ORIGINAL RESEARCH

Post-Conflict Transition and Sustainability in Kosovo: Establishing Primary Healthcare-Based Antenatal Care

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Abbreviations:
ANC = antenatal care
DMS = Dartmouth Medical School
FMC = Family Medicine Center
GDA = Global Development Alliance
WHO = World Health Organization

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Abstract

Introduction: Kosovo is a post-conflict nation with an extensively damaged infrastructure, a weak primary care base, and poor maternal-child health outcomes. The Kosovo-Dartmouth Alliance for Healthy Newborns (the Alliance) sought to improve maternal and neonatal health in Kosovo by providing family medicine-based antenatal care (ANC).

Methods: The ANC Program used a modification of the World Health Organization's four-visit, prenatal care model. The program is based in family medicine and requires minimal medical equipment, such as a blood pressure cuff, fetal doppler, measuring tape, urine dipstick, and charting materials. Patient education and counseling are stressed. Women are taught about danger signs in pregnancy and establishing an emergency plan, so that they can respond promptly if complications occur. Antenatal care doctors and nurses are trained to refer women to obstetricians for deviations from normal pregnancy. The providers are taught using a "Training of Trainers" approach, building on an existing system of family medicine trainers. In order to address challenges in implementation and sustainability, microsystems methodology is used to focus on implementing change and assuring quality improvement through shared decision-making and the study of outcomes.

Results: Based on chart reviews and direct observation, ANC providers showed mastery of the components of ANC, including physical examination, recognition and referral of high-risk pregnancies, and patient education. After an initial pilot project, Kosovo's Ministry of Health recommended this program for dissemination throughout the country. During the next year, ANC was implemented at 27 Family Medicine Centers in nine municipalities; 1,671 women were seen for a total of 3,399 visits. Currently, the Alliance's model of ANC is offered in 30% of Kosovo's municipalities.

Discussion: International aid projects often lack attention to long-term sustainability. Microsystems training gives participants the tools and framework to implement and sustain change, even after international support is withdrawn.

Conclusions: The Alliance's model of family medicine-based ANC is simple to teach and emphasizes sustainability. It may be modified for use in different cultures and healthcare systems and offers the opportunity to improve maternal and infant health by providing low cost antenatal care, available in a woman's own community.

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Introduction

Kosovo is a post-war country with an extensively damaged infrastructure and a poor economy. Although Kosovo declared independence in February 2008, its political future remains uncertain. There is a long history of ethnic hostility with recent oppression of ethnic Albanians by Serbian-backed forces from 1988–1999. This period was followed by the 1999 war, a humanitarian crisis during which 90% of Kosovars were displaced into refugee camps in sur-

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rounding nations. Military intervention by NATO ultimately ended the war, but left a damaged landscape and population. As a result, Kosovo itself, and its healthcare system in particular, is facing extraordinary challenges in recovery and reconstruction.

The medical system that has developed since the 1999 war is hampered by underfunding, and, as is common in post-Soviet medical systems, is specialty-focused and urbanized, with no strong primary care base. Access in rural areas is poor. During the decade of ethnic oppression, most Kosovar physicians were not allowed to work in their professions. The result is a generation of physicians with inadequate training and outdated skills. Since 1999, the World Health Organization (WHO) has overseen the formation of a family medicine-based system of primary healthcare.[1–4] Nonetheless, there is a scarcity of individuals with experience in administration and management, and improvements have been slow. In addition, nursing roles traditionally have been limited, involving very little direct patient care. Health outcomes throughout Kosovo are poor, particularly concerning perinatal mortality; it has the highest perinatal mortality rate in Europe, 23/1,000 population.[4,5] Leading causes of perinatal mortality are complications of pregnancy, prematurity, infection, and birth asphyxia.[5] Antenatal care has been available only with obstetricians, and generally only in more urban areas. Individual medical records are not kept; pregnant women typically arrive at the hospital in labor with no record of their antenatal care.

The Dartmouth Medical School (DMS) has been involved in healthcare improvement projects in Kosovo since 2001.[6,7] The recent partnerships have focused on maternal child health. In 2004, funded by United States Agency for International Development (USAID) and supported by the American International Health Alliance, Dartmouth conducted a pilot primary care project introducing antenatal care (ANC) in family medicine. Later, the Kosovo-Dartmouth Alliance for Healthy Newborns, a USAID-funded Global Development Alliance (GDA), disseminated the successful ANC pilot project and introduced improvements in obstetric and neonatal intensive care. The GDA project involved matching funds from corporate and individual donors, including the major Alliance partner AmeriCares, a large international humanitarian relief organization. The Kosovo Ministry of Health and numerous volunteer physicians and nurses from Kosovo and the US donated their time.

For the purposes of this paper, the DMS and all of its funding and volunteer partners will be referred to as the "Alliance". The Alliance's objective was to improve infant and maternal health in Kosovo by establishing low cost, family medicine-based ANC, available to all women close to home. Recognizing that healthcare initiatives in developing countries often fail to place emphasis on implementation and sustainability,[8] the Alliance, as with previous Dartmouth-Kosovo projects, used microsystems methodology, an established process for improving medical care used to address these issues in the United States and Western Europe.[9,10] This methodology acknowledges that health care is delivered within a system, and that all levels of this system must be involved when implementing change. It stresses teamwork at all levels of the healthcare system, and uses the study of outcomes to drive continuous quality improvement. Working groups are established to assure that all parties involved in the microsystem are engaged in the process. Healthcare professionals use the Plan, Do, Study, Act (PDSA) cycle, a process described in the microsystems literature to *Plan* and implement *(Do)* new care services, collect and analyze data *(Study)*, and *Act* on the conclusions to thus continuously improve care.[10]

The municipality of Gjakova was chosen for the pilot project as it is a representative mid-sized city of 120,000 population, one that suffered extensive damage during the 1999 war (90% population displacement; 90% of existing buildings damaged or destroyed). The population is mostly ethnic Albanian and of Muslim faith.[11] Gjakova has a functioning network of family medicine clinics, though resources are minimal; most lack consistent heat and basic equipment such as blood pressure cuffs. The relationship between the local obstetricians and the family medicine leadership was said to be cordial. The system of family medicine physician and nurse trainers consists of individuals that are selected in each municipality and designated as "Trainers" for new skills and procedures. The Alliance built upon this system for the education, training, and evaluation of its ANC module.

Methods

Phase I

The Alliance organized a program of family medicine-based antenatal care, using a model developed and shown to be effective by the World Health Organization (WHO; Figure 1) that utilized a reduced number of antenatal care visits (a minimum of four visits during pregnancy).[12,13] The Alliance developed and provided training materials, in conjunction with physicians and nurses from Gjakova (Figure 2). Two physicians and one nurse, who already were designated as Trainers, underwent extensive additional training by Alliance personnel both in Gjakova and in the US. Then, they were responsible for disseminating the training to other physicians and nurses in the Gjakova municipality. Physicians and nurses were trained together (a new concept in this culture), and both were given significant roles in the provision of antenatal care. The trainings were consistent with Western standards, including pre- and post-testing, as well as Observed Standardized Clinical Evaluation (OSCE) testing of clinical skills. Hands-on skills were practiced both on models and on recruited pregnant patients. The Alliance provided materials necessary to implement antenatal care at each new site (Table 1). The cost for both training and implementation resources for each Family Medicine Center (FMC) was approximately USD $1,500–2,000/FMC dependent on the number of professionals trained (3–20/FMC) and estimated number of women expected for care during the first year of implementation (50-500). In addition to the resources provided by the Alliance, the FMCs were expected to be equipped with basic items such as blood pressure cuffs, stethoscopes, and scales. Those that were not were provided with any necessary items. Once the personnel were trained, the challenges of implementation were addressed (Phase II) using the microsystems approach.

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- Evidence-based
- Assumes all women are at risk
- Demonstrates that every woman needs antenatal care to:
  - Reduce complications
  - Reduce pre-term births
  - Prepare for delivery and motherhood
  - Improve outcomes
- 4 visits for routine care with no complications
  1st Visit – first trimester ideal, <12 weeks
  2nd Visit – 26 weeks
  3rd Visit – 32 weeks
  4th Visit – 36–38 weeks
  Follow-up visits during post-partum period

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Figure 1—The World Health Organization four-visit model for antenatal care[12,13]

#	Implementation Resources for each Family Medicine Center
1	Fetal Doppler
1	Ultrasound gel for doppler
1	Fetoscope (fetal stethoscope)
100	Urine tests for protein
100	Pregnancy tests
3	Measuring tapes—fundal height
10	Gestational wheels
2	ANC Resource Manuals per FMC
1	Log-book for patient data
200	Classifying form
150	ANC medical record
150	Appointment/return visit card
	Educational Posters:
30	ANC in Family Medicine (community placement)
1 set	Pregnancy by month (set of 7), Timeline (office posters)
	Patient Education Brochures
200 each	ANC at Family Medicine Centers; family support, nutrition, folic acid, emergency planning
	Patient Information Handouts:
200 each	Timeline of pregnancy, danger signs
100 sets	IPH pregnancy by months (7 pages each set)

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Table 1—Resources provided by Kosovo-Dartmouth Alliance for Healthy Newborns to each Family Medicine Center implementing Antenatal Care (ANC = antenatal care; FMC = Family Medicine Center; IPH = Institute of Public Health)

I Family Medicine Antenatal Care Training Materials
  A Overview and Objectives of ANC Training
  B Antenatal Care Training presentation
  C Training Forms
    1 Training Attendance and Testing Record
    2 Written competency test
    3 OSCE – skills test
    4 Training Evaluation Forms
    5 Implementation Forms:
      • Classifying Form
      • Antenatal Care Medical Record
      • Medication Handout
    6 Data Collection & Reporting Forms
      • Log Book
      • Monthly/Yearly Report Tables
      • Chart review/monitoring form
II Microsystems Manual for ANC Implementation
  A Resource Manual
  B Attachments & Worksheets
III Family Medicine Center ANC Site Resource Manual
  A Overview of Family Medicine—Antenatal Care
  B Skills
  C Complications
  D Medication use
  E Patient Education
  F Postpartum Care
  G Patient Education Materials

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Figure 2—Package of antenatal care training resources (ANC = antenatal care; OSCE = observed, structured, clinical examination)

Phase II

Due to the lack of experienced family medicine administrators and management, and the relatively weak role of nurses, it was deemed necessary to use a systematic, comprehensive approach to instituting change. The Alliance began by examining what was referred to as the "clinical microsystem", a composite term for the individual FMCs in Gjakova. Working groups were established to address implementation challenges and to drive decision-making at all staff levels. Working groups addressed issues such as community education, patient education, building relationships with obstetricians, and data collection (Figure 3). The groups met regularly to develop plans, set goals, and report on progress. A Leadership Group, composed of the leaders of each working group, met with the Medical Director of the municipality to coordinate efforts and assure adherence to an agreed upon timeline. Physicians and nurses took equal roles in the leadership and working groups, which was most unusual in a post-Soviet culture that normally emphasizes hierarchy. The Alliance recognized that enhancing the nurses' roles was essential to the development of Family Medicine overall. Therefore, the Alliance built upon advances made in a previous project in the city of Gjilan, in which nursing roles in Family Medicine Centers were enhanced.[6] With the Alliance, the role of nurses was expanded to include direct patient care, patient education, physical examination, and medical record keeping.

Following the Alliance's model, patients receive very basic antenatal care: focused physical examinations including blood pressure, fundal height, fetal heart tones, and proteinuria screening. A medical record is kept, including a "maternal passport", a document that a woman brings with

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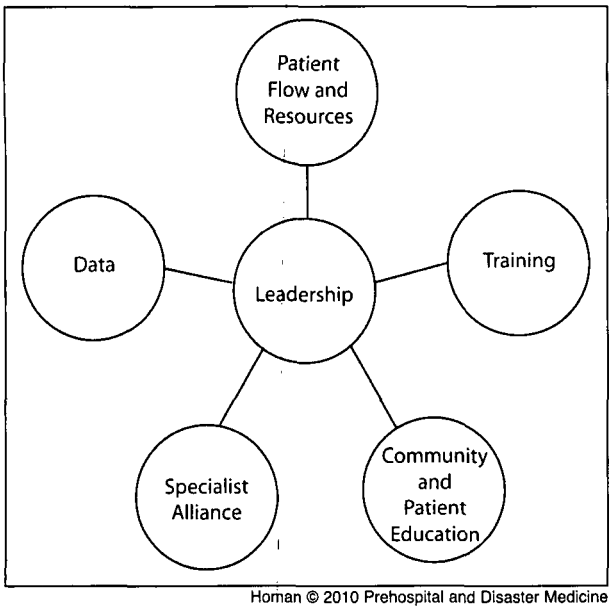

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Figure 3—Workgroups developed to improve and implement antenatal care

Gjakova n = 172 %	Alliance n = 119 %	Antenatal Care Service Recorded
95	99	Completed Classifying Form
98	95	Estimated due date
25	24	Referred to a specialist
83	98	Blood pressure recorded at each visit
84	74	Fundal height recorded
86	75	Received education on danger signs, nutrition, and emergency planning

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Table 2—Workgroups developed to improve and implement antenatal care

her to the hospital when she goes into labor. This allows the delivering physician to have access to basic information such as a woman's due date, blood type, and pregnancy complications. In addition, patient education is recognized as the cornerstone of risk reduction. Counseling is provided on smoking cessation, nutrition, and breastfeeding. Women are taught about danger signs in pregnancy and encouraged to establish an emergency plan so that they can respond promptly if danger signs occur. The emergency plan is necessary in Kosovo, since most areas lack ambulance service, and vehicle ownership in rural areas is rare. Antenatal care providers were trained to refer women to obstetricians if they were high risk at the first visit, or had deviations from normal pregnancy during subsequent visits.

Results

In the first 10 months of the Gjakova pilot project, ANC was being provided at all nine of the selected FMCs. There were 172 pregnant women that were seen, for a total of 254 patient visits. Chart review, based on standards of the WHO model program, confirmed that high quality ANC was being provided appropriately in accordance with the WHO model (Table 2, column 1). Quality was assessed by accurate completion of the antenatal care record, including documentation of due date, key aspects of the physical examination, recognition and referral of high risk pregnancies, and patient education on nutrition, danger signs, and emergency planning.

Based on the results of the Gjakova pilot project, the Ministry of Health supported the dissemination of this antenatal care model throughout Kosovo. A USAID–funded Global Development Alliance provided support for the dissemination phase. During the next 18 months, antenatal care training was implemented at six new municipalities. The Alliance used the established network of family medicine trainers in the new municipalities to disseminate the ANC module. A core group of antenatal care trainers from the Gjakova pilot project held a "Training of Trainers" for attendees from the new municipalities. These individuals were responsible for training their local family medicine staff members in providing antenatal care. The Alliance provided material and logistical support for the training sessions, but the teaching was carried out entirely by Kosovar trainers, establishing a sustainable mechanism for dissemination.

Two microsystems workshops were completed by 78 family medicine physicians and nurses. An additional eight municipalities that initially had not been chosen for ANC implementation approached the Alliance for assistance, having learned of the program from colleagues. The Alliance arranged for training and materials. In one instance, the ANC trainers from one municipality voluntarily trained physicians and nurses from three neighboring municipalities, who in turn, trained their own staffs and implemented ANC. At the end of the project, materials and plans were in place to extend ANC to the additional five municipalities interested.

In all, 87 antenatal care trainings resulted in 1,299 personnel trained (319 physicians and 980 nurses). During the first year roll-out of implementation, 1,671 women were seen at 27 FMCs in nine municipalities. A total of 3,399 visits were reported with women seen for 1,077 initial ANC visits, 587 follow-up visits, and 1,735 post-partum care visits. Through chart review and direct observation, quality of care was confirmed and found to be consistent with the results of the Gjakova pilot (Table 3, column 2).

More than 30% of Kosovo's municipalities (and all of the largest municipalities) now have the capacity to provide free ANC services to women in their community. For many pregnant women, these services have led to referrals for additional, potentially life-saving care. Highlights of the final results include:

1. 10 of Kosovo's 30 municipalities are trained and actively offering ANC in FMCs;
2. 40 family medicine physician and nurse trainers are credentialed to provide ANC training;

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Cause of Death (5)	Antenatal Care Intervention
Prematurity (49%)	- Document due date - Specialist referral for history of pre-term delivery - Antenatal steroid use - Patient education for signs of pre-term labor - Early recognition – transfer to tertiary care
Congenital Anomaly (18%)	- Folate supplementation - Referral for large and small for dates - Facilitates ultrasound diagnosis - Delivery at tertiary care center
Perinatal Causes (15%)	- Prompt recognition and referral for: - Vaginal bleeding - Elevated blood pressure and edema - Abnormal fundal height - Severe anemia - Rh incompatibility - Patient Education: nutrition, iron supplementation, alcohol
Infection (9%)	- Recognition and referral for premature rupture of membranes - Prevention of sexually transmitted diseases - Patient education regarding danger signs
Asphyxia (5%)	- Prompt recognition and referral for: - Decreased fetal movement - Abnormal heart tones - Induction at 41 weeks - Patient Education: tobacco use

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Table 3—Antenatal care potential impact on reducing causes of early neonatal death[5]

3. 36 FMCs are providing ANC and nine additional sites are prepared to start (A total of 45 FMCs have trained staff and resources available); and
4. 27% of visits for ANC resulted in referrals to specialty care; referrals were appropriate, and occurred at expected rates. Some of the referrals (e.g., severe pre-eclampsia, multiple gestation, severe anemia) were potentially life-saving (Table 3).

Materials produced by the Alliance have been packaged in such a way as to facilitate additional dissemination throughout Kosovo (Figure 2 and Table 1). These include:

1. A full ANC training package that is evidence-based, includes skills practice, testing and Observed Standardized Clinical Evaluation (OSCE) examination; and focuses on microsystem methods for implementation and sustainability. This is a Ministry of Health-endorsed Continuing Professional Development (CPD) module for physicians and nurses available for wider dissemination across Kosovo; and
2. An ANC implementation package ("toolkit") of material and educational and informational resources for FMCs.

Discussion

It is all too common for international aid initiatives to focus too narrowly on training or resource distribution, without adequate attention to improving the systems that are required for ongoing success. The microsystems approach gives participants the tools and framework to implement change in a way that remains sustainable, even after international support is withdrawn. The participating Kosovar professionals were empowered by microsystems training to develop a new way of organizational thinking; they learned to promote change by working in teams instead of the more traditional "top down" manner, and to use Plan, Do, Study, Act (PDSA) cycles to implement, measure, and improve clinical care. Microsystems training also encouraged professional growth, particularly in the role of nurses. It is a simple, reproducible methodology that may be used to address a variety of healthcare problems.

Providing antenatal care in FMCs was an entirely new concept for both the providers and their patients. Innumerable challenges existed in establishing ANC in these centers, which lack adequate resources and funding. The final results of the combined pilot in Gjakova and the dissemination project to nine other municipalities demonstrate the success and value of the Kosovo-Dartmouth approach. The Dartmouth partners credit the microsystems approach in empowering healthcare professionals to rely on and develop available resources. The maxim "Start where you are, use what you have, do what you can", a quote attributed to Arthur Ashe,[14] often was repeated in encouraging Kosovar physicians and nurses to reorganize their thinking and their systems to strengthen family medicine. Given the historically specialist-oriented Kosovar medical system, changing the cultural view to have confidence in family med-

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icine and primary care will take time. The Alliance suggests that this change must be supported at all levels of the healthcare system for a minimum of 3–5 years to show results.

The ANC program was developed during a period of transitional assistance between post-conflict relief interventions and longer-term program development. Challenges in implementation are expected given the political uncertainty, economic pressure, and health system development occurring in this new country. In addition to microsystem methods, another major factor in this project's success was the role that Dartmouth Medical School played as an academic institution. The Alliance team of healthcare providers and teachers had significant influence by establishing and building collegial relationships with many of the key healthcare professionals and stakeholder organizations in Kosovo. This allowed for education, training, and implementation to occur in a professional, mentoring atmosphere, which differs substantially from the traditional donor-to-recipient aid relationship. Although the prenatal care offered through this program is basic, it has the potential to significantly decrease Kosovo's leading causes of perinatal mortality.

It is too early to determine if this program has positively impacted health indices such as maternal and infant mortality rates. Another limitation of this work is that while the ANC module is designed to be low cost, nonetheless, it does require ongoing economic and institutional support for sustainability. Although Alliance partners reviewed data collection at each site early in the project, in later phases, responsibility was shifted fully to the local Data Groups, and accuracy could have faltered. While the numbers of pregnant women served increased steadily throughout the program, after the end of grant funding, there are no data to confirm ongoing success. To address some of the sustainability issues, the Alliance developed a Kosovo-based Foundation for Healthy Mothers and Babies. This non-governmental, non-profit, philanthropic organization is patterned after the March of Dimes in the US, and will work for improved maternal and child health through advocacy and sponsorship of programs that can fill the gaps between the government-funded health institutions and population needs.

The Alliance has applied for funding to continue this work in Kosovo. The Ministry of Health has endorsed this approach to ANC for roll-out across Kosovo. Pregnant women in many rural municipalities still lack access to ANC. The Alliance views ownership of these materials to rest with the Kosovars, and stands ready to assist other aid organizations and Kosovar health officials in using its training materials and methodologies. All materials are available in English, Albanian, Serbian, and Bosnian, and could be adapted for use in other developing nations. The Alliance recognizes other pressing needs to improve maternal child health, including improved communication, and transport capabilities between rural areas and tertiary care hospitals, and improved newborn and pediatric care. The authors would like to study the long-term impact on health indices in 3–5 years.

Conclusions

Kosovo now faces the challenges of a fragile and newly declared independence and a struggling economy. In this setting, the Alliance's ANC model holds promise for ongoing improvement in the health of Kosovo's mothers and babies. It is simple to teach and low cost to sustain. It relies on Kosovar physicians and nurses to further disseminate ANC training. It is easily packaged and modified for use in different cultures and healthcare systems, and is well-suited for implementation in countries that have a functioning, even if rudimentary, primary care system. The Kosovo-Dartmouth Alliance's ANC model offers the rare opportunity to improve the health of mothers and infants in underdeveloped nations.

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Post-Conflict Health System Recovery: The Case of Kosovo

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The Environment Short of War

The world now can claim that there are fewer declared wars for the first time in almost two decades. Is it a time for celebration or for further reflection on what might come next? I recently dusted off a never-shown slide presentation on post-conflict responsibilities written in 1992. It was put aside then because of a sudden eruption of internal wars in Africa, Asia, the Balkans, and the Middle East, which preoccupied the humanitarian community with life-saving emergency aid and remained far away from thoughts of meaningful post-conflict recovery. The recovery tasks, I suggested, would be difficult, old mindsets on bureaucratically heavy healthcare delivery would have to change and be refocused on primary health care and building, from scratch in many situations, the protective public health infrastructure and systems that keep communicable and non-communicable diseases at bay. I believed it might take several decades to see health recovery, especially considering on how long it would take to rehabilitate the long decimated medical and nursing education systems. But having no evidence that this was fact, I quickly changed this timeline to a "decade or less before results would be realized" believing my anticipated target audience of humanitarian workers might become discouraged by such a dismal timeline. I expressed concern that the humanitarian community alone might not be up to the challenge and, even in health recovery, jobs and trade would be pivotal to success. My only working model was post-WWII Germany and Japan, which recovered fairly quickly. I never gave security more than a passing thought. How right, and how so very wrong, I was.

We now can reopen old studies and reflect on new ones that unexpectedly reveal a highly complex environment that may fail more often than succeed. Studies suggest that 47% of these countries would return to fighting within a decade; in Africa this would be 60%.[1] To call these countries "post-conflict" is problematic. Having a complex lingering level of violence is commonplace in these "environments short of war" that is poorly understood. Too often, small arm weapons remain rampant, economic gains become stagnated, and health indices, like infant mortality rates, worsen. The once rural Africa is now a continent where 67% of its population resides in urban settings that claim over 75% of the population as squatters.[2] Dense and migrating populations lead to increasing prevalence of HIV/AIDS and steadily worsening maternal and child mortality rates. A major contrast with post-WWII is that small arm weapons freely float within this environment making it too easy to return to violence when political, economic, and social conditions do not improve. For many donors their attention span ends when the shooting stops. The costs of recovery are staggering (in the billions) and with the current, worldwide financial crisis, donors are reluctant to put forth meager funding for interventions that may or may not succeed. Health infrastructure is characteristically the first to be destroyed in war and the last to be recovered. Recovery begins with <10% of pre-war health infrastructure resources being present.

What do we know about countries that have witnessed success? The transition phase can be the most dangerous with rapidly escalating mortality and

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morbidity when non-governmental organizations (NGOs) leave and funds dry up. Success comes from combining short-term humanitarian aid with a long-term, multi-sectoral, strategic planning process that incorporates diplomacy and incremental development goals. Health can be a crucial entry point, that, along with education and job creation, provides necessary demonstrations to the populace of improved quality of life and hope for a better future. In contrast to the independent, program-centric emergency phase relief responses, post-conflict programmatic efforts must generate from highly coordinated strategic planning initiatives that coordinate all internal and external initiatives under one decision-making authority representing the fledgling government, not outsiders. It requires, minimally, a 7–10 year commitment to turn a country around. It is a time and place only for patient educators, planners, and long-term thinkers.

Post-war East Timor has proved successful after 70% of the health infrastructure and government buildings were destroyed in every town and village. External support by a UN Administrator ensured that authority and decision-making stay with the nascent Ministry of Health (MoH). The NGO-run health services, many former independent remnants of the emergency phase, now are under cooperative agreements with the MoH to meet a broader strategic plan that calls for the slow and progressive handover of care to newly trained and resourced local providers. To be successful, countries coming out of war require a strong mix of security, social welfare, health, and economic resources. But this varies considerably across all countries, leaving lots of room for cultural, political and programmatic interpretation that must be reflected in the strategic planning.

Kosovo: 1996–2009

Unfortunately, in the rush to mimic the success seen during the emergency phase, cultural considerations, especially in health, often fall by the wayside. Kosovo is but one example. During the war, Kosovar Albanian physicians were targeted by the Serbs for providing care to the Kosovo Liberation Army. Marginalized and brutality traumatized for years, it was crucial that these well-trained providers be included in the future design of the fledgling health system. In the immediate transition period, the Kosovar practitioners correctly anticipated and openly petitioned the West for education and training in how to supervise and manage health delivery systems, something they were never allowed to do under Serbian rule. However, this did not happen. A recent report by *Physicians for Human Rights* on war and health in Kosovo found that "UN agencies and others who developed the new health system did not fully engage the Kosovar physicians in the planning process." Planners independently introduced a "new model of practice unfamiliar to patients and providers alike"—one that proved poorly resourced and managed. Rather than gaining a foothold into public primary care, many of these physicians fled to private practice. To add insult to injury, "lack of transparency and accountability and absence of a sound health financing system resulted in a fragmented and inequitable system that persists in Kosovo today."[3] Access to the most experienced of practitioners now requires private payment often beyond the means of the majority of the population. It is purported that "one-in three" Kosovars cannot afford to access health care when ill.[4]

During the war, the Albanian Kosovars were compelled to survive through a clandestine parallel healthcare system (the Mother Theresa Organization).[5] Today, the Serbs have a shadow government and health system of their own whose providers are supported and funded by Serbia. This segregated system reveals severe unresolved ethnic tensions that directly impact the future of healthcare delivery. Worse, other minorities (i.e., Roma, Ashkali, Egyptians) who suffer poverty and discrimination themselves have been caught in the middle.[6]

Although there is a dearth of data (information gathering and analysis is inadequate), health indices, such as the infant mortality rates (number of deaths per 1,000 live births) are estimated by UNICEF to be 18–44, the highest in the Balkans (6.75 in Serbia and 9.1 in Bosnia and Herzegovina) and higher than rates in Western Europe.[7] Not surprisingly, the Kosovo government reports a rate of 12 but confirmatory data is not available. A high maternal mortality rate, between 12 and 23/100,000 live births, was reported in 2005 to be 6.8 but questions remain as to reliability.[8] In 2000, the ratio of physicians to population was 13/10,000 inhabitants and only rose to 14 in 2004 (compared to the European Union average of 35).[9] Ready solutions naturally would stem from developing a strongly financed and resourced primary healthcare system, but primary care lacks respect among established physicians and few medical students consider this career direction. A European funded training program resulted in a small force of family medicine physicians; and replaced currently by a Ministry of Health (MoH)-supported Family Practice Residency. Physicians working in the public sector (mostly family medicine) are paid a meager 300-450 Euros/month; which is similar to faculty in medical education.

Many transition countries have struggled with the introduction of family medicine-centered primary healthcare reforms; yet by 2005 Bosnia and Herzegovina, despite considerable post-war challenges and resource constraints, managed to "scale up multifaceted reforms to cover over 25% of the country."[10] In Kosovo, commentators in 2007 cautioned that the Kosovo healthcare system, which was reorganized with primary health care as "the fulcrum for change", has been plagued with major shortcomings. Some fear the policy has failed, while others feel there is a "potential danger that the system could partly revert to the old Soviet era system." Buwa and Vuori, both seasoned representatives of the UN Population Fund, acknowledge major organizational successes, but prefer to see this as one of many examples of the pattern of ups and downs that characterize post-conflict healthcare reform in many countries especially when uncoordinated assistance, without the mantle of a strategic plan, rushes in.[11]

In many of the Former Soviet Union countries, the generic top-down decision-making of the communist-era heritage remains prevalent. Physicians favored a top-down, specialty centered hierarchy. Nurses come from a high school level track program and are considered second class professionals. To its credit, the UN began a progressive bac-

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calaureate level nursing curriculum that promotes the empowering of primary care skills. Its existence is threatening to physicians who see healthcare only through a competitive economic lens, not for what is best for the public health. Currently, a weak and underfunded MoH does not bode well for change in the immediate future, yet plans are afoot to launch an entirely new European Community strategic health plan anticipated for the next decade. In the meantime, expatriate donors and programs have bypassed the Ministry's strategic planning and selectively implemented primary care efforts at the local institutional level.

The Kosovo-Dartmouth Alliance

Homan and colleagues in this issue report one such effort focused on a family medicine-based system of primary healthcare. The Dartmouth Medical School has been involved in healthcare improvements in Kosovo since 2001, and has performed this project of introducing basic antenatal care to family medicine as a first step in improving perinatal outcomes. Based on quality performance, the MoH has supported the dissemination of this antenatal care model throughout Kosovo. Understated, purposeful, and strongly supported by Dartmouth's expert educators, this model represents what needs to be done to positively influence and leave trained participants with the tools and framework to implement sustainable change at the primary care level. Being without adequate public health surveillance and monitoring, it is impossible for Kosovo to measure the impact on maternal and infant mortality rates at this time. Post-conflict recovery requires more academically-based alliances as partners in support of strategic planning efforts and certainly more input from those who understand integrating and operationalizing the clinical workforce with public health. If nothing else, it is gratifying that Kosovo can witness what to expect in quality of life commitment from medical academia programs in developed countries. Whether this and other primary care-level programs will survive and resist temptation for fledgling governments to do otherwise is most dependent on professional and institutional acceptance of the value of public health protections at the primary care level. Primary care and public health-level measures suffer without the competing fanfare and marketing of specialty-based medicine and advanced technologies. This is not only true for the countries like Kosovo, coming out from war, but is a valid criticism in developed countries where public health infrastructures and systems have been allowed to severely decline. Although not the traditional bailiwick of donors, all countries share the need for long-term commitment to modernizing medical, nursing, and public health education. This dated health investment strategy must be reconsidered.

Campbell *et al* suggest that "in any context implementing reform is difficult, in Kosovo it may be more so" and emphasize that current casualties of the reform process over time, have "become even more apparent".[4] This environment, short of war, is extremely complex, rarely understood, and poorly funded. Even 10 years after the shooting has stopped in Kosovo, many unique challenges remain. The art and science behind rebuilding shattered nations struggling to remain at peace will define both the study and careers of the next generation of the development and humanitarian community.

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