

# Multimodal Assessment of the Primary Healthcare System of Serbia: A Model for Evaluating Post-Conflict Health Systems

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#### Abbreviations:

PHC = primary health  
KAP = knowledge, attitudes, and practices

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#### Abstract

**Introduction:** Conflicts, social unrest, and disasters can significantly affect the ability of a healthcare system to provide for the needs of its citizens. The collapse of the primary healthcare system in Serbia is a model of the effects that civil unrest can have on the health of a population. However, with improving social and political conditions, focus now can be turned towards the greatly needed development and reorganization of the primary healthcare system in Serbia.

Due to the complexity of health-system reform in the post-conflict/post-disaster setting, attempts to restructure health services are fraught with pitfalls that often are unanticipated because of inadequate preliminary assessments. A multimodal assessment involving quantitative and qualitative methodologies may provide a more robust mechanism to identify key programmatic priorities and critical barriers for appropriate and sustainable health-system interventions. The purpose of this study is to describe a multimodal assessment using primary healthcare in post-conflict Serbia as a model.

**Methods:** Integrated quantitative and qualitative methodologies—system characterization and observation, focus group discussions, free-response questionnaires, and Q-methodology—were used to identify needs, problems, and potential barriers to primary healthcare development in Serbia. Participants included primary healthcare providers and administrators from 13 institutions throughout Belgrade.

**Results:** Demographic data indicate a well-established infrastructure of primary health centers and stations. However, focus group discussions and free-response questionnaires reveal significant impediments to delivery of care: (1) Inadequate equipment, supplies, and medications; (2) Poor financial investment; (3) Discouraging worker salaries; (4) Few opportunities for professional development; and (5) Little emphasis on or respect for primary healthcare. Q-methodology of provider perceptions and opinions supports these concerns, shows remarkable consensus among participants, and provides further insights toward system development by grouping respondents into distinctive types.

**Conclusions:** This study identified the critical needs and barriers to development of primary healthcare in Serbia. This combined methodology may serve as a model for future health system assessments in the post-conflict and post-disaster settings.

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## Introduction

A decade of conflicts in the Balkans has gravely impacted the health of its citizens and their healthcare system. In June 1991, a series of civil wars began that led to the dissolution of the Socialist Federal Republic of Yugoslavia into the five independent nation states of Slovenia, Croatia, Bosnia-Herzegovina, the Former Yugoslav Republic of Macedonia, and the State Union of Serbia and Montenegro. Meanwhile, Kosovo remains a province of Serbia, but it is under the administration of the international community.<sup>1</sup> During this decade of armed conflicts, mass migrations, and political and economic instability in the Balkans, an already struggling Serbian healthcare system became overwhelmed. Internal political instability and external pressures, including sanctions and embargoes throughout the 1990s, have severely destabilized the health system infrastructure in Serbia. The structural devastation and social disruption caused by the North Atlantic Treaty Organization air campaign (23 March–09 June 1999) dealt a further blow to the crippled healthcare system in Belgrade and throughout Serbia.<sup>2</sup> The results of 10 years of conflict were perilous economic decline and severe under-funding of the ailing healthcare system. Under the pressure of war and imposed sanctions, the economy collapsed leading to high unemployment (27–49%), greatly decreased wages, hyperinflation of as much as 1% per hour, a significant decline in the standard of living, and an increased demand on the strained healthcare system. The effects of these changes on the Serbian population are reflected by a substantial decline in health indices over the last 10 years.<sup>3,4</sup> At present, the healthcare system in Serbia remains without the functional facilities, supplies, equipment, and economic infrastructure to support necessary healthcare reforms in the public and private sectors. In addition, the country remains relatively isolated from other industrialized countries, with little external support for health system reforms.

Renewed hope came with the election of a new Serbian administration in September 2000—rewarded by the international community with the lifting of remaining sanctions and with a promise of international aid for development. As a greater sense of stability returns to the region, focus can be turned to restructuring and developing the struggling healthcare system of Serbia. However, developmental assistance from the international community must be offered with caution and forethought. System-wide program improvements often fail due to inadequate planning, funding, or long-term commitment.<sup>5</sup> Ineffective initiatives for health system reform can leave an already damaged system burdened with sustaining inappropriate programs at various stages of development. Initiating health system reforms in the post-conflict setting, is fraught with difficulties.

Common mistakes made by relief organizations during post-conflict restructuring result from an inadequate understanding of the complex dynamics of healthcare development. Consequently, because of the complexity of this post-conflict setting, there are a number of early pitfalls common to many interventions. These include performing an incomplete initial assessment; failing to include strong local participation; failing to identify and address significant barriers to change; and attempting to simply introduce a

“carbon copy” of a Western healthcare system without sensitivity to the unique local needs and cultural dimensions. These pitfalls often are unanticipated because they are not addressed in preliminary assessments and early phases of project design. Common field methods include Knowledge, Attitudes, and Practices (KAP) surveys, which provide qualitative behavioral information from stakeholders, and ethnographic methods such as the Rapid Assessment Procedures (RAP). These methods can provide limited quantitative information for use in curative health sector assessment, but they may lack sufficient detail to identify major barriers to system improvements. Therefore, the use analysis of more detailed assessment tools, which employ a set of qualitative and quantitative methodologies, while sampling multiple healthcare personnel, may help to anticipate critical barriers to appropriate and sustainable health-system interventions. The purpose of this paper is to describe the use of a rapid health sector assessment tool to evaluate health system needs and priorities for primary healthcare reform in Serbia.

## Methods

This health system assessment was performed from June to August 2001 using a multimodal approach to define the strengths, needs, problems, and obstacles related to primary healthcare reform in Serbia. The four study modalities used were: (1) Characterization of the primary healthcare (PHC) system through the collection of demographic information and observational data; (2) Focus group discussions with a total of 24 primary healthcare providers and directors; (3) Individual, free-response questionnaires of 49 primary healthcare physicians and directors; and (4) Q-methodology (or by-person factor analysis) of the attitudes and opinions of 73 primary healthcare physicians, directors, and policy-makers regarding the needs and potential barriers to improvement of the primary healthcare system in Serbia. The study received advance approval by the Institutional Review Board of the Johns Hopkins Medical Institutions.

### *1. Characterization of the PHC System*

Health system data were collected to characterize the capacity of the primary healthcare system in Serbia to provide for the needs of the country's citizens. This information was obtained from established health surveillance sources and through personal meetings with key officials in the office of the World Health Organization; Public Health Institute of Belgrade; Republic of Serbia Ministry of Health; United Nations Children Fund (UNICEF); Institute of Social Medicine, Statistics and Health Research, Belgrade University; as well as several non-governmental organizations with offices in Belgrade. The lead investigator also spent >30 hours observing conditions in primary and specialty healthcare centers throughout the capital city.

### *2. Focus Group Discussions*

The two-fold purpose of the focus group discussions was: (1) To better understand the needs, problems, and obstacles to system development as perceived by those involved directly in providing primary healthcare; and (2) To collect a wide variety of opinions and attitudes for later analysis

Q-Statements	Statement Factor Scores	
	Respondent Type I (12 pure, 8 mixed)	Respondent Type II (2 pure, 1 mixed)
1. Physicians in PHC are not able to work effectively because of shortages in medication and medical supplies.	1	-2
2. PHC in our country is solely curative with no regard to prevention.	-1	1
3. Physicians in our PHC system enjoy sufficient respect and status in society.	-3	0
4. Patients value and respect their PHC physicians.	-1	-2
5. The primary problem in our PHC system is a shortage of financial resources.	3	-1
6. Because of the low wages they receive, employees in PHC are frustrated and poorly motivated.	3	1
7. PHC in our country would be much better if family practice physicians were established.	2	-1
8. In our PHC system, there is excessive referral to specialists.	1	1
9. Physicians in PHC have a lighter workload compared to that of other physicians in our healthcare system.	-2	0
10. There is adequate cooperation and coordination between the departments and health centers in PHC.	0	-2
11. Administrative personnel in PHC do not have the necessary knowledge or training to deal with the problems in PHC.	-1	2
12. PHC physicians in our country simply serve as referrers to higher levels of health care.	-2	3
13. Our PHC system sufficiently emphasizes prevention programs and activities.	-1	-3
14. The functioning of our PHC system is poorly organized.	0	3
15. Our PHC system lacks a well-developed, computerized health information system.	2	1
16. The equipment in PHC is appropriate and modern.	-2	0
17. PHC physicians have sufficient understanding of possible reforms in this segment of the healthcare system.	0	-1
18. The role of nurses in our PHC system is undervalued.	1	0
19. Patients are given too many rights in our healthcare system.	2	2
20. The education of PHC physicians is adequate and qualifies them to handle the problems of everyday work.	0	-3
21. There is excessive paperwork and bureaucracy in our PHC system.	1	0
22. PHC workers do not have opportunities for professional training and development.	0	2
23. The present payment system for institutions and PHC physicians provides adequate incentive for quality work.	-3	-1

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**Table 1**—Responses of primary healthcare (PHC) physicians, administrators, and policy-makers to Q-statements regarding PHC in Serbia. Statement factor scores represent the level of agreement/disagreement of each respondent type to the Q-statements (e.g., respondent type strongly disagrees (-3), feels ambivalent/neutral toward (0), or strongly agrees with the statement (+3)).

Indicators of availability and provision of services	Number
Primary health centers ( <i>domovi zdravlja</i> )	160
Primary health stations ( <i>zdravstvene stanice</i> )	1,382
Outpatient stationeries (with hospital beds)	10
Inhabitants per physician in PHC	620
Preschool children (ages 0–6 years) per pediatrician	770
School children (ages 7–18 years) per pediatrician	1,950
Women (ages 15+ years) per gynecologist	5,390
Employed workers per physician in occupational medicine	2,800
Adults (ages 19+ years) per general practitioner	1,865

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**Table 2**—Availability and provision of primary healthcare (PHC) services in the Republic of Serbia (Central Serbia and the Province of Vojvodina excluding the Province of Kosovo and Metohia) in the year 2000<sup>9,10</sup>

Primary Healthcare Service	Average number of patient visits to a physician per capita per year	Average number of patient visits per physician work day
General practice (for ages 19+ years)	2.6	23.5
Health care of preschool children (for ages 0-6 years)	6.5	18.3
Health care of school children (for ages 7-18 years)	2.9	21.1
Health care of women (for ages 15+ years)	0.6	11.8
Occupational medicine (for ages 19 to 64 years)	1.7	17.5

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**Table 3**—Utilization of primary healthcare (PHC) services in the Republic of Serbia (Central Serbia and the Province of Vojvodina excluding the Province of Kosovo and Metohia) in the year 2000.<sup>11</sup>

using Q-methodology. The focus group discussions were held with 24 primary healthcare physicians, nurses, and directors through referral to three of Belgrade's 16 primary health centers. All of the discussions were conducted by the primary author in the Serbian language. To assure the translation accuracy, the audio recordings of the 30–60-minute discussions were transcribed and translated into English by a native English speaker fluent in Serbian and a native Serbian speaker fluent in English. The translation subsequently was verified by additional native Serbian-speaking co-authors fluent in English.

### 3. Primary Care Provider Questionnaire

This modality assessed primary healthcare needs and priorities for change as perceived by those most directly involved in patient care: the primary care providers. A convenience sample of 49 subjects was recruited from among the healthcare providers of Belgrade. Of the city's 16 municipalities, 11 were represented. Ninety percent of subjects were primary care providers, with the remainder comprised of hospital administrators and public health specialists. Potential subjects were identified by direct referral from the Serbian Medical Association. Subjects were not compensated for their participation. Individuals who were not healthcare providers or administrators working in Belgrade were excluded from participation.

All subjects were administered a written, Serbian-language questionnaire comprised of 12 free-response items, and were given unlimited time to complete the questionnaire. The questionnaires were collected in person at the

time of completion. Each questionnaire was translated from Serbian into English in the manner described above. Translated responses were coded and assessed for content by a researcher blinded to the healthcare orientation of respondents. More than one response was coded for each subject as necessary. Duplicate answers were only coded once. Illegible, blank, and off-subject answers were coded as missing data. Data were analyzed using SPSS 10.1 for Windows (SPSS Inc, Chicago, Illinois USA).

### 4. Factor Analysis by Q-methodology

Q-methodology, or by-person factor analysis, avoids many of the limitations of other modalities by allowing the grouping of participants based on their subjective responses to an issue while preventing investigator preconceptions from influencing the grouping structure. Q-methodology uses a combination of qualitative and quantitative methods to subdivide the study population and to evaluate the degree of consensus among the participants. The process begins by developing a concourse, or database, of opinions and perceptions toward the subject of interest—in this case, the primary healthcare system of Serbia. From this concourse, the investigators select statements representing the spectrum of opinion and request that respondents assign each statement to a position within a quasi-Gaussian Q-sort table as to whether they completely agree with, feel indifferently or ambivalently towards, or completely disagree with the statement, as described by Barbosa.<sup>6</sup> In the present study, a concourse containing a range of perceptions and attitudes of PHC providers towards the primary healthcare system of

PROBLEMS CITED IN THE PRIMARY HEALTH CARE SYSTEM OF SERBIA
<p><b>FINANCE</b></p> <ul style="list-style-type: none"> <li>▪ Inadequate financial resources for essential equipment, supplies, and medications</li> <li>▪ Discouraged healthcare personnel due to meager salaries, difficult circumstances, and large workloads</li> <li>▪ Few computers and no health information systems to track patient health records</li> </ul> <p><b>ORGANIZATION</b></p> <ul style="list-style-type: none"> <li>▪ Over-centralization of the healthcare system</li> <li>▪ Shortage of teamwork between physicians and nurses</li> <li>▪ Oversupply of specialists and overuse of specialists by the public</li> <li>▪ Lack of coordination and cooperation between the primary health centers and the hospitals</li> <li>▪ Low appreciation for the role of the primary healthcare physician</li> <li>▪ Insufficient focus on the prevention of disease</li> </ul> <p><b>EDUCATION</b></p> <ul style="list-style-type: none"> <li>▪ Few opportunities for professional development and continuing education of healthcare workers</li> <li>▪ Little, if any, access to medical innovations through foreign professional journals, conferences, courses, and seminars</li> <li>▪ Insufficient practical training in medical education</li> </ul>
SUGGESTED PRIORITIES FOR THE DEVELOPMENT OF PRIMARY HEALTHCARE IN SERBIA
<p><b>FINANCE</b></p> <ul style="list-style-type: none"> <li>▪ Secure funding for essential medications, supplies, equipment, and employee salaries</li> <li>▪ Allot a greater proportion of the healthcare budget to primary healthcare</li> <li>▪ Consider long-term sources of additional primary healthcare funding (e.g., taxes on alcohol and cigarettes)</li> </ul> <p><b>ORGANIZATION</b></p> <ul style="list-style-type: none"> <li>▪ Introduce the specialty of family medicine as the population's first line of care</li> <li>▪ Adapt the current primary health centers into family health centers staffed with physicians trained in family medicine</li> <li>▪ Clearly define the responsibilities and services of the primary healthcare physician and those of the secondary and tertiary healthcare physicians</li> <li>▪ Clearly define a referral system between primary healthcare physicians and hospital specialists</li> <li>▪ Implement a health information system to facilitate the tracking of patient and community health</li> </ul> <p><b>EDUCATION</b></p> <ul style="list-style-type: none"> <li>▪ Increase the level of practical experience provided in medical school</li> <li>▪ Further limit the number of medical students admitted per year</li> <li>▪ Implement required continuing medical education supported by legislation that would provide healthcare professionals time off from work to attend this training</li> <li>▪ Provide healthcare professionals with access to medical innovations through professional journals, conferences, seminars, and lectures</li> </ul>

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**Table 4**—Foremost problems of the primary healthcare (PHC) system and priorities for development as identified by focus group discussions with PHC providers and administrators.

Serbia was developed through analyses of the aforementioned focus group discussions and free-response questionnaires. From this discourse, the investigators created, using an unstructured process, a Q-sample of 23 statements (Table 1), and administered it to a convenience sample of Belgrade primary healthcare physicians, administrators, and policy-makers. Respondents were asked to sort the Q-sample using the condition of instruction, "Please sort these statements with respect to your opinion of the current primary healthcare system of Serbia." Of the 81 individuals approached, 73 (90.1%) correctly completed the exercise (53 PHC physicians, 13 public health officials, and seven PHC administrators). Q-analysis was performed on the responses using PQMethod 2.09a,<sup>7</sup> followed by manual factor rotation. To define and characterize the resultant respondent types, all respondents whose factor loadings

were statistically significant for one factor only, were selected as "pure cases". Respondents whose factor loadings were statistically significant for more than one factor, were referred to as "mixed cases".

## Results

### 1. Characterization of the PHC System

Primary healthcare in Serbia is delivered through a well-established network of primary health centers (domovi zdravlja) and smaller primary health stations (zdravstvene stanice). Each of Belgrade's 16 municipalities has a primary health center—a limited-capacity outpatient facility that provides services such as general medicine, pediatrics, obstetrics and gynecology, occupational medicine, dentistry, home care, preventive care, and laboratory services. In large municipalities, primary health centers also provide

Select Questionnaire Topics and Responses of PHC Providers (n = 49)	Positive Responses (%)
<b>CURRENT PROBLEMS IN PHC</b>	
Lack of diagnostic equipment and/or computer technology	55.1
Inadequate wages and/or financial base	55.1
Lack of space and/or poor working conditions	34.7
Lack of supplies and/or medications	24.5
Inadequate manpower	24.5
Conflict with hospital bureaucracy	20.4
Lack of continuing professional development	14.3
Inadequate emphasis on screening and prevention	8.2
Conflict within medical team	8.2
Lack of opportunity for innovation	6.1
Lack of emergency vehicles	2.0
Misuse of doctor-patient relationship	2.0
<b>PRIORITIES FOR REFORM</b>	
Ensure adequate materials and technology	40.8
Provide continuing professional development	40.8
Raise wages and/or improve financial base	28.6
Reorganize services and leadership	26.5
Improve facilities and working conditions	16.3
Improve teamwork among personnel	10.2
Improve screening and prevention	10.2
Reduce provider workload	8.2
<b>OBSTACLES TO REFORM</b>	
Lack of funds	71.4
Lack of cooperation within medical field	12.2
Inadequate emphasis on preventive medicine	10.2
Lack of materials/ technology	8.2
Poor public opinion and respect	6.1
Poor Facilities	6.1
Inadequate continuing education	6.1
Inadequate manpower	4.1
Excessive bureaucracy	2.0

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**Table 5**—Quantitative results of primary care provider questionnaires. Positive responses were calculated as a percentage of the number of providers that included the statement in their free response. More than one response was coded per subject when applicable (PHC = primary healthcare).

public health surveillance, tuberculosis-control programs, physical and occupational therapy, and, occasionally, limited specialty services in municipalities without a general hospital. Complementing the primary health centers is a network of smaller, satellite, primary health stations, which brings services further into the community. Additional health-system characteristics are listed in Tables 2 and 3.

### 2. Focus Group Discussions

The several focus group discussions provided opinions and perceptions of providers and administrators on the current primary healthcare system in Serbia (Table 4). Data collected from the focus group discussions—as well as from the free-response primary care provider questionnaire—also were used as the concourse for Q-methodology.

### 3. Primary Care Provider Questionnaire

The most frequently reported strength of the current healthcare system in Serbia is universal access to care (79.6% of respondents (n = 39)). In addition, 69.4% of respondents (n = 34) report that their system provides high quality care in terms of comprehensiveness, efficient turnover of patients, preventive services, and the physician-patient relationship. Finally, 24.5% (n = 12) reported affordability for patients as a major strength.

Providers most frequently reported (Table 5) organizational changes within the healthcare system as the highest priority for improvement (46.9% of respondents (n = 23)). Specifically, they reported a need to improve the efficiency of care through better record-keeping and teamwork with specialists. In addition, 40.8% of respondents (n = 20)

Distinguishing Statements (c) for Respondent Types	Statement Factor Scores (d)	
	Respondent Type I	Respondent Type II
<b>Respondent Type I (12 pure cases (a), 8 mixed cases (b))</b>		
1. Physicians in PHC are not able to work effectively because of shortages in medication and medical supplies.	+1	-2
3. Physicians in our PHC system enjoy sufficient respect and status in society.	-3	0
9. Physicians in PHC have a lighter workload compared to that of other physicians in our health care system.	-2	0
17. PHC physicians have sufficient understanding of possible reforms in this segment of the health care system.	0	-1
23. The present payment system for institutions and PHC physicians provides adequate incentive for quality work.	-3	-1
<b>Respondent Type II (2 pure cases, 1 mixed case)</b>		
14. The functioning of our PHC system is poorly organized.	0	+3
22. PHC workers do not have opportunities for professional training and development.	0	+2

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**Table 6**—Comparisons and characterizations of Q-methodology respondent types: (a) Pure cases are respondents with Q-sorts that loaded heavily and specifically on the respondent type; (b) Mixed cases include respondents with Q-sorts that loaded heavily, but not specifically, on the respondent type; (c) Distinguishing statements were calculated by PQMethod 2.09a with significance at  $p < 0.05$  (astrices indicate significance at  $p < 0.01$ ); and (d) Statement factor scores represent the level of agreement/disagreement of each respondent type to the Q-statements (e.g., respondent type strongly disagrees (-3), feels ambivalent/neutral toward (0), or strongly agrees with the statement (+3)).

report that obtaining continuing education for providers, ensuring supplies of materials, and upgrading technology are major priorities for system reform.

Perceived obstacles to improvement overwhelmingly were recognized as the lack of financial resources ( $n = 35, 71.4\%$ ), and, secondarily, the bureaucratic disorganization on both the state and local level ( $n = 15, 30.6\%$ ). The vast majority of subjects believe that primary healthcare development would be supported by the Serbian healthcare community, government, and public ( $n = 41, 83.7\%$ ;  $n = 38, 77.6\%$ ;  $n = 15, 79.6\%$ , respectively).

*4. Factor Analysis by Q-methodology*

There was considerable consensus among the 73 completed responses; factor rotation revealed only two unique respondent types (Table 6). Respondent Type I included 20 respondents (27.4% of participants): 12 pure cases and eight mixed cases. The principal concerns of this respondent type include a shortage of medication and medical supplies, inadequate salaries, a high workload, and insufficient societal respect for primary healthcare. Meanwhile, Respondent Type II included a total of three respondents (4.1% of participants): two pure cases and one mixed case. These individuals did not consider inadequate supplies as the chief concern of the primary healthcare system of Serbia, but instead, faulted poor health-system organization and few opportunities for professional training and development. Additional respondent types were defined by single respondents, which prevented adequate characterization. However, the demographic data on each of these isolated respondent types were examined to assure that the individual was not in a unique position of authority that

could disproportionately influence future health-system reform. The specific responses of Respondent Types I and II to the 23 Q-statements are listed in Table 1.

**Discussion**

Out of the tragic, near collapse of the Serbian healthcare system comes the opportunity to establish a health system that is more effective in meeting the needs of its citizens. Individual surveys, focus group discussions, questionnaires, and Q-methodology suggest that most primary healthcare physicians believe the greatest problems in their system are economic; e.g., funding for medications, medical supplies, modern equipment, and employee salaries is grossly inadequate. Several respondents also shared the idea that much of the Republic's very limited healthcare budget was allocated irrationally to secondary and tertiary healthcare, leaving little for primary healthcare.

During this study, Serbian physicians further reported that their primary healthcare system is in significant need of outside assistance with education, training, and system restructuring. For nearly a decade, the physicians practicing in Serbia have been unable to access foreign medical literature, conferences, courses, and other forms of continuing professional education, which has prevented them from keeping pace with the quickly progressing field of medicine. Meanwhile, primary healthcare physicians feel that, while they are excellently educated in the theory of medicine, their medical education and one-year internship do not provide the degree of practical experience necessary for them to independently begin evaluating and treating patients.

Based on the analysis of the qualitative data, there are a number of practical steps that may be considered as the

country turns its focus on the reform of the primary healthcare system. According to the majority of primary healthcare physicians and administrators surveyed, the foremost priority is the procurement of adequate funding for essential medications, supplies, and equipment. The professionals working in the healthcare system of Serbia are severely handicapped by shortages of these resources. Obsolete medical equipment limits the diagnostic capability, while that which is diagnosed often cannot be treated fully for want of the most basic medications and supplies.

It also is proposed, based on the findings of this multimodal assessment, that the education and training of physicians in Serbia be restructured and continuing medical education implemented. Given adequate resources, medical education could provide more practical experience to the students. And, for all physicians who have completed their formal education, continuing medical education is needed to inform them of the medical innovations they have had difficulty following during this last decade. Legislation and mandatory excusal from clinical duties may be required to enable healthcare professionals to attend lectures and presentations. In fact, such initiatives have been developed in other Balkan regions in efforts to fill the great need for continuing medical education. For example, visiting experts in various fields of medicine presently are traveling to the Balkans from Johns Hopkins Hospital. They offer didactic and bedside instruction on the latest advances in general and specialty medicine to medical students, residents, nurses, and clinicians. Likewise, through visiting Hopkins scholars, and based on a multimodal, qualitative assessment of the health system needs in Kosovo, a one-year fellowship program in emergency medicine has been established at the University of Prishtina.<sup>8</sup> Hopefully similar projects—based on the results of this multimodal study—will be initiated in Serbia.

In a healthcare system that historically encourages specialization, significant changes in the primary healthcare of Serbia will not be implemented easily. Primary care development will require funding, political consensus, supportive legislation, a revised medical curriculum, multi-phasic implementation, and post-interventional evaluation. There appears to be wide consensus among primary healthcare

physicians and administrators that the healthcare system in Serbia needs considerable restructuring. This agreement should facilitate development. Most of the participants in this study believe that changes would be welcomed by the healthcare professionals, the public, and the government. They primarily list funding as the major barrier to future health system development. Additionally, a smaller number of respondents suggest that the many specialist physicians in secondary and tertiary healthcare may feel threatened by primary healthcare development and may represent another obstacle to change.

This qualitative and quantitative analysis of the current primary healthcare system in Serbia indicates that there are a number of priorities identified by Serbian primary healthcare physicians and administrators. Along with these opportunities for improvement, they also identified significant barriers to change that exist inside and outside of the healthcare system. Any interventions aimed at improving the system in Serbia should consider the findings of this study when planning health programs and system-wide interventions.

### Conclusion

A multimodal assessment using integrated quantitative and qualitative methodologies, may offer a more robust alternative to the use of standard surveys, KAP studies, or the use of anecdotal information, for the purpose of identifying priorities in health-system reconstruction in the post-conflict and post-disaster settings. By utilizing both quantitative and qualitative techniques in assessing post-conflict/post-disaster health systems, critical needs and barriers to improvement can be more accurately identified early, and programs may be designed to better foster sustainable reform.

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