed by different people are required. Consequently, parents reportedly often prefer to buy drugs directly at the pharmacy. In addition, prescribed drugs are often not on the essential drug list and parents are required to buy and pay for them themselves.

Key informants provided different accounts in relation to the extent of available private services in Armenia and the use of IMCI in the private sector. Some private clinics, mainly at hospital level, receive state financing, while most primary health care facilities are public. In private clinics, national protocols and IMCI are not used.

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- extending IMCI to include algorithms for management of chickenpox, Salmonella infection and ear, nose and throat conditions;
- involving senior professors in guideline development and training implementation;
- including pharmacists in IMCI training, as they may recommend different drugs than indicated;
- providing special training (or, at minimum, instruction) on how to bridge incongruencies between IMCI and ICD-10 classifications; and
- strengthening the IMCI community component, including providing information on: danger signs and when to seek care (including hospitalization); how to manage child status at home (there is not always a need for additional X-ray examination or laboratory tests); and treatment with antibiotics (especially in Yerevan).

Azerbaijan – IMCI review

Background

After the first regional IMCI introduction meeting in the WHO European Region in 1997, Azerbaijan and Kazakhstan were identified as the first pilot countries to adapt and implement the strategy. Implementation started in 2002, following IMCI guidelines adaptation.

IMCI was implemented in 26 districts, including five pilot project areas for health-sector reform, with technical support from WHO, UNICEF and a number of international partners

in the country. The active phase of training and monitoring activities and drug provision took place between 2002 and 2006, resulting in over 550 health professionals, mainly paediatricians, general practitioners and nurses, being trained. Post-training follow-up visits have been conducted in 21 districts, covering 70% of trained staff.

An international consortium of NGOs funded by the United States Agency for International Development (USAID) has provided support, primarily for the training component in pilot districts. IMCI clinical elements, such as the management of acute respiratory infections and diarrhoea, were included in the training curricula of the Azerbaijan Medical University. Despite positive feedback from health workers, programme managers and donors, and the progress achieved in 26 districts that was discussed at the national IMCI review meeting in 2007, IMCI implementation has not been scaled up further. The national expert group, with support from WHO, submitted a long-term IMCI national strategy and action plan to the Ministry of Health for review and approval in 2007/2008, but they have not yet been adopted by the ministry.

Findings according to the conceptual framework

Relevance and input

Key informants acknowledged that at the time of introduction, IMCI was useful for nurses, feldshers and physicians in remote areas due to their lack of access to updated clinical and scientific information. Health workers in rural areas can still benefit from the strategy, especially in assessing general danger signs. It was conceded that guidelines on child care such as IMCI have the potential to improve first-level health care in Azerbaijan, as they define a standard approach. Some respondents pointed out that this rational approach is needed now, but mostly at hospital level. The Ministry of Health did not always support the strategy because they associated it with developing countries, although a clear understanding and awareness of IMCI was shared among major national child experts at the time of its active implementation.

Initially, IMCI had good coordinated support with a trained team of experts, but later it became weak and inefficient due to the lack of national programme management and funding. Interviewed experts suggested that an IMCI standard of care may be very relevant currently, as Azerbaijan is in the process of introducing a compulsory health insurance system. This system is being piloted in a few regions and should be implemented countrywide soon in accordance with a Presidential instruction. IMCI was recognized as being a useful clinical approach that should be taught to primary health care workers and medical students.

Efficiency and process

“Strengthening system support” and “Improving skills of health workers” were considered as most useful for the country and were covered through projects. The clinical component was implemented more efficiently than the two others. Only Mercy Corps supported community activities in its pilot regions.

Key informants noted provision of essential IMCI medicines, and lack of first-dose antibiotics and basic equipment (such as scales) as problems. Lack of IMCI forms, duplication of records in medical charts and additional paperwork were defined as system barriers, but feedback from health workers after training and monitoring visits was always

positive. There was no thorough evaluation of the impact of the health-system support component, and no possibility for comparative evaluation.

IMCI elements are taught partially to some students in the Medical University and are included in examinations, but this is not common.

Efficiency and output

Over 550 health professionals, mainly paediatricians, general practitioners and nurses from 26 districts, including five pilot project areas for health-sector reform, were covered by IMCI training. Donors provided basic equipment and supplies to help trained providers to use their new knowledge and skills for the period of project activities, while the Ministry of Health helped out with provision of some drugs and administrative and organizational support for training. Projects built the capacity of a national group of facilitators and supervisors and even provided financial incentives (fees) for trainers and trainees.

Only some elements of IMCI (acute respiratory infection, diarrhoea, general danger signs and breastfeeding) were introduced to teaching curricula. Two hundred volunteers were trained to teach families with children less than 5 years old on care for healthy and sick children in families. Drugs and supplies were included in the national essential drug list, and those that were available during patient visits were free of charge.

Effectiveness and outcome

Although IMCI pilot implementation was expanded from the few initial districts to 26 districts, it was not taken by the country to national scale and stalled once funding from developmental partners terminated. Supervisors always heard and documented positive reflections on IMCI's evidence-based approach and systematic way of assessing and treating sick children when they conducted follow-up visits to trained health workers in most of the pilot districts. Nevertheless, as the active phase of IMCI piloting stopped in 2007/2008, no reliable and consistent information on practical integration of IMCI skills into the primary health care reforming process has been reported. Health providers who had medical practices in urban settings, particularly at provincial level, did not strictly follow IMCI algorithms, because they felt other resources were easily available to support patient care.

Impact

Child mortality has decreased substantially over the last 15 years due to the improved knowledge and skills of frontline health workers, but respondents assumed that this could also be attributed to IMCI implementation. In their opinion, IMCI had a significant impact at the time in the settings in which it was implemented, but as it was never properly evaluated, they had no solid facts to support their views. Different projects and donors have used different approaches to IMCI implementation, frequently missing evaluation activities. IMCI geographical coverage was also assumed to be insufficient to conduct an impact evaluation.

Sustainability

IMCI national policy and the strategic plan were developed and submitted to the Ministry of Health for approval in 2007, but were never adopted. IMCI as a programme was not included in medical schools' training curricula or continuous medical education, with only clinical elements and common danger signs taught.

Lack of funding to support IMCI implementation was reported, as primarily it was funded by international partners on a project basis: UNICEF, for instance, supported IMCI activities for 5–7 year period. Partners stopped the funding due to the government's low political will. The country did not desire to seek external support for IMCI, as it would be perceived as recognition of Azerbaijan as a so-called developing country, and no internal resources were allocated to ensure sustainable IMCI implementation. Lack of high-level support was considered one of the key factors detrimental to the strategy's scaling up and sustainability. Other potentially important players in the country, such as professional associations, either did not exist or were quite weak in their support.

Key informants criticized the long duration of training. Overall, lack of funding for principal trainers and participants, lack of consistent provision of medicines, basic equipment and recording forms, absence of a regular supervision system and duplication of records in medical charts were considered major challenges to effective implementation. The terms of reference defined chief paediatricians at central and district levels as responsible for monitoring, but monitoring visits were always organized at the request of the Ministry of Health. Key informants noted that there is a need for integrated supervision, and chief specialists have to be trained in major national programmes and use of guidelines.

Currently, there is no support from either the government or international community.

Key informants felt a forthcoming health insurance system could be catalytic for revision and development of national guidelines and protocols.

Key themes arising from IMCI review in Azerbaijan

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

IMCI reportedly decreased polypharmacy, but data to support this statement are lacking. No monitoring activities currently are being undertaken. Key informants noted that health workers prescribed more drugs "to be on safe side" to avoid possible complications in patients or deaths. This practice was forced by fears of penalties, administrative measures, expert commissions'/inspections' charges, and impact on the professional promotion. Focus groups and key informants confirmed parents' expectations for their child's rapid recovery and high-pressure requests for quick-treatment solutions and strong antibiotics.

Promoting evidence-based and systematic care

Mixed reactions from paediatricians and doctors were reported. Some liked IMCI because evidence-based training for health workers was very topical and IMCI closed gaps in knowledge, but some paediatricians thought it was too simple for their professional level.

Family doctors who worked in rural areas viewed IMCI as a blessing, but paediatricians preferred more detailed and sophisticated treatment approaches.

Beyond survival

Counselling skills were declared very useful. Focus group participants acknowledged the usefulness of these IMCI guidelines, with one stating: "Even though I do not use IMCI protocols in my practice, I still use counselling as per IMCI (feeding, danger signs, immunization)"; and another: "IMCI counselling skills help to communicate with families

and mothers and increase the role of nurses. There is little information for parents on child care, so IMCI would be very useful.”

Shortcomings

ICD–10 versus IMCI classifications

There were discrepancies between IMCI and ICD–10 in reporting and making notes in the child card. Revision of an official child patient card would be helpful.

Dogmatic positioning of IMCI and professional resistance

Some doctors and experts believe IMCI is too simple. Leading paediatricians have been reluctant to use IMCI since its inception as they find it very basic and simple, and not relevant for a developed country like Azerbaijan.

Healthsystem barriers

Lack of the first dose of antibiotic in health facilities, essential IMCI medicines and basic equipment (such as scales) was identified as a problem, but feedback from health workers after training and monitoring visits was always positive. The absence of regular supervision and duplication of records in medical charts were also considered major challenges to effective implementation.

Currently, 91 clinical protocols for primary health care have been developed and they cover more than IMCI – requesting X-ray for pneumonia diagnosis and haemoglobin tests for anaemia, for example.

Poor commitment from government partners was seen as a major barrier to IMCI scaling up to national level.

Competing interests/external influence

More attention has been given to laws, comprehensive state programmes (such as mother and child health) and other national programmes than to IMCI. The Ministry of Health has identified newborn care as a priority. Principal trainers for newborn care conducted cascade training in all districts, and seven perinatal centres have been opened and equipped.

Private sector and out-of-pocket payments

Private health care is common, especially in Baku and other cities. The private sector is mainly concentrated in hospital care, but also provides primary health care services and is accountable to the Ministry of Health. Health care staffs were included in government training activities, but greater training opportunities were offered by private hospitals, which are more inclined to follow international protocols of care.

Officially, there was no cost for patients and expenses for capacity-building, and medicines were provided through international agencies, but as informal payments in health care are common in the country, it is hard to say for certain. Formally, primary health care services are included in the benefits package. Mandatory health insurance is being piloted in two districts.

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- extending IMCI to cover other diseases, such as rheumatic or genetic diseases (including thalassemia), based on evidence;
- including expanded neonatal care in IMCI; and
- using the Sustainable Development Goals as a consolidated platform to move the child health/IMCI agenda.

Georgia – IMCI review

Background

At the time of the introduction of the IMCI strategy in 1999, Georgia had an under-5 mortality rate of 38/1000. Irrational use of drugs and unnecessary hospitalization were widespread and there was a lack of standard treatment guidelines. The introduction of IMCI was supported by the WHO Regional Office for Europe and UNICEF.

IMCI implementation was limited, however. Training was piloted in two districts, with 40 doctors, general practitioners and paediatricians undergoing 11-day training in each district. Follow-up visits were organized. Training was expanded to a limited number of other districts beyond the pilots, but was not scaled up nationwide. Hospital assessments were carried out but never followed up, and findings remained unaddressed. Neither the community nor the health-systems component was implemented systematically, and integration of IMCI into pre-service took place only on an occasional basis through the initiative of individual lecturers.

Child mortality had reduced to 12/1000 in 2015, without IMCI implementation.

Findings according to the conceptual framework

Relevance and input

Key informants considered that IMCI was very relevant for the Georgian context at the time of introduction, and particularly important for the highland regions. Some believe it is still relevant today, but others do not, as Ministry of Health guidelines that include all diseases covered by IMCI are now available. While there is agreement that guidelines are available on the ministry website, some informants assert that they are not used at primary level.

Overall, the burden of preventable child deaths is reported to have shifted to perinatal care.

Efficiency – process and output

IMCI implementation was fragmented. It had been introduced at primary-care level without orienting providers at secondary level, who therefore did not understand the classifications used when children were referred. Beyond the two pilot districts, IMCI implementation was very limited and the expansion phase (2003) did not cover many districts. Supervisory visits were carried out six months after training in the implementing districts. Integration into pre-service and postgraduate training was not carried out systematically and to date no systematic continuous medical education mechanism is in

place. The WHO pocket book of hospital care for children was adapted and translated, assessors were trained and hospital assessments carried out, but these were not followed up. The health-systems component was never implemented.

The community component also was not implemented. Breastfeeding promotion took place, but not as part of IMCI implementation. Nutritional aspects overall were not integrated well. Some attempts were made to address community awareness in one of the regions, but scale up did not take place due to political challenges (conflict with the Russian Federation and privatization of services).

Effectiveness and outcome

Key informants asserted that IMCI improved the rational use of drugs, systematized decision-making on hospitalization versus outpatient treatment, and raised population awareness on rehydration for diarrhoea, resulting in decreased hospitalization rates. Their impression was that prescriptions followed a more rational approach than before IMCI implementation, but IMCI prescription patterns deteriorated after health-sector privatization and discontinuation of external support. One informant registered great surprise to see a child who had no more severe symptoms than a cough being prescribed three antibiotics, and expressed the view that antibiotic prescribing practices in the regions had deteriorated over the last 10 years.

Breastfeeding rates were reportedly better when the programme was active. According to key informants, rates now are lower than in the past because of marketing of formula milk. A law regulates this, but it is not strictly enforced, and formula milk is reportedly strongly promoted in maternity houses.

Impact

Key informants stated that IMCI had had an impact on child mortality and morbidity, but a threshold has now been reached and other activities may be required

Patients being referred from regions were much more dehydrated before IMCI implementation, including very serious cases of malnutrition and Kwashiorkor. Recently, no severe dehydration or malnutrition has been observed.

Sustainability

Key informants reported that IMCI implementation was donor-driven and was not sustainable. The programme has not been active since 2009. The conflict with the Russian Federation started in 2008, and privatization kicked in in 2009. IMCI health-worker training is still ongoing, with support from UNICEF and Kazakhstan, only in the Abkhazia region.

Key informants reported that IMCI was partially included in undergraduate education, with two days' training during the 5th or 6th year, and in postgraduate education for family doctors and paediatricians. They also stated that guidelines for private clinics that cover aspects of IMCI for patient management have been developed.

Key themes arising from IMCI review in Georgia

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants reported that IMCI helped to improve national guidelines and reduce polypharmacy. It had a big impact on reducing the number and volume of drugs doctors prescribed to patients: unnecessary antibiotic prescriptions reduced particularly after IMCI was initiated.

Prescription levels have now gone up again, with much unnecessary prescriptions (especially of antibiotics); investigations now show increased resistance. Antihistamines are reportedly also overprescribed.

Promoting evidence-based and systematic care

Key informants stated that doctors working in the pilot regions and who were trained in IMCI were referring patients to hospital more appropriately than those working in Tbilisi or other non-pilot regions.

Identification of severely ill children

Key informants believed the IMCI decision algorithm resented a very good strategy for deciding who could be treated as an outpatient and who should be admitted or needs to be referred. While it is not implemented, the idea is very good and new promotional efforts are needed. Many patients are hospitalized now, with an average hospitalization of five days: many services are covered by health insurance for inpatients for the first five days, but not for outpatients.

Beyond survival

IMCI integrated with other vertical programmes running in the country, such as breastfeeding and vaccination.

Shortcomings

ICD-10 versus IMCI classifications

Diagnosis versus classification was not a big problem (as there is no information system). Doctors simply classified, then added the ICD-10 diagnosis. Classification is useful, but diagnosis is still required by legislation. Problems with recording versus the ICD-10 classification include hospitals using ICD-10 while ambulances use their own classification, which is in line with IMCI.

Dogmatic positioning of IMCI and professional resistance

Key informants reported that there was resistance at the beginning of IMCI implementation from doctors and professors who were taught not to use their stethoscopes, but to count respiratory rates. A very pragmatic approach was taken, however, with doctors being trained to count the respiratory rate in addition to using stethoscopes. When they saw that the resulting classifications were in line with findings from X-rays, they were convinced.

A similar pragmatic approach was taken in relation to laboratory tests. Even if anaemia can be detected adequately through clinical symptoms, laboratory haemoglobin testing for confirmation was added to the algorithm. Similarly, higher-ranked doctors in particular could not understand how best practice could not include carrying out bacteriological tests in cases of diarrhoea. IMCI has helped to change this attitude, and it is now accepted by some.

Unrealistic requirements/incongruence with other policies

Bacteriologic stool investigations of all diarrhoea cases were required by national policy during the time of the Soviet Union. All patients with diarrhoea had to be admitted to infectious diseases hospitals. General hospitals cannot claim reimbursement for patients with diarrhoea.

Competing interests/external influence

Key informants thought that some incentives (such as payment schemes and pharmaceutical or formula milk industry lobbying) for overuse of drugs, particularly antibiotics and formula milk, and for hospitalization still exist, as does some resistance from parents to prescribing fewer drugs.

Private sector and out-of-pocket payments

Key informants reported the following:

- services and vaccination for children under 3 are provided free to patients;
- medications such as antibiotics need to be paid by patients in primary care, but this treatment is free in hospitals; and
- IMCI drugs are relatively cheap compared to other antibiotics but are still too expensive; people will sometimes buy some tablets, but not the whole prescription.

Universal health care coverage, which in this context means that all patients have health care coverage and have to pay 20% of the costs of consultations for children, has been introduced in Georgia.

Areas for potential improvement

There was wide consensus among key informants that strengthening primary health care, and implementing standard treatment guidelines and regulations for continuous education are required, as currently most doctors receive new information only from pharmaceutical companies.

A competency-based programme for primary-care providers that includes decision-making and diagnostic processes, well-child monitoring, early childhood development, severe and common diseases (including those presenting with a rash and emphasizing the role of vitamin D, as rickets remains prevalent) and violence against children should be developed. The WHO pocket book for hospital should be updated for secondary-care providers to reflect country realities.

It was also noted by key informants that doctors should be required to pay for their training to promote responsibility for ongoing medical education.

Kazakhstan – IMCI review

Background

The under-5 mortality rate in Kazakhstan in 1998 was 41/1000, including high mortality from preventable causes such as pneumonia and diarrhoea. Irrational use of drugs and unnecessary hospitalization were widespread, as were delays in seeking medical care.

Kazakhstan was the first of the countries of the Commonwealth of Independent States and the WHO European Region to implement IMCI, which was introduced and adapted to the country context in 1999, starting with a pilot in Semipalatinsk and Almaty oblasts/regions. Significant political support from the government and basic technical assistance from international organizations enabled the country to progress the strategy implementation process from piloting to dissemination across the country over a 16-year period. All three components, it was claimed, were implemented.

Free IMCI medicines for children less than 5 years old were guaranteed through the state health insurance scheme. Sixteen regional training centres were created, with a coordinator and team of trainers. The national standard child record card for primary health care facilities was amended in line with updated WHO IMCI and child growth charts, and ICATT was customized for the country. Health care professionals in hospitals were trained to use the WHO pocket book guidelines for the management of common childhood illnesses.

Findings according to the conceptual framework

Relevance and input

Key informants considered the IMCI strategy very relevant for Kazakhstan from the time of its introduction to the present day. Irrational use of drugs, overuse of antibiotics and unnecessary hospitalization were widespread, as were late care-seeking. The IMCI strategy was considered an appropriate evidence-based solution for the health system, which was characterized by reorganization and scarce resources.

Health workers highly appreciated IMCI as a convenient and efficient approach to clinical management and early child care at outpatient and district inpatient facilities. Respondents at national and subnational levels noted that at present, IMCI is the only strategy in paediatrics that encompasses many other programmes, such as nutrition, early development, neonatal care, emergency paediatrics and HIV. They suggested that the strategy may serve as the basis for future development of primary care paediatrics, with potential expansion in line with today's challenges and priorities. Strong organizational and managerial support was provided for implementation by setting up a national IMCI centre and working group in 1999. In addition, the government made available well equipped training centres for IMCI and effective perinatal care courses for health care professionals in all 16 regions and cities.

Efficiency and process

Key informants stated that all three IMCI components had been implemented in the country, although to a much lesser extent for the component on engagement of families and communities. The Ministry of Health adopted normative acts that regulate implementation of IMCI as a national standard of care for children under 5. The government has allocated budget funds since 2010 to support health workers' continued access to in-service training in all regions. Financing has been confirmed to 2020 through the new cycle of the national health care development programme.

Free-of-charge IMCI medicines for all children have been provided under the guaranteed basic benefit package since 2007. The IMCI training programme was introduced into the curricula of all medical universities and 14 state medical colleges, and the adapted ICATT

facilitated easier and faster scaling up of training coverage. The quality of teaching IMCI in undergraduate training was uneven, however, and considered inadequate.

Efficiency and output

According to the key informants, slightly more than two thirds of eligible health care professionals accessed basic IMCI training courses. Reportedly, coverage in 2015 reached 69% of primary health care physicians and medical assistants and 60% of nurses, but high outflow of health care workers from the health system and retention problems, especially in primary health care, made capacity-building quite challenging. Government funding was not available to support follow-up visits of trained health care professionals; instead, this was tasked (unfunded) to regional IMCI centres and varied in numbers and quality across the regions. Overall, follow-up coverage was 25%, and usually consisted of a single visit.

To tailor IMCI to different categories of health workers, IMCI and WHO pocket book training was divided into three compulsory courses:

1. a five-day ICATT course on sick children for primary health care physicians and medical assistants;
2. a four-day course on the WHO pocket book for hospital and ambulance physicians; and
3. a five-day course on the healthy child, including nutrition, growth assessment, early child development, follow-up treatment for sick children, and hygiene aspects of care for all primary and hospital health care professionals, including nurses.

Facilitators and supervisors were trained separately on follow-up visits. The national outpatient form (No. 112) has been changed in accordance with the IMCI and WHO child growth charts to facilitate IMCI management flow and records.

Effectiveness and outcome

IMCI was perceived by key informants as having improved the quality of care for children by promoting standards. All respondents, especially medical assistants and family doctors, emphasized that they felt confident in infant and young-child case-management after IMCI clinical training. Counselling, assessment of common danger signs, and treatment of wheezing and acute respiratory diseases were appreciated most, with respondents feeling helped to address unjustified hospitalization, polypharmacy and unnecessary antibiotic therapy, and parents' poor knowledge and practices.

Further strengthening of external and internal supportive supervision was identified as being critical. Respondents reported that along with external support, mentoring and supervision at facility level can sustain improvements in quality of care and rational use of health-system resources, especially in the context of large distances to settlements and health care facilities.

National adaptation of the WHO pocket book, its dissemination and associated training have contributed to better quality of care for children. Implementation of a universal–progressive model of child home visits by nurses based on IMCI and early child development, and strengthening of outpatient polyclinics by social workers and additional patronage nurses in the catchment area, were considered innovative examples that will be scaled up nationally.

Impact

Key informants were relatively confident that IMCI has contributed to the reduction in under-5 mortality in Kazakhstan and has led, along with vaccination against pneumococcal and haemophilus infection, to the reduction of pneumonia morbidity and mortality. This strong message was conveyed repeatedly by interviewees. According to district respondents, implementation of IMCI helped to reduce infant and child mortality, particularly due to acute respiratory infection, pneumonia and diarrhoea. It also led to timely identification and treatment of emergency conditions and decreased number of deaths of young children at home.

Sustainability

IMCI in Kazakhstan is considered sustainable, as it has been supported by the national health reform programme, relevant policies, and national and regional funding, and it has been integrated into pre-service and post-diploma medical education. Coverage with IMCI training is one of the criteria for facility accreditation and is monitored by the national IMCI centre. A new national incentive capitation-rate system has enabled extra salary to be paid to primary health care workers for quality services that include some IMCI-related indicators. At the same time, interviewees noted that a new Ministry of Health order on child care, which has been developed but not yet approved, would be essential in furthering sustainable implementation of IMCI in the country.

A national IMCI coordinator post was abolished in 2016, but IMCI coordinators exist in all oblasts and IMCI training is regular practice. Despite the availability of a shortened IMCI course (40 hours) in the curricula of undergraduate students, the quality of under- and postgraduate training should be improved. Systematic supportive supervision activities were provided in a few regions, so this approach should be disseminated widely, supported by guidance and tools. A high turnover of staff was mentioned as one of the challenges that require the systematic integration of IMCI in pre-service training, with continuous professional education and staff retention measures in place.

Key themes arising from IMCI review in Kazakhstan

Strengths

Promotion of justified hospitalization of sick children

According to key informants, IMCI implementation significantly reduced unnecessary hospitalization of children. They also observed that children who need hospitalization are now referred to hospitals from primary health care in less serious condition. Wide dissemination of the pocket book and training in first-level hospitals contributed to the reduction of excessive hospital admissions.

Integration of ICD–10 and IMCI classifications in outpatient chart

Changes made to the child outpatient chart (form No.112) in addition to ICD–10 and based on the IMCI algorithm provided a good basis for doctors to use the IMCI algorithm, ensuring assessment and treatment of sick children according to guidelines.

Beyond survival

IMCI training increased health care providers' communication skills and improved appropriate care-seeking behaviours, breastfeeding, complementary feeding and child care. IMCI improved counselling skills and strengthened the role of nurses in promotion of healthy child growth and development, and disease prevention. Implementation of a universal–progressive model of child home visits based on IMCI and early child development by nurses was seen by the Ministry of Health as an innovative approach that should be brought to national scale. Nurse bags were made available through IMCI implementation, containing items such as a meter, scales and essential medicines.

Shortcomings

Undergraduate training shortcomings

The IMCI knowledge and skills levels of graduates of medical universities were insufficient.

Regional in-service IMCI courses proved to be more efficient than pre-service training of health care professionals. As a result, the health system allocated additional resources to recurrent training of university and college graduates; this significantly increased the burden on regional IMCI training centres, which should have been seen as offering short-term solutions only. The lack of a solid foundation in evidence-based medicine among the teaching faculty was not uncommon and made adoption of new knowledge more challenging. Appropriate quality of pre-service training in medical universities and colleges was considered critical at this stage of IMCI implementation.

Private sector and out-of-pocket payments

Doctors and nurses in private clinics are not covered by IMCI training and may not follow IMCI.

Areas for potential improvement

Vertical coordination for IMCI implementation from national to oblast level has been strengthened, but little attention has been paid to developing the capacity of health care facility managers. Plans are underway to initiate training for health managers on managing implementation of mother and child health programmes. The district health care system has been modernized and computerized over recent years. All health facilities have been connected to the e-government web portal through the national development programme. This has opened more opportunities for use of innovative tools and computerized training packages in clinical settings.

The WHO “Care for development” module has been integrated into the IMCI training course on care of healthy children in Kazakhstan. Experience from its implementation raised the need for additional information or reference literature on developmental and behavioural paediatrics to support elective training for health care professionals and teachers from the medical education system. To address overdiagnosis and overtreatment of children with neurological conditions, and lack of identification and management of child maltreatment, IMCI should be broadened to cover these areas.

Kyrgyzstan – IMCI review

Background

IMCI implementation in Kyrgyzstan started in 2000 to address the relatively high under-5 mortality rate of 51/1000 and support primary health care reform and the transition to family medicine (which aimed to address outdated national guidelines and lack of resources at primary health care level). IMCI guidelines were adapted to the country context and a group of national and regional trainers was established in 2001 to support the 11-day IMCI training course in pilot districts.

Training activities were gradually scaled up with financial and technical support from international organizations (Asian Development Bank, Project Hope, World Bank, WHO, UNICEF, USAID and ZdravPlus). By 2011, 1911 primary health care physicians, 692 feldshers and 362 primary health care nurses had been trained in IMCI.

IMCI training was widely implemented through the pre-service, in-service and post-diploma education system for doctors and nurses, and the community and health-system components were also instigated, although implementation of the community component lagged. The hospital component was implemented in part of the country and evaluated.

IMCI was included in national health programmes and the child and adolescent health strategy, and incorporated in under- and postgraduate training curricula. IMCI medicines were included in the national essential drug list. When external support stopped, IMCI in-service training and follow-up visits stopped. Child mortality had reduced to 19/1000, with IMCI reportedly contributing to the reduction.

Findings according to the conceptual framework

Relevance and input

Key informants considered that the IMCI strategy was very relevant at the time of implementation and that it remains so today, as human resource issues persist. They also stated, however, that IMCI needs to be broadened to include other childhood conditions and should better link primary health care to hospital level.

Key informants saw IMCI as being less, or not, relevant for paediatricians in Bishkek.

Efficiency and process

IMCI was embedded into the Densaylyk national health programme, but the funding made available for IMCI training was insufficient. Ministry of Health Order No. 22 on IMCI expansion was adopted in 2006 with support from UNICEF, ZdravPlus and USAID/Project Hope. Around 87% of family doctors and paramedics (except for family nurses) were trained in IMCI. Twelve-day courses were used for training family doctors until 2015. ICATT (six days) is now used, with fewer clinical sessions. Some key informants, however, reported that they had been trained through theoretical 3–4-day training without clinical sessions. An IMCI module for family nurses was developed in 2006 and two-week IMCI training courses were conducted, including assessment of the sick child, danger signs, nutrition, oral rehydration therapy, role-plays, mothers' card and job aids, but no clinical sessions. Five or six key family and community practices were prioritized in the community

component. IMCI was also included in post-diploma training. Hospital staff received training later.

The last national IMCI review was carried out in 2008.

Efficiency and output

Reportedly, 86% of health staff have been trained in IMCI, but given the high staff turnover, challenges remain. The general lack of staff in primary health care and the fact that 75% of staff (particularly those in rural areas) are close to retirement, means that human resource capacity remains an issue. Key informants reported that IMCI implementation remained fragmented, with poor links between theory and practice. Follow-up visits and supportive supervision have been lacking. Frequent inspections had been taking place, but no practical help has been provided. Reportedly, neither policy nor tools for supportive supervision exist, and there is also a lack of trained supervisors for IMCI specifically.

The community component (with its messages for parents) has not been implemented fully.

Effectiveness and outcome

Key informants reported increased confidence among family doctors and feldshers in managing childhood illnesses after IMCI implementation. Family doctors reportedly are no longer fearful of managing small children and infants, and knowledge of families has also improved. Key informants further reported specifically that diarrhoea management has improved (treatment plan A and B) and that trainers could no longer find severe cases during recent training.

In addition to case management, exclusive breastfeeding also improved, and more mothers breastfeed their children for longer times. Mothers' knowledge in general is reported to have improved, particularly in relation to the recognition of danger signs. Children with very low weight are no longer seen.

Key informants also reported improved growth monitoring and decreased polypharmacy and hospitalization rates: 34% of children under 1 year and 24% under 5 with pneumonia are now hospitalized, against 100% previously. Otitis is now treated at home, while 100% of cases were hospitalized before IMCI implementation (data reported from one district).

Impact

Key informants asserted that IMCI contributed to the reduction in under-5 mortality, particularly from diarrhoea and pneumonia. The proportion of deaths due to acute respiratory infection of total under-5 mortality reduced from 54% to 8.9%. The infant mortality and home deaths rates also decreased.

Sustainability

Key informants believe that IMCI implementation is sustainable, because the Ministry of Health supports the programme, IMCI drugs are included in the list of essential drugs (except for zinc and gentian violet) and IMCI has been included in undergraduate and postgraduate training at the departments of family medicine, higher nursing education and paediatrics of Kyrgyz State Medical Academy and Jalalabat State University. A six-day IMCI course is included in the sixth year of the Faculty of Curative Medicine of the Kyrgyz

State Medical Academy (Family Medicine Department) curriculum and the qualification examination for medical doctors includes questions on IMCI.

The IMCI programme has been included in all health policy documents and is considered a priority programme, and all indicators of the programme are part of official statistics. Nevertheless key informants noted challenges to sustain IMCI as reportedly there was high staff turnover, especially between 2009 and 2012, and follow-up visits are no longer taking place. In-service training stopped when external funding ceased. Lack of staff, an ageing workforce and overall low health-worker motivation are believed to hinder sustainable IMCI implementation. While the Association of Paediatricians is now promoting IMCI as a useful approach, staff responsible for coordination of the IMCI programme at national and regional level are not in place.

Key themes arising from IMCI review in Kyrgyzstan

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants reported a decrease in polypharmacy after IMCI implementation.

Promoting evidence-based and systematic care

Key informants reported that health care workers trained in IMCI acquire systematic knowledge and prescribe treatment based on guidelines and more confidently. After IMCI implementation, hospital referrals went down sharply and unnecessary hospitalizations reduced. are now hospitalized.

Identification of severely ill children

No information was available in this area.

Beyond survival

Key informants asserted that IMCI improved health workers' counselling skills and parents' knowledge. It reportedly led to increased exclusive breastfeeding rates and improved growth monitoring. Mothers' knowledge in relation to recognizing danger signs also improved. Nurses reportedly feel more confident, and IMCI contributed to increasing their role. Key informants reported that mothers like the new counselling and consultation methods, and appreciate the information about care and explanations provided in booklets. Parents ask for their children to be weighed and for their growth to be monitored, and ill children are now brought to the doctor earlier in the illness.

Shortcomings

ICD-10 versus IMCI classifications

Doctors working in hospitals are reported not to support the IMCI programme, as IMCI classification of hospitalized children creates difficulties.

Dogmatic positioning of IMCI and professional resistance

Initially, opposition to IMCI implementation was reported among paediatricians, but not from family doctors and nurses. Specialized service providers, such as reanimatologists and

infectionists, remain reluctant. Medical colleges oppose integration of IMCI into the curriculum.

Unrealistic requirements/incongruence with other policies

Key informants reported that systematic and full assessment following the IMCI algorithm (checking all elements of IMCI) is not always possible due to lack of time and intensive paperwork requirements. Registration forms frequently must be copied at providers' own expense. Family doctors reportedly are overloaded with paperwork and have to deal with many different programmes. Some report frustration about now having to work with all population groups and all diseases, seeing around 70 patients (including 10 children) a day.

Competing interests/external influence

Recurrent lack of drugs, scales, height measures, (hot) water and heating hinder consultations carried out to the IMCI algorithm. Very low salaries, high workloads and high staff turnover affect health-worker motivation. The salaries of coordinators for child health are often lower than those of family doctors. There is a lack of doctors and nurses due to ageing and difficulties in retaining a new generation of health care workers, particularly in the regions.

While hospital referrals and hospitalizations went down sharply after implementation of the IMCI package, concerns exist among hospital personnel about staff cuts, and overdiagnosis and overmedicalization remain problems.

Awareness levels of many mothers about nutrition and care for healthy and ill children have improved, but often remain low; pressure from parents on doctors to prescribe aggressive treatments persists, although IMCI has improved parents' understanding.

Private sector and out-of-pocket payments

IMCI drugs, except for zinc and gentian violet, are included in the national list of essential medicines. Medicines for children under 5 years are available at discounted prescriptions, but some drugs are not available in drug stores. Physicians working in private clinics in Bishkek are not under the influence of the Ministry of Health and National Health Insurance Fund (FOMS).

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- introducing 6–18 years growth-monitoring charts and electronic reporting forms;
- repositioning IMCI as an integrated approach to child care, rather than a programme; and
- combining the IMCI algorithm and the WHO pocket book for hospital care, especially for Family General Practitioners' centres (FGP) and paediatricians, while preserving the basic IMCI for nurses in local health posts.

The Republic of Moldova – IMCI review

Background

The IMCI strategy was introduced in the Republic of Moldova in 1998 to improve child health. At the time, the country had an under-5 mortality rate of 23/1000. The main mortality causes were respiratory disorders, with about 50% of deaths estimated as being preventable, while at-home mortality was more than 20%.

The IMCI initiative was implemented in three phases: (1) programme adaptation and introduction (1998–2000); (2) programme piloting (2000–2002); and (3) programme scale up (2003–2010). WHO, UNICEF and the Swiss Agency for Development and Cooperation supported the introduction and implementation of all three components (by improving health-worker skills through in-service and pre-service training for component 1, promoting health-system strengthening for component 2, and supporting the family and community practices element for component 3). Nationwide coverage was reached, including in the Transnistria region of the Republic of Moldova. More than 90% of primary health care family doctors received training on IMCI. The full 12-day IMCI training was included in in-service training. All IMCI drugs are included in the essential drug list of medicines and covered by the state health insurance programme.

Child mortality reduced to 12/1000 in 2015: reportedly, IMCI contributed to the reduction, specifically from acute respiratory and diarrhoeal diseases.

Findings according to the conceptual framework

Relevance and input

All key informants considered that all three components of the IMCI strategy were, and remain, relevant and useful for the Republic of Moldova. Most mentioned that family doctors/general practitioners, paediatricians and nurses were trained to use the IMCI algorithmic approach, but only doctors can prescribe drugs. IMCI is a very effective tool in villages where only nurses work, especially when carrying out patronage visits and for identifying danger signs and exploring serious conditions.

The relevance of IMCI for primary health care evokes different opinions; while most key informants consider IMC relevant at this level, some believe that IMCI cannot be, and is not being, applied 100% across primary health care.

Efficiency and process

All three components of the IMCI strategy have been covered.

Forty-five national IMCI trainers, 38 at district level and 86 curators have been appointed. Training was in place for family doctors, with more than 90 % of doctors in primary health care in all regions (including Chisinau) being trained.

Key informants mentioned that the implementation of the IMCI strategy in three phases was well designed and progressed. Phase 1 (1998–2000) was supported by WHO, phase 2 (2000–2002) saw programme piloting successfully implemented in the pilot districts, and phase 3 (2003–2010) saw programme scale up. The most intensive programme

implementation for the Right Bank of the Dniester River was in 2002–2007, and for the Left Bank in 2008–2010.

Efficiency and output

Key informants stated that IMCI implementation started at the same time as primary health care reform, which contributed to successful implementation of the strategy. Most key informants said IMCI drugs are included in the essential drug list; they are available and free of charge. All stated that the three components of the IMCI strategy were being implemented in the country, with quite high IMCI training coverage (more than 90% of primary health care doctors were trained). While training coverage was high, some elements (the community component and supportive supervision) require greater effort. All regions, including cities, have training coverage. Reports suggest IMCI is working in some regions, but is not being implemented in others, with supervision and monitoring lacking. A new chapter on “Care for development” was introduced to the “See Mum” module in 2004. The course duration increased by one day as a result, making it a 12-day course.

The *Guidelines for parents: our child* were developed in 2004 to improve health workers’ and child carers’ knowledge, attitudes and practices in relation to care of young children. The Ministry of Health issued orders on IMCI implementation, national protocols were developed, and IMCI was included in pre-service training. Resistance from doctors at the initial stage of IMCI implementation, the additional administrative burden for primary health care workers and reliance on external support were identified as obstacles by key informants.

Effectiveness and outcome

Key informants asserted that health care professionals’ knowledge improved and attitudes changed after IMCI implementation. Standardized care (according to guidelines) is now being provided and, in general, the quality of medical care for children in primary health care has improved. The knowledge of primary health care medical personnel on child development, nutrition and immunization has improved, and key informants noted that the first standardized approach to assessing ill children at primary health care level and national protocols are based on the IMCI algorithms. Rational use of drugs reportedly has improved and fewer antibiotics have been prescribed since IMCI implementation. Key informants stated that the work of doctors and nurses in primary health care has been better organized since implementation.

IMCI has led to earlier diagnosis and effective management of conditions, particularly diarrhoeal and respiratory diseases.

Impact

All key informants stated that IMCI implementation had had a significant impact on child health in the country, particularly in contributing to the decrease in under-5 mortality (specifically from diarrhoea and acute respiratory diseases).

IMCI has contributed to improved knowledge among medical staff and to changing attitudes towards standardized child assessment. The quality of paediatric care at primary health care level has improved, and unnecessary hospitalizations have decreased. Evidence-based national protocols have been aligned to the IMCI strategy. Parents are more aware of danger signs and mortality at home has decreased significantly. Successful

implementation of the community component has had a very positive effect on child mortality and morbidity.

IMCI has helped to reveal cases of acute diarrhoeal and respiratory conditions and manage them appropriately, which has contributed to the significant decrease of mortality from these diseases in the country (the proportion of mortality from trauma and poisoning increased as a result). Child development-related issues have also been addressed through IMCI implementation. Cases of anaemia, diarrhoea and malnutrition are no longer as severe, as they are being managed early and appropriately.

Sustainability

Almost all respondents considered that the IMCI programme is sustainable in the Republic of Moldova, as there is a legislative base (Ministry of Health order), IMCI has been included in undergraduate and postgraduate curricula and in medical colleges' curricula, and IMCI is in line with other national programmes (on, for example, nutrition and immunization). National protocols are based on IMCI, and IMCI drugs are included in the essential drug list covered by mandatory health insurance.

Most key informants mentioned that there are no costs for patients; access is good and services are free of charge. Several, however, described the need for refresher training for primary health care staff, better integration into the health system (particularly harmonization with ICD-10 diagnoses and the health information system) and the need to decrease the paperwork burden for primary health care staff. High turnover of doctors in primary health care is one of the possible constraints to IMCI programme sustainability. No earmarked financing for IMCI is available and there is no follow-up assessment of IMCI implementation. Monitoring was carried out regularly by special IMCI evaluators until 2012, but this is no longer in place. IMCI reportedly is incorporated in medical curricula, but key informants state that it is "somehow stuck on the training level".

Key themes arising from IMCI review in the Republic of Moldova

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Many key informants mentioned that primary health care doctors prescribed fewer antibiotics after IMCI implementation. Implementation of the community component and work with parents has meant that mothers/parents are no longer asking for prescriptions of more drugs or antibiotics and are happier with fewer injections for their child. Overmedicalization and polypharmacy have decreased at primary health care level as a result of the IMCI strategy. Key informants believe that IMCI is protecting children and doctors.

Promoting evidence-based and systematic care

Key informants stated that the IMCI algorithms provide an evidence-based approach and a protocol that can be followed. IMCI allows primary health care doctors to use the algorithmic approach for assessing ill children, contributes to better organization of doctors' and nurses' daily work, and leads to improved quality of care. IMCI facilitates

systematic outpatient management and has contributed to the decrease in the number of unnecessary hospitalizations.

Identification of severely ill children

The Republic of Moldova has many villages in which nurses work without doctors. IMCI helps nurses to differentiate serious cases and refer ill children. While nurses are not allowed to diagnose and prescribe drugs, they can recognize danger signs, call the ambulance and refer children to hospital timeously. Educating mothers on danger signs has also helped to decrease the numbers of severe conditions among children, as mothers now know the danger signs and attend the polyclinic or call the nurse or doctor if necessary. Overall, early diagnosis of ill children has improved.

Beyond survival

Key informants asserted that IMCI has improved the quality of paediatric care in the country. It has contributed to parents' and caregivers' increased knowledge of danger signs, nutrition and immunization, and has helped to systematize the work of nurses in primary health care settings and improve their counselling skills. Child development- and nutrition-related topics are now discussed with parents and greater emphasis is placed during pre-service training on teaching communication skills through use of role-plays.

Shortcomings

ICD-10 versus IMCI classifications

Problems in relation to reporting of diagnoses were identified by informants. While IMCI classifies patients based on severity, diagnoses are required to be recorded in ICD-10. There is a need to harmonize IMCI classification with ICD-10. Nurses accept IMCI well, but paediatricians sometimes reject it, as they are required to record their diagnosis in ICD-10.

Dogmatic positioning of IMCI and professional resistance

Strong resistance from professors in paediatrics at hospital level has been reported, based on the perception that IMCI is not appropriate for paediatricians or doctors in hospitals, but only for nurses at primary health care level. Nurses are not legislated to prescribe drugs, but they can use the IMCI algorithm and provide appropriate advice.

The IMCI algorithm is considered not to reflect appropriately the country's realities: many children have anaemia, for instance, but IMCI uses only one sign to diagnose anaemia, while no blood tests are included, even though they are available in the Republic of Moldova.

Unrealistic requirements/incongruence with other policies

Most key informants mentioned that IMCI is in line with other national policies and no incongruencies exist, but some referred to administrative barriers to IMCI implementation. Discrepancies exist between standard reporting forms and IMCI reporting forms. Primary health care doctors and paediatricians are overloaded with paperwork and too much time is dedicated to filling in patient medical-record forms. As a consequence, a Ministry of Health order (prikaz) in 2011 removed the obligation to complete IMCI forms, which

reportedly led to discontinuation of IMCI in some settings as people perceived that IMCI implementation was being stopped by the ministry.

Competing interests/external influence

Some key informants mentioned aggressive marketing and pressure from the pharmaceutical industry to prescribe certain drugs.

A lack of trust in primary health care facilities was also reported, leading to parents bypassing primary-care level and going directly to hospitals for consultation and treatment. Key informants also mentioned health system-related problems and barriers, such as the low salaries of primary health care staff, shortage of trained staff in the health workforce in some rural areas, high turnover of primary health care doctors and low motivation.

Private sector and out-of-pocket payments

Key informants asserted that only a few private clinics in Chisinau provide primary health care services for children of wealthy parents. No information was available on whether IMCI protocols were used in these clinics. Key informants stated that primary health care is generally free of charge for children, access is good and IMCI drugs are covered by the state health insurance scheme. Out-of-pocket payments were not mentioned as a barrier to access to primary health care services in the Republic of Moldova, but a study in 2014 conducted by the Moldovan NGO PASS found that 55% of parents were paying for drugs.

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- harmonizing IMCI classifications and ICD-10 diagnoses and better integrating IMCI indicators into the national health information system;
- harmonizing hospital IMCI according to the WHO pocket book on hospital care for children and primary health care IMCI based on algorithms;
- expanding the syndromatic approach of IMCI to include available laboratory tests and diagnostic tools; and
- strengthening monitoring and supportive supervision components.

The Russian Federation – IMCI review

Background

Prior to the implementation of IMCI strategy, the Russian Federation had a relatively low child mortality rate of 21/1000, but there were severe health-systems problems with widespread irrational use of drugs and overhospitalization. The Ministry of Health did not consider IMCI relevant for the entire country, but saw an improvement opportunity and agreed to implement IMCI via WHO projects in the Samara and the Northern Caucasus regions. Support in the remote Chukotka region was provided by the regional governor. The Ministry of Health welcomed evidence-based simple technologies in child care in these regions, but political will for nationwide implementation was lacking. All three IMCI

components were implemented only in the Northern Caucasus, which completed in 2007. Thereafter, no systematic IMCI activities were taken forward in the country.

Child mortality reduced to 8/1000 in 2015, without nationwide IMCI implementation.

Findings according to the conceptual framework

Relevance and input

In the early 2000s, IMCI was considered a very relevant strategy that could address problems in Chechnya and Ingushetia, where the leading causes of mortality and morbidity in young children were pneumonia, acute diarrhoea, malnutrition, anaemia and trauma. Health and social infrastructure had been demolished during the war and there was lack of funding and technical maintenance, with a high rate of health-staff turnover and migration, especially in rural areas. Primary health care was staffed by nurses or feldshers.

Key informants believe that IMCI remains relevant for these regions (Northern Caucasus, the north part and middle regions of the Russian Federation located close to the Ural) Region. One informant considers IMCI very relevant for the country, but the Ministry of Health appears uninterested, as childhood mortality is not a significant problem and quality of care at primary level is not a priority. Not many children die after the first month of life, so the focus is placed on hospital care and building perinatal centres equipped with advanced technologies.

IMCI was not adapted appropriately to the national needs and conditions of a low child-mortality country. Breastfeeding rates remain low in the Russian Federation and need to be improved, as does follow-up on immunization. Key informants considered the IMCI principles to be very relevant to achieving these goals.

Efficiency and process

IMCI was never implemented at scale, but only introduced in three regions. The focus at the beginning was on the clinical component: around 1000 family doctors were trained in Samara (pilot region), but the system was not developed further and regressed shortly after it commenced. Between 2005 and 2006, 231 health workers from Chechnya and North Ossetia were trained by local trainers; the number of health workers trained in other regions is not available. No IMCI coordination group was set up. After project funding stopped, implementation ceased.

Efficiency and output

IMCI implementation focused mainly on health-worker training, with some follow-up visits and an attempt to improve the drug supply. Selected community activities were implemented in the Northern Caucasus and IMCI care for development was integrated in the federal post-diploma training institute for nursing.

Effectiveness and outcome

As IMCI was not scaled up, it did not have an effect on national-level data. The Russian Institute of Paediatrics and Children's Surgery conducted a follow-up review on IMCI implementation in Northern Caucasus in 2006, which found that: IMCI algorithms were being implemented in daily practice; use of antibiotics and polypharmacy had reduced;

the exclusive breastfeeding rate had increased and advice on complementary feeding was being provided; unnecessary hospitalization was reduced and more children were receiving ambulatory care; IMCI clinical practices were well accepted by health staff and considered adequate; and care-seeking had improved after counselling for parents on danger signs. Few facilities issued updated internal regulations for child assessment that followed IMCI guidelines.

Impact

Despite substantial inputs in creating a foundation for implementation, IMCI has not been expanded. Reported reasons include conflicting policies, standards and clinical protocols at regional and federal levels. IMCI has not had an impact at national level, as it has never been implemented at scale.

Sustainability

Implementation of IMCI was unable to be sustained. Implementation stopped in all regions once active support ceased and projects completed. IMCI guidelines are no longer in use in the regions. IMCI, including care for development, was introduced into nurses' training curricula, but reports suggest that conservative attitudes prevailing in pre-service training institutions mean that outdated curricula and practices continue. The Ministry of Health signalled to the WHO Country Office in 2009 that IMCI activities could not be the focus of the ministry's activities as attention shifted from primary health care to implementation of advanced technologies and the establishment of modern perinatal centres.

Key themes arising from IMCI review in the Russian Federation

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

The use of antibiotics and polypharmacy reduced where IMCI was implemented.

Promoting evidence-based and systematic care

Unnecessary hospitalization reduced and more children received ambulatory care where IMCI was implemented.

Identification of severely ill children

No information was available in this area.

Beyond survival

Exclusive breastfeeding rates and advice on complementary feeding increased where IMCI was implemented.

Shortcomings

ICD-10 versus IMCI classifications

No information was available in this area.

Dogmatic positioning of IMCI and professional resistance

Key informants stated that IMCI was considered too basic by many professionals and that the Ministry of Health was quite sceptical about the IMCI algorithms. Reportedly, regions were very critical at the beginning of 2006, even in relation to the WHO pocket book on hospital care for children, which they considered too basic.

Competition among paediatric academic schools had a negative impact on adoption of the IMCI strategy overall.

Unrealistic requirements/incongruence with other policies

The essential drug list for hospitals contains 500 drugs and all medicines for children aged 0–3 years are free through the additional privilege list. Paediatric formulations are not available.

Competing interests/external influence

In relation to funding-driven treatment and hospitalization of children, hospitals were required to keep children in hospital for up to 10 days for treatment of pneumonia to receive full payment. Many jobs depended on high hospitalization rates, with overtreatment and overmedicalization resulting as a consequence. Implementation of IMCI would lead to job losses. Local insurance companies paid local primary health care services and hospitals (National Health Insurance Fund) according to their standards.

Continuous medical education was in place, but key informants report that preference is often given to professors whose ties to commercial concerns are unclear and who might advertise specific brands. There was no mechanism to keep companies at bay, making it difficult to promote generic drugs. Reportedly, each doctor was able to act independently and there was little if any control over prescribing patterns.

Paediatricians tried to create demand, as more patients would lead to more treated cases and more income. Key informants asserted that nurses had no rights and were not allowed to do any significant job in child care, only numerous home visits. Self-prescription and aggressive advertising of medicines through the media reportedly were widespread.

Private sector and out-of-pocket payments

No one paid for a consultation alone, so it was in paediatricians' interest to assign as many diagnoses to a child as possible and see him or her often, creating a so-called "chronically sick child". Examples provided by key informants included the classification of a normal hormone-induced rash in newborns as atopic eczema, leading to numerous laboratory tests (lactose, streptococci in breast milk, etc.), follow-up visits, treatments and advice on diet. Informants stated that the situation was now even worse than it was in Soviet times, due to the commercialization of medicine.

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- offering IMCI as an optional module in university curricula and in-service training, especially for new community paediatricians who may need support to approach and treat sick children; and

- revisiting the IMCI strategy to include a focus on neonatal health, care of healthy babies and additional challenges (such as trauma and accidents); this new strategy should take regional differences, priorities and areas into account, while recognizing the need for central leadership and endorsement.

Tajikistan – IMCI review

Background

In 1998, at the time of IMCI implementation, Tajikistan had an under-5 mortality rate of 83/1000.

All IMCI training materials were adapted and the first IMCI training course conducted in May 2002. The expansion phase started in 2004. All three IMCI components were fully implemented, but IMCI drugs were not included in the national drug list: the Japan International Cooperation Agency took on initial procurement with the understanding that the government will take over after 2020.

Reportedly, IMCI contributed to the reduction of under-5 mortality, which was estimated at 45/1000 in 2015 – still unacceptably high.

Findings according to the conceptual framework

Relevance and input

At central level, all key informants stated that the IMCI strategy is relevant for Tajikistan.

At regional and district levels, key informants felt that IMCI is insufficient for primary health care and first referral-level hospitals, and health professionals need knowledge and competencies beyond IMCI. IMCI should include additional childhood diseases.

Efficiency and process

Initially the process was focused on general practitioners only (nurses were included in training activities later), but key informants considered nurses' involvement key to the success of the programme. All three components of IMCI were implemented and IMCI centres with coordinators at national and district levels were established, with responsibility for monitoring IMCI implementation at local levels. IMCI focused on primary health care professionals and did not involve specialists at hospital level. Implementation of the WHO pocket book has not yet taken place and is planned as a next step. Key informants reported good implementation of the IMCI community component.

Efficiency and output

District level is better organized than central. IMCI has been integrated into pre-service training for health professionals. Relevant policies and the legal and normative framework for IMCI have been developed at state level.

Effectiveness and outcome

Key informants considered that IMCI implementation improved case management, lowered unnecessary use of antibiotics and reduced hospitalization. Before IMCI implementation, especially during summer, infectious diseases in children were common

and associated mortality was very high. Now, the respective departments in hospitals are empty and key informants reported not remembering when they last saw severe diarrhoea (treatment plan C would be indicated) given the appropriate use of oral rehydration salts (ORS), as advocated by IMCI.

IMCI implementation reportedly led also to improved availability of drugs, as they now are available for children under 5 years for free for IMCI-related conditions. No allocations for drug procurement were made from the state budget, although that should change from 2021 (drugs are available through support from the Japan International Cooperation Agency until 2020). The IMCI programme is also linked to other national programmes, such as immunization and nutrition, and contributed to their improvement.

Impact

Key informants considered that IMCI had contributed to the decrease in child morbidity and in particular to the reduction in mortality due to pneumonia and diarrhoea. They also believed that IMCI improved quality of care.

Sustainability

A legal and normative framework facilitating IMCI implementation was developed and IMCI is included in all national policies up to 2030 as part of the national sustainable development strategy. IMCI reportedly was integrated into the university curriculum, but in fact only elements such as management of acute respiratory infection and diarrhoea are integrated.

While the government supports IMCI implementation, drugs are currently not procured from the state budget but from the Japan International Cooperation Agency until 2020: it remains to be seen whether drugs will be available beyond this support.

Key themes arising from IMCI review in Tajikistan

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants stated that IMCI has promoted the rational use of drugs, particularly antibiotics, and has diminished overtreatment overall. Due to implementation of IMCI, families now recognize that as little medication and as few invasive procedures as necessary are desirable for the health and well-being of their children.

Promoting evidence-based and systematic care

Key informants stated that IMCI promoted an evidence-based, algorithmic and systematic approach to the child. Unnecessary hospitalization and lengths of hospital stays decreased. IMCI implementation improved child health overall and counselling of parents' improved care-seeking behaviours, with severe cases now occurring less frequently than before.

Identification of severely ill children

Key informants stated that the systematic use of IMCI algorithms helps to avoid mistakes and serious conditions being missed. Tangible results have been observed at district and local levels, including remote areas.

Beyond survival

IMCI improved doctors' and nurses' counselling skills and helped to strengthen the role of nurses. It also increased parents' knowledge and understanding of recognition of danger signs, immunization aspects, care-seeking behaviours and the importance of correct treatment. Population perceptions and behaviour changed towards viewing less use of antibiotics and injections as desirable.

Shortcomings

ICD–10 versus IMCI classifications

IMCI and ICD–10 classifications co-exist with some duplication. Diagnosis is based on ICD–10, but classification of severity is based on IMCI.

Discrepancies on reporting remain and create challenges, particularly for referral and continuity of care; key informants asserted, however, that IMCI classification was useful as it identified severe conditions.

Dogmatic positioning of IMCI and professional resistance

Key informants reported passive reluctance among university and college staff: this was corroborated by the fact that only elements of IMCI are integrated into pre-service training curricula and graduates who start work at health facilities are unable to apply the IMCI approach.

Key informants also asserted that knowledge of IMCI is insufficient and professionals from hospitals need knowledge and competencies beyond IMCI.

Unrealistic requirements/incongruence with other policies

Key informants felt that uneven implementation of IMCI at first level, without introduction of the WHO pocket book at hospital level, undermines continuity of care: for example, IMCI danger signs and classifications are not recognized by specialized care at hospital level.

In addition, information-system requirements seem excessive, as they do not include IMCI indicators. Health workers spent considerable amount their working time on administrative tasks (particularly those related to the health information system), to the detriment of patient care

Competing interests/external influence

The monthly salary of family doctors remains at 513 somoni, which is slightly below the subsistence level of 536 somoni (approximately US\$ 112). Other challenges include poor working conditions and a lack of medical equipment.

Private sector and out-of-pocket payments

The private sector is not very developed, especially for paediatric care, but Tajikistan has seen a major fall in public expenditure on health, and private payments (both as formal payments and informal under-the-counter payments) have partly filled the resulting gap. Tajikistan had the lowest total health expenditure per capita in the WHO European Region in 2013, amounting to just US\$ 170 (purchasing power parity), while its share of private out-of-pocket payments as a percentage of total health expenditure was one of the highest in the Region, reaching 60.1% (European average 26.4%).

Areas for potential improvement

Key informants proposed that improvements could be achieved by:

- extending IMCI algorithms to include other diseases;
- revising the curriculum in collaboration with the Ministry of Education for better IMCI integration;
- strengthening health-worker motivation to adhere to evidence-based guidelines, especially the pocket book at hospital level; and
- passing certification and medical staff accreditation through IMCI training organized at district level.

Turkey – IMCI review

Background

The IMCI strategy was introduced in 1999, when Turkey had a relatively high under-5 mortality rate (40/1000), low breastfeeding rates (less than 1% at 6 months), and overuse of antibiotics and polypharmacy.

IMCI implementation was promoted by WHO and supported financially by the UNICEF. It started in two regions (Izmir and Torball) following adaptation of training materials. When external support stopped, training was not sustained and integration into pre-service training failed.

Although IMCI has not been implemented, the IMCI algorithms have been integrated into standard treatment guidelines for family physicians and monitoring of child growth and immunization is taking place, linked to performance-based payment schemes (human papilloma virus and rotavirus vaccines are available only in the private sector). Turkey reportedly has the highest use of magnetic resonance imaging technology and is among the countries with the highest use of antibiotics in the world. Very few key informants who were involved in and/or had knowledge about IMCI implementation in Turkey were available for interviews to inform the review.

Findings according to the conceptual framework

Relevance and input

Most key informants did not consider IMCI relevant to the Turkish context, believing it to be “too primitive” and irrelevant to “modern medicine”. Others saw it as a good approach for any country regardless of its state of development and for any doctor, no matter

whether a general practitioner, paediatrician or paediatric surgeon, as it teaches a holistic approach to the child.

Key informants found IMCI in its current form relevant for some settings or regions in Turkey, but felt that adaptations would be needed in other settings (adding child development, for instance, through a modular structure). More generally, they felt that IMCI would be relevant for all countries and settings because of its potential contribution to decreasing drug overuse, preventing antibiotic resistance and avoiding unnecessary examinations and laboratory tests, as well as to increasing breastfeeding rates.

Efficiency and process

IMCI was never implemented beyond the pilot districts. Eighty per cent of family doctors are nevertheless trained on the standards, which include IMCI algorithms.

Efficiency and output

No implementation has been taken forward at scale.

Effectiveness and outcome

There is no outcome to report due to lack of implementation.

Impact

As IMCI implementation was limited to the initial stage, an evaluation of efficiency and output, effectiveness and outcome is not appropriate and impact cannot be defined. The decrease in child mortality is ascribed to improved access to health services and increased vaccination rates.

Sustainability

The IMCI strategy has not been implemented in the country and government commitment has been absent, but IMCI algorithms have been integrated into standard guidelines for family physicians. Negotiations on including training on standards in pre-service training have been taken forward with universities, but they are reportedly reluctant to change their curriculum.

Key themes arising from IMCI review in Turkey

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Rational use of antibiotics is being promoted through the algorithms.

Promoting evidence-based and systematic care

IMCI promotes seeing the child as a whole, not only as different body parts, encouraging a standard clinical approach and a holistic approach to the child.

Identification of severely ill children

No information was available in this area.

Beyond survival

IMCI is considered by key informants to be a good tool for promoting breastfeeding.

Shortcomings

ICD–10 versus IMCI classifications

Computer programmes used in health facilities are not compatible with IMCI and adaptation has not been possible. Social security institution payments are based on a system that differs from ICD–10 and IMCI classifications. IMCI classifications cannot be used when referring a child to hospital, and key informants asserted that when children are classified according to IMCI, it is only one step to diagnosis.

Dogmatic positioning of IMCI and professional resistance

Many university professors reportedly were against IMCI implementation, because it seemed to be promoting “un-modern” medicine. IMCI is perceived as being “too primitive” to have a place in modern medicine in Turkey. Some key informants considered IMCI poor medicine for poor people.

Unrealistic requirements/incongruence with other policies

No information was available in this area.

Competing interests/external influence

IMCI promotes rational assessment and management, while the current payment systems promote hospitalization, excessive examinations and tests, and overmedication. Parents’ expectations are reportedly often geared towards overexamination and overmedication.

Family doctors are not integrated within the hospital system and not well linked through referral mechanisms. Parents prefer to take their children directly to hospital to a professor, as services are perceived as being better.

Private sector and out-of-pocket payments

The health sector has become more and more influenced by commercial considerations and government policies promote privatization of hospitals.

Areas for potential improvement

Key informants proposed that IMCI should include optional modules in areas such as early childhood development, child growth and overall well-being, child abuse and congenital problems, in addition to a core module. They proposed the following modules:

- early childhood development
- child growth and overall well-being
- child abuse
- excessive use of electronic devices
- high-risk and premature babies
- congenital problems.

A more sophisticated approach should be taken to meet the realities of the country while promoting evidence-based medicine and the rational use of drugs, potentially through a pocket book for paediatric outpatient care.

Ukraine – IMCI review

Background

At the time of the decision to implement IMCI, child mortality was relatively low at 13/1000 in 2011, but the health system lacked human resources. Under-5 mortality in 2015 was estimated at 8/1000.

Ukraine decided to start implementing the IMCI strategy in 2008, hoping to improve quality of care provided to children at first-level health facilities. By the end of 2009, the adaptation process had been completed. The early introduction phase started in two districts with support from development partners. Later, IMCI was expanded to some other districts in the four country regions. ICATT was adapted and piloted in two districts and has been disseminated nationwide to each primary health facility since 2016. It may be too early to deduce the impact of IMCI, as nationwide implementation of IMCI was endorsed only in late 2016 through adoption of a national IMCI policy and national IMCI protocol and guidelines.

Findings according to the conceptual framework

Relevance and input

Key informants reported that IMCI was considered relevant due to the challenges in reforming health services in Ukraine and lack of evidence-based guidelines, especially at primary health care level. This triggered the Ministry of Health to support the early phase of IMCI implementation. Key informants also stressed that IMCI was considered as a unique and simple algorithm that helped to address relatively high child mortality at home and 24 hours after hospitalization. They saw the IMCI approach as a mechanism for strengthening links between primary health care and hospitals to promote the continuum of quality care and ensure standardized care in all primary care settings.

Efficiency and process

The country started implementing all three components in selected districts with effective support from WHO, UNICEF and other international partners. The Ministry of Health established a National IMCI Centre to ensure systematic managerial and technical support. Although IMCI was included in the national programme on child protection for 2015/2016, funding to ease its implementation was not assigned.

IMCI drugs were included in the national essential drug list, but not all of the medicines were available in health facilities. Key informants stated that after the ending of donor support and active provision of IMCI drugs in the pilot regions, one of the regions (Zhytomyr) managed to put in place a funding mechanism for continuous IMCI medicines supply involving community/village councils and rayon administrations. IMCI implementation was endorsed in another four regions that piloted health reform (Donetsk,

Vinnitsa, Dnipropetrovsk and Kyiv region) through a Ministry of Health order, but without funds for training and follow-up visits. Ongoing health care reforms (moving from paediatric service provision to the family doctor system) encouraged moves to the IMCI approach in provision of care to children.

Efficiency and output

Initially, there was much support from the Ministry of Health, but this diminished over time because of political changes. Overall coverage with trained health workers in IMCI was not reported by the key informants, but Zhytomyr rayon managed to train about 45% of medical staff (at least one person per medical facility). Informants suggested that medical staff became more confident in providing care to children.

IMCI was included in the programme for pre-service and postgraduate training of several medical universities and medical colleges. It was being taught in a few medical universities, primarily in the last year of undergraduate training and the internship programme for family doctors. Six academic hours of IMCI were included in monthly training for paediatricians at the postgraduate training faculty. In Novograd-Volynskii medical college, for example, 250 health workers participated in IMCI in-service or post-diploma training. Its IMCI programme evolved from some elements being integrated in the curricula in 2010, to a 30-hour training programme developed in 2016.

Zhytomyr medical college provided IMCI training as a part of under- and postgraduate training, with 42 hours of IMCI courses at the post-diploma training faculty. Interviewees would like to see the 14 medical universities and three departments of postgraduate education play a more active role in capacity-building activities. Lack of understanding and support for IMCI among policy- and decision-makers was also indicated.

The community component received good support in at least one of the pilot regions through orientation meetings with rural administrations on reducing child mortality, and developing and disseminating education leaflets and communication materials for families. Advocacy efforts resulted in fundraising by local authorities to support the purchase of IMCI drugs from 2011 to 2012 after donor support and drug supply from central level ended. Many articles on IMCI in regional, oblast and national newspapers added to the general population's awareness of the IMCI child survival approach.

Effectiveness and outcome

Key informants noted that medical staff had become more confident in providing care to children. In the past, feldshers lacked updated knowledge and practice and had to hospitalize children under 1 year to be on the safe side. After IMCI training, they acquired professional confidence and started to provide care and treatment for this age group in accordance with the IMCI guidelines.

Interviewed family doctors emphasized the usefulness of the algorithm on dangerous signs, which helped to decreased unnecessary hospitalizations and save time for those who needed referral. Evidence-based guidelines helped to justify treatment decisions made by family doctors and gave them more confidence in delivering care for sick children. The very positive effect of decreasing polypharmacy and unjustified use of antibiotics was noted.

IMCI facilitated and simplified communication with parents, including fathers. Mothers became more involved in child care by, for instance, actively participating in oral

rehydration therapy, although they were not necessarily comfortable in this role – they would ask that their child be hospitalized and receive intravenous fluids, which would be easier for them. IMCI helped to improve communication and relations between parents and health workers. Parents are now well aware of the danger signs that should prompt them to seek medical care.

The role of nursing staff has increased as a result of IMCI implementation. Participating health staff said: “We used all methods before to convince parents of the importance of vaccination, but they were not effective. IMCI, in an intelligent and very nice way, addressed this problem and helped to improve the situation.”

Impact

Under-5 mortality reportedly has reduced in the regions where IMCI was implemented. Post-neonatal mortality decreased to 2.9 (it had been more 5 per 1000 live births before IMCI implementation). Key informants stated that the impact of IMCI had been proven during the piloting phase, with a significant reduction in child mortality under 1 year. They reported fewer severe cases needing emergency hospital care and fewer children with moderate dehydration in IMCI districts. The level of hospitalization halved between 2011 and 2015. One of the IMCI pilot regions, Ivano-Frankivsk, had the worse child mortality rate in the country before IMCI introduction; now it is one of the lowest.

The strategy started in Snyatin rayon, which is the most remote district with poor infrastructure and where a family medicine system has been implemented, in 2010. There was a need to train feldshers and nurses quickly to improve quality of care. As a result, the infant mortality rate decreased from 13.6 to 2.8 over two years and has remained stable.

Sustainability

Due to the ongoing political, economic and humanitarian crisis in Ukraine, IMCI scaling up has slowed. In May 2016, however, the Ministry of Health approved the IMCI national clinical protocol through its order, requiring all primary health care workers to use IMCI guidelines as standard care for children under 5 years. Key informants expressed concerns about smooth nationwide IMCI implementation, taking into account the considerable challenges of human and financial resources.

High turnover of health staff and general understaffing of doctors and, especially, nurses in the regions at primary health care level raised concerns. Some suggested causes were ageing staff, low motivation, few retention measures in place, and a high level of migration to western and European Union countries. IMCI trainers, especially in the regions, lacked the experience to provide in-service training at regional level and facilitate cascade training.

Key informants listed a number of key obstacles to effective and sustained IMCI implementation, such as lack of equipment, especially in the eastern regions, and lack of funding for IMCI drugs. Only emergency drug provision was supported by the national budget.

Supportive supervision remained a significant challenge, with concerns about financing and provision of sufficient staff trained in supervision and monitoring. The current monitoring approach was viewed as insufficient to support nationwide implementation.

Implementation has not been in place sufficiently long to allow a judgement on how it has developed.

Key themes arising from IMCI review in Ukraine

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants stated that IMCI has promoted the rational use of drugs, particularly antibiotics, through the use of the IMCI algorithm in primary care. IMCI care has changed families' perceptions towards reducing the number of prescribed drugs. Excessive use of drugs and unnecessary treatment procedures have diminished. Interviewed district managers mentioned substantial cost savings on drugs after switching to IMCI standard care, including three times the cost savings for treating wheezing cough, four times for pneumonia and 10 times for diarrhoea (in total, 74% costs reduction).

Promoting evidence-based and systematic care

IMCI regions appreciated the fact that the IMCI strategy simplified management of sick children and reduced the cost of primary health care interventions, and at the same time provided very efficient health care. Challenges remained in relation to mid-level health personnel, who have been trained in IMCI but still have no right to prescribe, applying clinical IMCI treatment protocols. Key informants from the Ministry of Health noted that contraindicating regulations will be reviewed and changed over time to allow prescribing rights.

Beyond survival

All interviewees, especially health workers, indicated that the IMCI approach supports healthy child development and includes useful preventive activities.

Shortcomings

Unrealistic requirements/incongruence with other policies

Due to existing regulations, some IMCI-recommended drugs (specifically diazepam and gentian violet) were not available at primary health care level. The situation on unnecessary referrals in IMCI regions has improved, but key informants reported that in general, all sick infants have been referred to hospital: this action is based on current Ministry of Health recommendations, which conflict with IMCI clinical guidance.

Private sector and out-of-pocket payments

Private clinics more frequently request IMCI training for their staff, as they appreciate the simplicity of evidence-based guidelines and the cost reductions they bring. Primary health care facilities' funding for IMCI medicines is limited, and frequently parents had to purchase drugs.

Areas for potential improvement

Key informants proposed actions for more effective IMCI implementation in the country. They believed that regional training centres with assigned personnel responsible for IMCI training, monitoring and support would be very helpful in sustaining rapid and successful implementation. There should be an IMCI regional coordinator and IMCI should be part of the responsibilities of district chief paediatricians. IMCI indicators should be included in standards for accreditation of health facilities, and the IMCI training programme should include a distance-learning option.

Uzbekistan – IMCI review

Background

The IMCI strategy was introduced in 1999 in accordance with a Ministry of Health decree that aimed to address the lack of health care provision in rural areas, high child mortality rates caused by preventable diseases, and widespread over-, under- and misuse of drugs.

IMCI was introduced in pilot districts and expanded to nationwide coverage. Community and hospital-care components were introduced, and IMCI was included in pre-service training in medical and nursing schools and in the 10-month retraining programme for general practitioners during health-system transition. Before the transition, and after the breakdown of the Soviet Union, therapists provided primary health care for adults, while paediatricians did so for children. Since then, the entire health care system has undergone significant changes, prioritizing general practice. Primary health care is now being provided by general practitioners. Many examples of primary health care practices that are not founded on scientific evidence continue to exist. The introduction of IMCI was supported by the WHO Regional Office for Europe, UNICEF and the Kreditanstalt für Wiederaufbau (KfW).

Findings according to the conceptual framework

Relevance and input

Key informants considered all IMCI components relevant for the Uzbek context. Informants who identified themselves as main opponents of IMCI stated that experience and reality had shown them the relevance of the IMCI strategy. While at first IMCI was perceived as being relevant only for countries with very low resources, it later was recognized that it helps to avert serious cases of childhood diseases. IMCI is now considered very relevant and valid at primary health care and hospital levels; it was and remains a very useful approach that has full Ministry of Health support, as the strategy has helped to reduce polypharmacy, has clear economic benefits, and has rationalized the use of drugs, particularly antibiotics. IMCI drugs are officially included in the national essential drug list, but are considered irrelevant as other drugs are used more commonly.

Efficiency and process

All three components of the IMCI strategy have been implemented in the country and while significant progress has been achieved, gaps remain. All regions have had training

coverage. Supervision and monitoring is being supported, but no additional resources have been made available. Drugs are included in the national essential drugs list, and drugs for emergency care (except for diazepam) are available at primary health care facilities. Drugs are not free for the full course, however, and prescribed medicines have to be purchased by parents. Key informants considered the hospital component well implemented, but there is still a need to strengthen the primary health care component.

Efficiency and output

Over 90% of general practitioners at primary health care level have received IMCI training, supported by the government with European Union, UNICEF and WHO support. Before entering services, general practitioners need to undergo a compulsory 10-month retraining course that includes IMCI. In-service training on IMCI consists of a seven-day course with ICATT and almost two hours of clinical sessions on days 2–7. The community component was introduced through patronage nurses. Key informants considered community IMCI important and believe it should be expanded. Health-facility assessment tools are being introduced at country level. Full supply of other drugs remains an issue.

Effectiveness and outcome

Key informants reported the promotion of evidence-based medicine and the improvement of drug supply after initial IMCI implementation. IMCI promoted the use of fewer drugs: this was met by resistance from parents, who considered more prescriptions and more treatment desirable. IMCI changed the mind-set of health care providers and the fight for evidence-based medicine and rationale use of drugs is ongoing.

Impact

IMCI reportedly contributed to the decrease in under-5 mortality. Early and correct diagnosis and improved care-seeking decreased the number of severe cases and home deaths. IMCI is also reported to have improved mothers' skills, awareness of danger signs and understanding of nutrition in children. The referral system and admission to hospital were systematized through IMCI implementation.

Sustainability

Given Ministry of Health support and the inclusion of IMCI standards in national orders, key informants considered IMCI to be sustainable. UNICEF has invested US\$ 1 million in IMCI implementation over last three years, but the government provides the main finance. IMCI training has been included in undergraduate and postgraduate education for general practitioners and nurses. Full coverage with the primary health care component was achieved only in 2014/2015, and refresher training will be required. Frequent migration of health workers may also affect sustainability. Two specialists (a paediatrician and general practitioner) in each district are responsible for conducting regular monitoring visits for IMCI, providing supportive supervision and coordinating implementation. Supervision duties were added to job descriptions without additional benefits for those responsible and with no additional time or payment provided.

Key themes arising from IMCI review in Uzbekistan

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

Key informants stated that use of the IMCI algorithm in primary care and the WHO pocket book in district hospitals has promoted the rational use of drugs, particularly antibiotics, and diminished overtreatment. It has also supported a change in families' perceptions on the acceptability of prescribing smaller numbers of drugs.

Promoting evidence-based and systematic care

Key informants stated that IMCI has systematized the approach to sick children and advanced the use of evidence-based medicine. Unreasonable hospitalization has decreased, and lengths of hospital stays have shortened: for instance, length of stay for pneumonia treatment has dropped from 10–14 days to 5.5.

Identification of severely ill children

IMCI is perceived as improving the quality of services. The IMCI classification facilitates the identification of severe conditions and prevents overlooking of serious cases.

Beyond survival

IMCI training has improved health care providers' counselling skills and promoted the importance of information provision and counselling, particularly in relation to treatment, danger signs and immunization aspects. Improved counselling skills have strengthened the role of nurses: nurse bags that include meters, scales and essential medicines have been made available through IMCI implementation.

Parents' knowledge has improved and the population's perceptions and behaviour has changed towards less demand for antibiotics and injections.

Shortcomings

ICD–10 versus IMCI classifications

Some discrepancies between IMCI and ICD–10 classifications have been noted: diagnosis reporting is required to be based on ICD–10, while classification of degree of severity is based on IMCI. A transitional classification linking ICD–10 and IMCI was introduced through Ministry of Health Order No. 420, with specific training conducted. Some discrepancies remain, though, particularly in relation to referral.

Dogmatic positioning of IMCI and professional resistance

According to key informants, it was observed during follow-up visits that doctors do not follow the IMCI algorithms strictly: they use stethoscopes. IMCI reportedly was rejected as being too basic and doctors are used to prescribing 5–10 drugs. Resistance was reported from professors, academia and specialists, who follow separate protocols. Polyclinics are usually equipped with a set of basic laboratory tests, stethoscopes, otoscopes and other equipment, which IMCI does not use. Students are reported to be dismissive of IMCI, but

they usually start to appreciate the programme during the module on cough and respiratory symptoms.

Unrealistic requirements/incongruence with other policies

IMCI implementation at health-facility level is reportedly hindered by primary health care providers' excessive workloads and a lack of general practitioners. A shortened and simpler IMCI version would better meet general practitioners' everyday work requirements.

Sanitary epidemiology services require hospitalization and bacteriological testing of all diarrhoea cases. Doctors reportedly either refer children with diarrhoea to the hospital or avoid diagnosing diarrhoea cases.

Gentian violet and diazepam are not available at primary health care facility level. Protocols for health check-ups are not in line with IMCI.

Competing interests/external influence

Therapists and paediatricians were retrained as general practitioners during the transition period, resulting in a low level of trust among the population about the capacity of providers at primary health care level and leading to frequent self-referrals to paediatric care in hospitals. Parents skip primary health care level and take their sick children directly to district or oblast hospitals because conditions and diagnostic capacities are better. The population believes in paediatricians' capacity to care for their sick children, but not in that of general practitioners.

According to key informants, general practitioners often still have relatively low capacity and prescribe drugs, even when not needed, out of fear. Parents perceive injections, expensive drugs, intravenous treatment and intramuscular antibiotics as good quality of care, but this is described by key informants as the "Soviet culture of medicine", which is contrary to the evidence-based approach of IMCI. Anecdotally, parents prefer taking their children to non-IMCI trained specialists, as they prescribe more and different drugs.

Also anecdotally, paediatricians employed in hospitals earn US\$ 200 per month, which is not sufficient to provide for a family. According to World Bank data from 2003, informal private practice by publicly employed physicians contributes significantly to informal payments and to the income of health professionals. Doctors are reportedly inclined to satisfy parents' wishes for medicalized care to increase their income.

Aggressive local advertising of drugs and pressure exerted by the pharmaceutical industry to prescribe certain drugs further counteracts the practice of evidence-based medicine. Control of pharmacies to limit over-the-counter sales reportedly is limited.

Private sector and out-of-pocket payments

Anecdotally, access to the basic benefits package is not fully utilized by high-income groups, who often opt for the private sector or use services under private arrangements. It is suggested that a number of previously public rural hospitals have been allowed to switch to private ownership and now charge fees for their services. Data on such changes are lacking.

According to the key informants a living standards assessment carried out by the World Bank in 2003 revealed that more than two thirds of health care users have made informal

payments to providers in cash or kind, with cash being more prevalent in urban areas. Informal payments were either requested or given voluntarily and could add to, or substitute, official fees.

IMCI drugs are included in the national essential drugs list (except for zinc), but drugs are not free for the full course and parents have to purchase prescribed medicines. Drugs for emergency care are available at health facilities, except for diazepam, which is not available at primary health care level as it cannot be stored in compliance with rules and regulations. It is therefore available only at polyclinic and hospital levels.

Anecdotally, most outpatient pharmaceutical expenses are covered by individual direct payments, although no reliable data on the share of different types of payments are currently available. Regarding the burden of out-of-pocket payments, different information is available: key informants stated that even when drugs are not covered by the government, it does not put a high burden on families, as they are relatively cheap (for instance, 10 tablets of amoxicillin costs 3000 UZS, corresponding to US\$ 0.5). Out-of-pocket payments are a barrier to treatment, according to UNICEF.

Areas for potential improvement

Key informants consider IMCI a basic programme and propose to upgrade algorithms for doctors. Clear linkages to ICD-10 will be made, the use of stethoscopes and otoscopes will be allowed, symptoms/syndromes such as helminthiasis management and treatment, renal and heart problems, hepatitis treatment and rehabilitation for hospital care expanded, and integrated care of children above 5 years and adolescents included. Joint doctor–nurse training would be desirable. A pocket book for outpatient training, including an online training course, should be developed.

Key informants noted that training for general practitioners needs to include paediatrics beyond IMCI and that the quality of medical pre-service education should be improved.

Annex 3. Vignettes from selected areas

Kosovo (in accordance with United Nations Security Council Resolution 1244 (1999)) – IMCI review

Background

Data on under-5 mortality are not available for the area of Kosovo,⁷ but the under-5 mortality rate at the time of the introduction of the IMCI strategy shortly after the war was estimated at 69/1000, according to the UNICEF Kosovo⁸ website. IMCI was introduced to address high under-5 mortality, widespread overuse of antibiotics (especially for sore throats of non-streptococcal origin) and polypharmacy, as well as the lack of clinical guidelines and protocols.

IMCI materials were adapted and training was piloted in two districts, subsequently being scaled up to the whole area. IMCI drugs were included in the essential Kosovo⁸ drug list, but drugs are not available and 85% are paid for out of pocket.

IMCI implementation stalled after external support was discontinued and introduction into pre-service has not been realized. The WHO pocket book on hospital care for children was translated and a training course organized, and quality improvement effort in hospitals were initiated. IMCI introduction was supported by the WHO Regional Office for Europe and UNICEF.

Findings according to the conceptual framework

Relevance and input

Key informants considered IMCI very relevant, as it is a practical tool for general practitioners that covers 80% of the main pathologies of children and indicates when to start with antibiotics. Paediatricians do not consider it relevant for them. Professors did not support inclusion of IMCI in the university curriculum, as it was not considered relevant for the local context: instead, it was perceived as being relevant for less developed settings.

Efficiency and process

Health workers across the area were covered by training on the IMCI algorithm, with post-training follow up carried out. The WHO pocket book of hospital care for children was adapted and translated. Assessments of quality of hospital care for children were carried out with repeated follow-up visits. Implementation of the community and health-systems components was limited.

Efficiency and output

While feedback after training was very positive, key informants reported that IMCI was not being used routinely by health care workers. Algorithms are available but not used in some

⁷ All references to Kosovo in this annex should be understood as references to Kosovo in accordance with Security Council resolution 1244 (1999).

centres. Reasons cited for non-implementation included no support from management, nurses waiting for doctors to start implementing IMCI, oral rehydration therapy corners not being set up in health facilities and too many forms to complete. Nurses reported, however, that they counsel mothers according to IMCI.

Effectiveness and outcome

IMCI is included in the Kosovo⁸ drug list, but drugs are not available free of charge: 85% of drugs are paid for out of pocket, although IMCI drugs are relatively cheap. Overuse of drugs remains a big problem, particularly with third-generation cephalosporin being used when amoxicillin is indicated.

The pharmaceutical industry is reportedly providing incentives to doctors to prescribe specific drugs.

IMCI reportedly has contributed to parents' education and key informants stated that mothers are increasingly reluctant when doctors prescribe antibiotics. Key informants also reported, however, that many parents prefer aggressive use of drugs, intravenous treatments and sophisticated diagnostic tests, including laboratory tests.

Impact

Key informants reported that IMCI contributed to the reduction of child morbidity and mortality, including malnutrition, but that IMCI was not being implemented at a scale from which an impact could be expected.

Key informants reported also that while in the past children sometimes were referred too late, IMCI has addressed this and it no longer happens. There was concern, however, that family doctors are now referring all children, even basic cases that could safely be managed at primary level.

Sustainability

Key informants reported that the 10-day IMCI training was integrated into the bachelor's programme for nurses. A shortened to 2–3-day (six-hour) introduction to IMCI has been included in the residency programme for the family medicine specialty.

IMCI has not been included in undergraduate medical education, although efforts to reverse this are underway. ICATT has been submitted to the public health authorities for review.

Key informants reported that when external support stopped, IMCI efforts stopped.

Key themes arising from IMCI review in Kosovo⁸

Strengths

Promotion of rational use of antibiotics and decreased polypharmacy

No information was available in this area.

Promoting evidence-based and systematic care

Key informants stated that IMCI promoted a holistic view, rather than the child being perceived by body systems. They stated that IMCI had the strongest impact on general

practitioners at the beginning of their careers, as it freed them from their fear of dealing with children.

Identification of severely ill children

Key informants found IMCI to be an important tool for differentiating between severely ill children who need to be referred and those who can safely be managed as outpatients. IMCI ensured the identification of patients with severe disease through clinical assessments: some were later confirmed to have meningitis, and counting the respiratory rate of others confirmed pneumonia and ensured subsequent referral.

Beyond survival

Key informants reported that nurses greatly appreciated the IMCI programme patients were very satisfied with the approach. IMCI continues to provide benefits through home visits and has improved nurses' communication and counselling skills.

Shortcomings

ICD-10 versus IMCI classifications

Key informants reported discrepancies between the diagnostic and reporting system, which is based on ICD-10, and the IMCI classification. The recently established health information system is based on ICD-10 and does not allow for IMCI classification.

Dogmatic positioning of IMCI and professional resistance

Key informants reported resistance to IMCI implementation from the paediatric community. Professors did not support inclusion of IMCI in the university curriculum, as it was not considered relevant for the local context but rather was perceived as being relevant for less developed settings. Key informants suggested that the IMCI approach was perceived as somewhat dogmatic in relation to not using the stethoscope and laboratory tests for diagnosis, as they are available in the local context. It was not acceptable to doctors to work without a stethoscope, and patients found also it unacceptable. At the same time, key informants reported that family doctors are wary of taking on responsibility for caring for children and are quick to refer.

Unrealistic requirements/incongruence with other policies

No conflicting policies are reported, except or incongruencies with health-system reporting requirements. Additional potential reasons cited for discontinuation of IMCI included IMCI being too time-consuming (family doctors see 60–70 patients per day and there is insufficient time to repeat the IMCI algorithm each time and fulfil all reporting requirements) and too basic, and patients directly accessing secondary and tertiary levels for care and treatment of their sick child.

Competing interests/external influence

Key informants reported that overuse of drugs remains a substantial problem. IMCI drugs are among those that are used less commonly; third-generation cephalosporin is often

used when amoxicillin would be appropriate. Key informants also stated that the pharmaceutical industry is incentivizing doctors to prescribe specific drugs.

Reportedly, the family doctor/general practitioner concept is not well accepted among the population, and paediatricians are preferred for care of children.

Private sector and out-of-pocket payments

IMCI drugs are included in the Kosovo⁸ drug list but are not always available free of charge: 85% of drugs are paid for out of pocket, although IMCI drugs are relatively cheap.

Areas for potential improvement

It was suggested that pharmacists would benefit from IMCI training, as they are often the first point of contact and most drugs can be accessed directly at pharmacies.

Key informants also proposed the development of a training course similar to IMCI training on the WHO pocket book.

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav
Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

World Health Organization Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark

Tel: +45 45 33 70 00 Fax: +45 45 33 70 01

Email: eucontact@who.int

Website: www.euro.who.int

