Islamic Republic of Iran
Health Sector Review

Volume I: Main Report

June 2008

The World Bank Group
Human Development Sector
Middle East and North Africa

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**Currency Equivalents**

Currency Unit: Iranian Rials (Rls)
Exchange Rate: USD 1 = Rls 9,275
Effective as of June 26, 2007

### List of Acronyms and Abbreviations

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<tr>
<td>AFMSO</td>
<td>Armed Forces Medical Services Organization</td>
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<tr>
<td>ALOS</td>
<td>Average Length of Stay</td>
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<td>ART</td>
<td>Anti-Retro Viral Therapy</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<td>BOP</td>
<td>Balance of Payments</td>
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<td>BOR</td>
<td>Bed Occupancy Rate</td>
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<tr>
<td>CARMEN</td>
<td>Multifaceted Reduction for Non-communicable Diseases</td>
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<tr>
<td>CCU</td>
<td>Critical Care Unit</td>
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<tr>
<td>CDC</td>
<td>Centers for Disease Control</td>
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<tr>
<td>CHD</td>
<td>Coronary Heart Disease</td>
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<tr>
<td>CINDI</td>
<td>Countrywide Integrated Non-communicable Disease Intervention</td>
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<td>CIS</td>
<td>Clinic Information System</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>CQI</td>
<td>Continuous Quality Improvement</td>
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<td>CSR</td>
<td>Central Sterilization Room</td>
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<td>CVA</td>
<td>Cerebral Vascular Accidents</td>
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<td>CVD</td>
<td>Cardiovascular Disease</td>
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<td>DALY</td>
<td>Disability-Adjusted Life Years</td>
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<td>DGSHI</td>
<td>Director General for Statistics and Health Information</td>
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<td>DHC</td>
<td>District Health Centers</td>
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<td>DHS</td>
<td>Demographic and Health Survey</td>
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<td>DMLMD</td>
<td>Deputy Minister for Logistics and Management Development</td>
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<td>DRG</td>
<td>Diagnosis-Related Group</td>
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<td>DSM</td>
<td>Diagnostic and Statistical Manual of Mental Disorders</td>
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<td>EES</td>
<td>Electronic Encounter Summary</td>
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<td>EHIF</td>
<td>Estonian Health Insurance Fund</td>
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<td>EMRO</td>
<td>Regional Office for the Eastern Mediterranean</td>
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<td>EMSMP</td>
<td>Environmental Management Support Project</td>
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<td>FCTC</td>
<td>Framework Convention on Tobacco Control</td>
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<td>FFS</td>
<td>Fee for Service</td>
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<td>FM</td>
<td>Family Medicine</td>
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<td>FMIS</td>
<td>Financial Management Information System</td>
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<td>FONASA</td>
<td>National Health Fund</td>
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<td>FP</td>
<td>Family Practitioner</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GNI</td>
<td>Gross National Income</td>
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<td>GP</td>
<td>General Practice</td>
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<td>HAART</td>
<td>Highly Active Anti-Retroviral Therapy</td>
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<td>HIES</td>
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<td>HIHIC</td>
<td>Health Insurance High Council</td>
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<td>HIS</td>
<td>Hospital Information System</td>
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<td>HMIS</td>
<td>Health Management Information System</td>
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<td>HNIS</td>
<td>Health Network Information Software</td>
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<td>HR</td>
<td>Human Resources</td>
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<td>HSR</td>
<td>Health Sector Review</td>
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<td>ICD</td>
<td>International Classification of Diseases</td>
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<td>ICU</td>
<td>Intensive Care Unit</td>
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<td>IDU</td>
<td>Injecting Drug Users</td>
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<td>IFFC</td>
<td>Index of Fairness of Financial Contribution</td>
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<td>IKF</td>
<td>Imam Khomeini Foundation</td>
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<td>ILI</td>
<td>Influenza-Like-Illness</td>
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<td>IMR</td>
<td>Infant Mortality Rate</td>
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<td>INF</td>
<td>Iran National Formulary</td>
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<td>INHDD</td>
<td>Iranian National Health Data Dictionary</td>
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<td>IRIMC</td>
<td>Islamic Republic of Iran Medical Council</td>
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<td>IPR</td>
<td>International Property Rights</td>
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<td>JICA</td>
<td>Japanese International Cooperation Agency</td>
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<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>MENA</td>
<td>Middle East and North Africa</td>
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<td>MIS</td>
<td>Management Information System</td>
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<td>MMR</td>
<td>Maternal Mortality Ratio</td>
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<td>MOHME</td>
<td>Ministry of Health and Medical Education</td>
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<td>MPO</td>
<td>Management and Planning Organization</td>
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<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
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<td>MSIO</td>
<td>Medical Services Insurance Organization</td>
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<td>MTA</td>
<td>Medical Technology Assessment</td>
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<td>NCDs</td>
<td>Non-communicable Diseases</td>
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<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NHA</td>
<td>National Health Account</td>
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<td>NIC</td>
<td>National Influenza Center</td>
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<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<td>Over-the-Counter</td>
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<td>PCG</td>
<td>Primary Care Group</td>
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<td>Primary Care Trust</td>
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<td>PHC</td>
<td>Primary Health Care</td>
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<td>PMTCT</td>
<td>Prevention of Mother-to-Child Transmission</td>
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<td>PPF</td>
<td>Public Purchasing Fund</td>
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<td>Purchasing Power Parity</td>
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<td>RAWP</td>
<td>Resource Allocation Working Party</td>
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<td>RHC</td>
<td>Rural Health Center</td>
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<td>RHH</td>
<td>Rural Health House</td>
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<td>SSO</td>
<td>Social Security Organization</td>
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<td>STIs</td>
<td>Sexually Transmitted Infections</td>
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<td>TB</td>
<td>Tuberculosis</td>
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<td>UHC</td>
<td>Urban Health Centers</td>
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<td>UHP</td>
<td>Urban Health Posts</td>
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<td>UMSHS</td>
<td>Universities of Medical Sciences and Health Services</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<td>UNICEF</td>
<td>United Nations International Children's Emergency Fund</td>
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<td>VH</td>
<td>Vital Horoscope</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>YLD</td>
<td>Years Lost to Disabilities</td>
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<td>YLL</td>
<td>Years Lost of Life</td>
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Preface

The Government of the Islamic Republic of Iran has demonstrated its commitment to improving the health and nutritional status of the population, as articulated in the Interim Country Assistance Strategy, which lists as priorities addressing nutritional deficiencies, expanding coverage of basic health services, improving efficiency of the health system, and improving the quality of services at all levels. This Health Sector Review is consistent with this in that it provides the platform and evidence-base for such reform. It is also in-line with part three of the current Fourth Five-Year Development Plan, which includes health development, human security, and social justice as priority areas. It further commits to the reduction of illness from malnutrition, increasing public health service coverage, and increasing access to quality health services while reducing the financial burden on families.

The Islamic Republic of Iran Health Sector Review was approved by the Bank’s management in June 2006 to provide a comprehensive review and diagnostic of the performance of the health sector in IR Iran. The government is quite advanced in the type of analysis it already does on various aspects of the sector (e.g., burden of diseases, national health accounts, and utilization analysis). However, consolidation of this information and analysis that encompasses several major elements of the health sector has not been done recently.

The Health Sector Review, through a synthesis of available data and other information on the health sector, attempts to: (i) assess the strengths, challenges, and opportunities facing the current health system; (ii) offer analytic assessments of the health policies and plans; (iii) provide a framework for developing strategic options; and (iv) offer short- and medium-term recommendations and action plans to achieve the goals identified in the country’s Fourth Five-Year Development Plan.

The primary audience for this report will be senior officials in the MOHME, the medical universities and other academic and research institutions, the National Planning Commission, the Ministry of Economic Affairs and Finance, and the Management and Planning Organization. This review has been prepared in close collaboration with key counterparts from the government. Each member of the World Bank team has worked with a team of counterparts from the Government of the Islamic Republic of Iran since Spring/Summer 2006 to discuss the scope of the review and discuss next steps. Detailed outlines were developed and agreed.

This Review comprises two volumes: Volume I, Main Report, and Volume II, Background Papers. This Volume I is intended to be a synthesis report summarizing the key issues, findings, and recommendations of the Review. The more in-depth analysis is covered in a companion Volume II.
Acknowledgements

This Review was prepared by a team led by Jack Langenbrunner, Senior Health Economist, Human Development Sector, Middle East and North Africa Region, with the contributions of several primary authors of sections (in alphabetical order) Rifat Atun, Reza Hosseini, Mahoko Kamatsuchi, Kelechi Ohiri, Andreas Seiter, Dennis Streveler, and Miho Tanaka. The authors would like to thank Joseph Saba, Country Director, Habib Fetini, Lead Economist, and Akiko Maeda, Health Sector Manager, for their overall guidance. The authors also would like to thank Tala Hadavi, Mona Rahmani, Anton Dobranogov, Afifa Alia Ahsien, and Maria L. Estrella of the World Bank, and Djavad Salehi-Isfahani of Virginia Tech University. The initial drafts benefited from peer reviewers Peyvand Khaleghian, Senior Health Specialist, of the World Bank and Michael Borowitz of the UK Department for International Development. The review further benefited from comments from Enis Baris, Nadereh Chamlou, Sameh El Saharty, Davidson Gwatkin, Omer Karasapan, Alexander Kremer, and George Schieber.

The team wishes to thank the many Iranian officials and experts who provided data, inputs, and invaluable and candid assessments of the country’s health system. The authors would like particularly to thank His Excellency Dr. Kamran Bagheri Lankarini, Minister of Health and Medical Education, for his continuous leadership and guidance; Dr. Mohsen Farvardin, Advisor to the Minister; Dr. Alireza Delevari, Deputy Minister for Coordination; Dr. Hamid Farshchi, Secretary of Health Sector Reform Project; Dr. Abbas Vosoogh, Program Manager, Health Sector Reform Unit (HSRU), day-to-day coordinator who worked tirelessly to guide the team and to set up meetings and facilitate data collection; Dr. Kambiz Monazzem, teacher on so many topics relating to financing and delivery of services; Dr. Kamel Shadpour of the HSRU for articulate and insightful discussions on primary care and the political economy of health reforms; and, Dr. Behzad Damari, Dr. Mohammad Reza Seifollahi, and the whole team of the HSRU. The team also wishes to thank Dr. Arash Nokar, Executive Director of the Health Project Implementation Unit for his constant assistance and support. The full list of MOHME experts is included in Annex D of Volume II.

For their time and contributions, the team also thanks the Ministry of Economic Affairs and Finance, the Management and Planning Organization, the Ministry of Welfare and Social Security, and the National Statistics Center. The Bank also wishes to thank its donor partners, in particular WHO (Dr. Mubasher Sheik in Tehran and Dr. Hossein Salehi in Cairo), UNICEF, and UNAIDS for helpful documents and ongoing support.

Key experts outside the government who were consulted include Dr. Hamid Reza Jamshidi and Dr. Kavoos Basmenji. The team also thanks the many providers, researchers, and observers in Tehran and in the provinces who extended their time, advice, analysis, and perspective in this Health Sector Review process.

The views expressed in this paper are those of the authors and do not necessarily reflect those of the World Bank or officials of the Islamic Republic of Iran.
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**EXECUTIVE SUMMARY**

The Islamic Republic of Iran Health Sector Review, through a synthesis of available data and other sector-specific information, attempts to (i) assess the strengths, challenges, and opportunities facing the current health system; (ii) offer analytic assessments of the health policies and plans; and (iii) provide a framework for developing strategic options, short- and medium-term recommendations, and action plans to achieve the goals identified in the country’s Fourth Five-Year Development Plan.

**Significant Achievements since the Revolution.** Following the Islamic Revolution, investments in public health led to provision of clean water and better hygiene and sanitation. This was combined with the development of a basic but strong rural primary health care (PHC) system. The Islamic Republic of Iran (IR Iran) now has a good network of PHC facilities, with particularly good coverage in most rural areas. Broad population coverage with social insurance has improved access and accessibility to health services for the majority of the population. The country has developed an increasing network – public and private – of sophisticated outpatient specialty services, as well as a network of secondary and tertiary services through its hospital network. Collectively, these changes contributed to IR Iran’s success in improving the health status of its population. The average life expectancy has steadily improved, and IR Iran's life expectancy at birth is higher than that of countries with comparable per capita income. Likewise, there have been remarkable drops in both infant and child mortality.

**Demographic and Disease Profile Has Changed.** As the total fertility rate reached stabilization at the population replacement level, the age structure of the Iranian population experienced a significant shift. Currently, the country is experiencing a youth bulge but in the next two decades, its demographic profiles will be aging. These relative reductions in younger populations and substantially increased numbers of older groups will have an impact on labor and social policies. The changing mix of population can further be expected to change the epidemiologic profile and the burden of disease in the country.

As the demographic profile changes and communicable diseases are relatively well controlled, IR Iran now faces a burden of disease increasingly predominated by non-communicable diseases (NCDs) and accidents. Given the youth bulge, the burden of disease profile is characterized by risky behaviors of youth such as traffic accidents, injuries, and substance abuse. Over the next two decades, these youth population groups will move into working age and older age cohorts, and their disease profile will be characterized by chronic diseases including cardiovascular disorders, cancers, and mental illness. Failure to act on needed interventions for youth may manifest as a drain on economic development and future growth. In parallel, IR Iran continues to witness growth in HIV/AIDS among intravenous drug users and a re-emergence of tuberculosis among the people living with HIV/AIDS. Urbanization and industrialization have imbued the country with a multiplicity of new environmental and occupational health challenges. These changing dynamics in the burden of disease will place new pressures on the health system and government finances, as well as on the labor force through levels of productivity and their contributions to economic growth.

**A New Vision for the Health Sector.** Over time, the increasingly complex patterns of mortality and morbidity of the country will place greater demand on the health system, straining the existing structure and resources available in the sector. This “new world” and these “new realities” necessitate forthright recognition and action. In fact, they present a twofold and concurrent challenge: to address the immediate needs of the its youth and to prepare for the changing profile to an older population with more non-communicable diseases, diseases which will fully manifest within the decade.
IR Iran has the opportunity to harness the current economic growth cycle to advance a reform agenda, and investments in the health sector presents one such opportunity. Restructuring and modernizing the health system, with soundness of strategy and strong vision are requisite to prioritizing and interlinking the various dimensions of health sector reform.

**Strategic Interventions to Restructure and Modernize.** Against this backdrop, several general themes emerge from the review, and several challenges present from the diagnostic of the sector. The health sector might restructure and modernize across five key strategic interventions, to address issues of efficiency and equity. These include:

- Governance;
- Delivery system—including primary care, specialized care, and hospital services;
- Financing—including revenues, pooling, and purchasing;
- Pro-poor programs, for urban and rural geographic areas; and
- Evidence-based policy development.

**Governance.** The sector should begin a transition from a health system that relies on bureaucratic command and control mechanisms to a system that has a well developed governance and regulatory framework and that promotes the growth of modern performance-based management systems. The reform agenda would involve the following shifts:

- From a system that promulgates public health regulations from the top down to one that creates an enabling environment for, and promotes the establishment and implementation of, rigorous standards of quality and effectiveness through broader participation and better alignment of incentives and accountability.
- From a system of sectoral segmentation to one that promotes intersectoral coordination to address issues that go beyond the sector such as road safety, environmental health, occupational health, and school health.
- From a system that has a separate and parallel public and private sector to one that promotes effective public–private partnerships in areas such as financing and delivery of services. The government may need to take a much stronger role in planning and coordinating across sectors in terms of buildings, beds, technology, and human resources policies.
- From a system that relies on centralized planning and input-based budgeting to one that embraces a broader market framework, better aligns incentives in allocating resources, and rewards good performance.
- From a system that relies on implicit subsidies to one that has a more transparent and well targeted system of subsidies.
- From a health system of quality control to a system of sponsorship of medical technology assessment, evidence-based clinical research, partnership with independent quality accreditation functions, and the sponsorship of quality improvement programs.
Delivery of Services. Different policy options will need to be considered to optimize the use of primary health care (PHC) services, rationalize the use of hospital care, and curb the proliferation of hospital beds. Policy options should have one or more of the following objectives, to:

- Expand the role of the PHC in the provision of ambulatory services to reduce the use of hospital outpatient services and inappropriate hospital admissions;
- Expand the role of PHC along multiple dimensions, including changes in financing, organization, contracting, incentives, management and information systems, and quality improvement. Longer term, medical curricula should be restructured to foster a new family medicine specialty and to train health workers according to the needs emergent in the new disease profile;
- Rationalize the use of inpatient hospital services by limiting, where appropriate, admissions, length of stay or both, and improve the technical efficiency of resource use within hospitals, that is, to achieve the same output for less input.
- Introduce policies to promote greater autonomy and use of performance-based incentives at the facility level;
- Rationalize further growth in the delivery system infrastructure, particularly the hospital sector, through developing master plans or coordinated public–private strategies to guide all future investments.
- Strengthen the regulatory and quality assurance and quality improvement functions strengthened, especially for secondary level services. Medicine should be practiced on the basis of evidence.
- Sponsor greater research and synthesis of available evidence on what works as well as develop and implement evidence-based clinical guidelines. Effective implementation of evidence-based guidelines will require appropriate and coordinated incentive systems that emphasize improved health outcomes, user satisfaction, and efficiency.
- Engage professional groups and provider organizations in the development and implementation of guidelines. Implementation of guidelines and performance-based payment systems must be underpinned by substantial investment in health information systems to enable assessment of service quality and outcomes.
- Establish an independent quality enhancement agency to first register and then accredit all health care organizations providing PHC services to the population. The existing mechanisms of licensing and accreditation are managed by a unit in the MOHME, which may limit objectivity and independence.

Financing. Funding for health is highly regressive and inequitable with large out-of-pocket payments; this is also true for the programs offered by the Social Security Organization (SSO) and the Medical Services Insurance Organization (MSIO). For the future, the government will need to balance equity considerations with assuring coverage and enrollment under its government employees program and its new rural insurance program. Good evaluations of the new program could help pinpoint needed next steps.

- Examine other options for health revenues, especially as revenues for oil exports increase and as a high percentage of the private sector remains uncovered and without any insurance. In the short term, delinking contributions and coverage may encourage more people in the informal sector to participate in one of the established social insurance systems.
- Assess disparities across risk pools and develop a risk-adjustment mechanism across payers.
The health financing system in IR Iran remains fragmented and contributes to inequities and inefficiencies in the allocation and use of resources. Fragmentation of risk pooling can increase administrative costs and could lead to duplication of coverage and services.

**Pro-Poor Programs.** Not everyone has insurance coverage, and coverage appears linked to income levels. The levels of out-of-pocket payments on average have been increasing as a share of income over time since 1990. A primary exercise needed is to better understand and target the poor. Better research and analysis is needed, but policy makers may want to act more quickly, in which case there are several options.

- One option is to develop a pro-poor program targeted for the urban slums. Elements of the successful primary health care programs in rural areas could be considered for piloting and adaptation under urban conditions. These programs could be tied to other social programs addressing the needs of urban poor, and would require close coordination with other health reform measures, including the redefinition of benefits package, programs to improve financial protection for pharmaceutical expenses, and health insurance outreach programs for the informal sector.

- A second option is to utilize poverty mapping for the disadvantaged rural groups to identify and develop special health programs for the pockets of poor in small geographic areas.

- A third option would be to employ proxy means testing to identify the poor who are dispersed widely across geographic regions and not identifiable under the first two options. This method uses one or more easily recognizable characteristics (e.g., lack of electricity or lack of running water) as a substitute measure to identify the poor households. Highly focused outreach efforts (relying on health workers such as behvarzes) might then be developed.

**Evidence-Based Policy Strategy.** The last three decades have witnessed profound changes in information systems and their application in generating and providing timelier information for health policy, planning, and management. IR Iran’s health system has enormous opportunities to benefit from the development of an integrated Health Management Information System, which would underpin essential administrative and clinical operations in modern health care financing and delivery systems, and ultimately generate the evidence for effective policy formulation and decision making to support specific strategic objectives such as improving accessibility, equity, efficiency, and quality of care.

- The government would need to play a key role in regulating the development of common Information Technology and Management Information Systems standards to ensure interoperability among different users and beneficiaries.

- Integrated information systems can help develop monitoring and evaluation systems that create links between health determinants, utilization, costs, and outcomes. This can be done both at the primary and secondary services level. These systems would be useful for payment and quality, and would provide a continuous infrastructure for evidence-based guidelines.

**Special studies like the national health accounts and health facilities surveys should be undertaken routinely to monitor and evaluate the impact of policy changes on health financing and health systems.** Reliable and consistent information on sources and uses of funds and health services performance is essential for rational resource allocation decisions for both the public and private sectors. Considerable expertise already exists in IR Iran: the next needed step is for the government to harness these resources for the national health policy formulation and evaluation process.

- Research and analysis need to be better linked to the process of making decisions and setting policy. The existing knowledge gap impedes arriving at the determinants of the various health
outcomes and surmising the efficacy of different types of public health interventions. Health research is essential to pursue appropriate evidence-based intervention strategies to improve the health outcomes of the Iranian population, specifically those who are underserved or marginalized.

- There is a further need to better link research results with health systems interventions. Key institutions such as the Institute of Public Health should play a more active role in ensuring an effective coordination between medical research and health systems reform programs.

**From Today to Tomorrow: Meeting the Challenges Ahead.** With its strong technical capacity and prospect of economic growth, the Islamic Republic of Iran holds the potential for yet another breakthrough that will again be a model for its global neighbors. Its broad social and organizational goals are clear, but it will need to map out next steps and key strategic directions, both short- and medium-term, in some detail, and implement with a high level of political commitment. The country will depend upon its health sector leadership to provide a pivotal role in planning, orchestrating, and advancing a next generation health sector that will bring a next level of benefits for the citizenry of the Islamic Republic of Iran.
1. OVERVIEW

With a population of about 68.5 million people, the Islamic Republic of Iran is the second most populous country in the Middle East and North Africa region after Egypt. It is a middle-income country with a per capita gross national income of USD 2,258 (2005).

The health and demographic profile of the citizenry is in transition. As such, the country is at an important juncture to assess the current health sector relative to its changing dimensions—economic, social, demographic, and epidemiologic. This report covers key dimensions of the health sector, as agreed with the representatives of the Ministry of Health and Medical Education, Ministry of Social Welfare, Ministry of Planning and Organization, and other important actors and stakeholders. This Volume I is provided to give policy makers an integrative summary of key issues, conclusions, and recommendations. The more in-depth analysis is covered in nine background sections in Volume II.

Figure 1 provides an integrative framework for understanding the links across the health sector, and for understanding the performance of various dimensions of the health system as well as of the sector overall. Health Sector Objectives includes improvement of health status and health outcomes, financial protection from impoverishment due to ill health, and user satisfaction with health care services. These describe the main measures of impact affected by health services delivery and factors outside of the health system. Health System Performance characterizes intermediate results of health services delivery and financing, which contribute to Health Sector Objectives. Within the health system are a set of three key actors: individuals and the larger community, providers (public and private), and government. The government implements the shown Public Health Programs, with links to providers for preventive care functions, Non-Health Sectors on intersectoral issues, and its own role of enacting and enforcing public health law.

2. **Significant Achievements since the Revolution**

For over two and one-half decades, the Islamic Republic of Iran has witnessed great progress in the development of its health sector. Following the Islamic Revolution, investments in public health led to provision of clean water and better hygiene and sanitation. This was combined with the development of a basic but strong rural primary health care (PHC) system. The presence of behvarzes, who are community health workers embedded in the community, has helped improve local inclusiveness in decision making. IR Iran now has a good network of PHC facilities in existence, with a particularly good coverage in most rural areas. Broad population coverage with social insurance has improved access and accessibility to health services for the majority of the population. The country has developed an increasing network – public and private – of sophisticated outpatient specialty services, as well as a network of secondary and tertiary services through its hospital network. Collectively, these changes contributed to IR Iran’s success in improving the health status of its population.

**Health Outcomes Have Improved.** The average life expectancy in IR Iran has steadily improved from 58.9 years in 1980, and in 2005 reached 71.1 years (72.8 years for women and 69.6 years for men in 2005) (Figure 2). Life expectancy at birth in IR Iran is higher than that of countries with comparable per capita income. Likewise, over the last three decades, there have been remarkable drops in both infant and child mortality (Figure 3).

![Figure 2](image1.png)

**Average Life Expectancy 1980–2005**

![Figure 3](image2.png)


Relatively easy access to family planning services through the PHC programs and an increased literacy level were crucial factors leading to a sharp decrease in the total fertility and the population growth rates. In the last twenty years, the total fertility rate has decreased by two-thirds: from 7.1 children per woman in the 1980s to 2.1 in 2005. The average fertility rate has now stabilized at a replacement level of 2.1. As shown in Figure 4, IR Iran has now achieved a much more rapid reduction of total fertility than neighboring countries.
The Islamic Republic of Iran has been particularly successful in achieving very high coverage for immunization: reaching 99 percent by the year 2000 and reaching nearly 100 percent by 2004 for BCG, triple vaccine, oral polio, hepatitis B, and meningitis (Figure 5). Its effective immunization program has led to dramatic declines in the number of vaccine-preventable childhood illnesses: the number of measles and whooping cough cases has declined substantially; diphtheria and tetanus including neonatal tetanus between 1980 and 2003 were reduced seven- and nine-fold respectively; and a case of polio has not been reported since 2001.

Expansion of access to PHC and immunization coverage has enabled IR Iran to successfully reduce the infant mortality rate (IMR) and the under-five mortality rate as noted in Figure 3. The impressive decline in the IMR figures can be attributed in part to the introduction and rapid scale-up of an Expanded Program for Immunization, promoting breast-feeding, and Integrated Management of Childhood Illness Programs to manage acute respiratory and acute diarrheal illness.

As with infant mortality, IR Iran has also succeeded in improving the maternal mortality rate. By 2000, 79 percent of expectant mothers had antenatal care (MOHME 2001) and 89.6 percent of the births were attended by skilled health personnel such as trained physicians and midwives (WHO 2006).

2.1 Macroeconomic Stability and Growth

At a macroeconomic level, the achievements must be seen within an overall context of economic successes, with the country’s economic growth and external position strong at present, with decreasing poverty rates, but with accelerating inflation and some structural issues that deserve serious attention. During the eight-year war with Iraq, the country experienced negative economic growth in the 1980s, with an average annual gross domestic product (GDP) growth rate of 0.5 percent. The situation improved in the 1990s with a relatively steady average annual GDP growth rate of 4.6 percent. The incidence and depth of poverty in the country also improved during the 1990s. The USD 2 per day poverty head count ratio decreased from 11.7 percent of the total population in 1990 to 7.3 percent in 1998; this upward trend has continued into the early 2000s.
3. A RAPIDLY CHANGING LANDSCAPE WITH HEALTH AND POPULATION

3.1 The Changing Population and Health Profile

In parallel, as the total fertility rate reached stabilization at the population replacement level, the age structure of the Iranian population experienced a significant shift. Currently, the country is experiencing a youth bulge and in the next two decades, its demographic profiles will be aging (Figure 6 and Figure 7). In 2005, the proportion of under-15 year olds was 28.7 percent whereas the proportion of youth aged 15–24 accounted for a quarter of the total population. In 2025, the proportion of under-15 year olds is projected to be reduced to 23.3 percent. On the other hand, the cohort that belonged to the youth age group (15–24) in 2005 will migrate to the working age population, resulting in a sharp increase of this age group, to 51.3 percent of the total population. The proportion of over-60 will nearly double to 11 percent. In 20 years, these relative reductions in younger populations and substantially increased numbers of older groups will have an impact on labor and social policies. The changing mix of the population can further be expected to transform the epidemiologic profile and the burden of disease in the country.

Another significant demographic trend in IR Iran is urbanization of the population. In the last two decades the proportion of urban and rural population has reversed. In 2005, nearly 70 percent of the population lived in urban areas.
3.2 The New Challenges for Health

As the population profile changes and with communicable diseases relatively well controlled, the Islamic Republic of Iran now faces a burden of disease increasingly predominated by non-communicable diseases (NCDs) and accidents. Given the youth bulge, the burden of disease profile is increasingly characterized by risky behaviors of youth such as traffic accidents, injuries, and substance abuse. The burden profile could be further compounded by obesity and risky sexual behaviors. Over the next two decades, these young population cohorts will move into working age and older age cohorts, and their disease profile will become increasingly characterized by chronic diseases including cardiovascular disorders, cancers, and mental illness. The burden of disease will impact both on the health system as well as on the labor force and levels of productivity. Occupational and environmental health hazard costs incur a significant drag of economic growth currently, and can be expected to exacerbate over time.

Several factors are contributing to this changing epidemiologic profile. These include:

- As the total fertility ratio declines to the replacement level and people live longer due to the advancement of medical technology and intervention, the proportion of the elderly has increased.
- Increased sedentary lifestyle, increased intake of energy dense food, and increased consumption of animal fats and refined sugars.
- Rapid industrialization, which has resulted in growth of environmental and occupational hazards.
- Industrialization and energy subsidies, which have combined to increase levels of automobile traffic.
- Relatively easy access to opium, heroin, and hashish due to considerably porous borders with Afghanistan and neighboring countries.
- Changing cultural and social norms.

According to the most recent Burden of Disease and Risk Factors study of IR Iran conducted in 2003, NCDs account for 45 percent of the total disease burden for males and 33 percent for females. This is followed by traffic accidents and injuries (including natural disasters)\(^1\) for males (11 percent of the total disease burden), then pre-transitional diseases (communicable diseases, prenatal and maternal conditions, and nutritional deficiencies) for males and females (4 percent each), and finally, traffic accidents and injuries for females (3 percent).

3.3 Addressing the Current Youth Bulge

Importantly, major causes of mortality and morbidity impact differently across age groups (Figure 8). Accidents and suicides are more prevalent among youth, whereas cardiovascular diseases are more significant contributing factors of life lost among those over 50 years old. This differential signals that implementation of age group specific public health and health delivery interventions will be important for mitigation of risk factors. In particular, accidents among youth are alarming. Injuries, psychosomatic illness, and risky sexual behaviors can adversely affect the quality of life and productivity throughout the life course.

\(^1\) Natural disasters, particularly the Bam earthquake that occurred in southeastern Iran in December 2003, caused more than 26,000 deaths and approximately 30,000 injuries. Though a significant number, Naghavi (2003) does not account for these deaths.
At the same time, risk factors associated with habits or lifestyle (e.g., smoking, sedentary habits, and reckless driving) require intervention in the relatively early years of life. Most smokers begin before they turn 20 years old and, tragically, continue smoking for the remainder of life. This set of risky behaviors among youth is exacerbated by high unemployment. Youth and young adult unemployment remains high (18.9 percent for the age group 15–29 years), with unemployment almost twice as high for women as for men at 15 percent and 8 percent nationally.

The youth bulge currently observed in IR Iran presents a demographic opportunity: its economy can benefit from potential high productivity of the young. However, failure to act on needed preventive interventions may manifest as a drain on economic development and future growth.

3.4 New Challenges and Pressures on the Health Sector

Over time, the increasing morbidity of chronic diseases and risky youth behaviors will place greater demand on the health system, straining the existing structure and depleting its resources. More patients could present in more severe and symptomatic states, necessitating more expensive secondary and tertiary services and increasing health care expenditures. An important challenge thus emergent will be containing costs without compromising quality of care, by increasing efficiency of health service delivery and employing cost-effective interventions.

In the midst of a rapid increase of non-communicable disease, some health outcome measures have begun to stagnate (e.g., neonatal mortality), or even reverse course relative to other countries in terms of relative income (e.g., infant mortality rate, under-five mortality rate). Newly emergent infectious diseases such as HIV/AIDS and tuberculosis remain unresolved.
For all of its given advances, persistent inequities and high outcome disparities exist within and among regions of the Iranian health sector. These disparities are particularly evident in southern Iran and intra-regionally, in critical areas such as in infant mortality and malnutrition. Though IR Iran had considerable success in reducing protein-energy malnutrition in the last decade, it still has one of the highest under-five malnutrition rates in the Middle East and North Africa Region. At the same time, IR Iran continues to confront an unfinished agenda of nationwide micronutrient deficiencies, especially of iron and zinc, and extremely low rates of exclusive breast-feeding practices, in addition to the high disparities of undernutrition in the southern provinces.

Health is a potential growth sector and likely to expand as a large share of the country’s economy. In order to ensure high returns on the investment and to strengthen the linkage with economic growth, the sector needs to be well regulated and managed.

3.5 The Growing Impact of Issues beyond the Health Sector

Additionally, the Islamic Republic of Iran faces alarming health concerns beyond the strict confines of the health sector. The economic costs of public health issues like traffic accidents and road safety and the burdens of disease such as occupational hazards and air pollution, when combined, comprise approximately 10 percent of the gross domestic product; and this is a mere fraction of projected total costs. Extant calculations have not included such factors as workplace absenteeism due to illness, impaired labor productivity, constricted labor supply—with chronic illness correlating to early retirement, and compromised household security—with the untimely death of a household member.

<table>
<thead>
<tr>
<th>Area</th>
<th>Economic Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental degradation</td>
<td>USD 348 million per year</td>
</tr>
<tr>
<td>Karun River pollution</td>
<td>USD 46 million per year</td>
</tr>
<tr>
<td>Traffic-related fatalities and injuries</td>
<td>1.8–4.0 % of GDP</td>
</tr>
<tr>
<td>DALYs lost attributable to risk factors</td>
<td>0.9 % of GDP in lost wages</td>
</tr>
<tr>
<td>DALYs lost to all diseases and injuries</td>
<td>5.6 % of GDP in lost wages</td>
</tr>
</tbody>
</table>

Note: Lost wage estimates are based on Labor Survey (2003); wages of full- and part-time works as well as DALYs lost are based on Naghavi (2003).

As IR Iran enjoys a period of high economic growth; as it moves to a more modern macroeconomic context, most new jobs will need to be created by the private sector, mainly in the service sector, as the share of domestic and foreign private investment increases. That being said, the country has experienced uneven and fragile progress and currently is facing rapidly rising health care costs, which increase the cost of outputs and affect productivity.
4. STRATEGIES FOR IMPROVING SECTORAL PERFORMANCE

The Iranian health system is confronting new and varied changes in demographic, economic, epidemiologic, social, and technologic landscapes. This “new world” and these “new realities” necessitate forthright recognition and action. In fact, they present a twofold and concurrent challenge: to address the immediate needs of its youth and to prepare for the changing profile to an older population with more non-communicable diseases, diseases which will fully manifest within the decade.

The Islamic Republic of Iran has the opportunity to harness the current economic growth cycle to advance a reform agenda, and the health sector presents one such opportunity. Health reform could further improve efficiency in the health services sector and improve health outcomes, which would indirectly contribute to economic growth. Strong cross-country correlations between aggregate measures of health (e.g., life expectancy or child mortality) and income growth are well established.

Against this backdrop, a few general themes emerge from the review and several challenges present from the diagnostic of the sector. Governance and stewardship require rebalancing: the roles of the government and the ministries must evolve to meet the new sectoral and economic dimensions. The public health system can be strengthened. The primary care system, an internationally renowned model for two decades in the rural areas, is either functioning marginally or not at all in many urban areas, and not able to address the new challenges. The delivery system performance overall is less than optimal; there are parallel public and private systems and services that are often duplicative across public and private sectors. There are multiple actors managing health financing in IR Iran, including social health insurance organizations, the central and provincial governments, military and security organizations, and commercial insurers. There are too many public and private agencies managing health financing, making it both inequitable and inefficient. The pharmaceutical sector must rethink its current scheme of subsidy; it is no longer competitive and is in need of restructuring to increase innovation and responsiveness. The local industry is fragmented; the majority of manufacturing sites are old. The industry is not yet compliant with international good manufacturing practices (GMP). Restructuring and modernizing with soundness of strategy and strong vision are requisite to prioritizing and interlinking the dimensions of health sector reform.

In terms of reform, the health sector might restructure and modernize across five key strategic interventions, to address issues of both efficiency and equity. These include:

- Governance;
- Delivery system—including primary care, specialized care, and hospital services;
- Financing—including revenues, pooling, and purchasing;
- Pro-poor programs, for both urban and rural geographic areas; and,
- Evidence-based policy development.

Box 1

Good Governance and Modernization of State

“Government is bound to design the macro-organization of the executive agencies and ministries in-line with the policies and rules of this plan on the basis of the experience of other countries, aiming at elimination of imperfect and deficient effectiveness, organizationally inefficient and incomprehensive conflicts, centralization, parallel works; and to use modern technologies and efficient methods aiming at renovation, suitability, merging and reorganizing in form of a solid, efficient and sufficient, effective and decentralized system.”

4.1 Improved Governance: Moving from Control to Stewardship

Governance is the critical function for restructuring along other dimensions in the sector (Figure 1). The governance of any health sector encompasses three essential functions: (i) stewardship of the system (i.e., active monitoring and adjustment to keep the system working toward broad health sector objectives); (ii) the structure for oversight of the system (i.e., its performance goals, design, rules, and regulations); and (iii) the administration of the sector’s institutions themselves.

Good governance is fundamental for systems to perform well. The general principles used to define good governance for governments, corporations, and financial markets are: transparency and the rule of law, consistency, accountability, inclusiveness and participation, and effectiveness and efficiency.

The sector should begin a transition from a health system that relies on bureaucratic command and control mechanisms to a system that has a well developed governance and regulatory framework and that promotes the growth of modern performance-based management systems. The reform agenda would involve the following shifts:

- From a health system that relies on centralized planning and input-based budgeting to one that embraces a broader market framework, better aligns incentives in allocating resources, and rewards good performance.
- From a health system that has a separate and parallel public and private sector to one that promotes effective public–private partnerships in areas such as financing and delivery of services. Where effective private delivery services exist, the government might withdraw from delivering services to one that uses insurance organizations to selectively contract and purchase services. At the same time, the government may need to take a much stronger role in planning and coordinating across sectors in terms of buildings, beds, technology, and human resources policies.
- From a health system that relies on implicit subsidies to one that has a more transparent and well targeted system of subsidies.
- From a health system of quality control to a system of sponsorship of medical technology assessment, evidence-based clinical research, partnership with independent quality accreditation functions, and the sponsorship of quality improvement programs.
- From a system that overlooks public health regulations and enforcement to one implementing tougher standards for priority areas that will reduce morbidity and mortality and promote economic growth in the long term.

Governance issues permeate the sector across subsectoral issues of public health, delivery of services, financing, human resources, pharmaceuticals, and other key inputs. There is, further, the issue of interlocking and sometimes conflicting roles of institutions in today’s health sector. Each is discussed in turn.

4.1.1 Public Health Functions

Public health functions are a set of fundamental activities that address the determinants of health, protect a population’s health, and identify effective treatment of disease. Public health functions include: (i) monitoring, evaluation, and analysis of health status, (ii) disease surveillance, (iii) health promotion, (iv) social participation in health, (v) health policy planning and management of the health sector, and (vi) regulation and promotion in public health. The health system of IR Iran successfully established foundations for these public health functions such as community-based health education and promotion.
and periodic surveillance, in particular. With the emergent epidemiological profile, solutions will require reconfiguration of the government’s public health functions and governance structure. Formulation and enforcement of public health laws and regulation and (ii) intersectoral coordination are functions requiring priority focus, considering the mortality and morbidity patterns.

The government should strengthen formulation of needed public health laws and strengthen enforcement of existing regulations. Formulation and enforcement of public health laws and regulations is one of the key governance functions. For example, in the case of smoking cessation, international experience demonstrates that public health laws and enforcement can provide a variety of regulatory options; when interventions are combined appropriately, significant smoking reduction can occur.

The Islamic Republic of Iran has a good number of public health laws and regulations. Enforcement of some key public health laws should be more strictly adhered, to alleviate the risk factors existing in the country. Not only road safety laws, but also environmental regulations and occupational health standards should be enforced and closely monitored. International experience suggests successful enforcement measures stem from careful planning regarding the enforcement process, available resources, legal capacity, political support, data and monitoring systems, and the incentives inherent in laws and regulations.

The government should enhance intersectoral collaboration. As non-communicable diseases (NCDs) and accidents take up a greater part of the disease burden in IR Iran, the relative significance of social determinants of health has increased. Intersectoral coordination can help reduce risk factors confronting the Iranian population outside of the health system. There are several good examples of intersectoral coordination. For example:

- Drug Control Headquarters for conducting substance abuse and harm control: the coordination includes the Ministry of Health and Medical Education (MOHME), the Ministry of Labor and Social Affairs, health authorities from the prisons department, and non-governmental organizations.
- Under collaboration with the Ministry of Trade, the Environmental and Occupational Health Center of the MOHME launched a plan to protect the health of carpet makers in 1995. Nearly 325,000 factories and a half million workers have already been covered by this initiative.

Other areas could benefit from strengthening of intersectoral coordination, including:

- The alarming health issues of traffic accidents and air pollution through coordination with the Ministries of Transportation and Environment respectively.
- Culturally appropriate physical education/school health programs that educate school children and youth about the importance of healthy diets and physical exercise and other healthy behaviors. This will require coordination from the MOHME with the Ministry of Education.

Intersectoral coordination in health is a challenge for many countries, but international experience suggests that the design of intersectoral actions in health reflect both content of intersectoral actions (what will be done) and the organization and financing of these actions (how it will be done).

4.1.2 Regulation of Health Services

The Ministry of Health and Medical Education stewardship capacities should be enhanced on the delivery of services, while better coordinating with the social insurance organizations at both the primary health care (PHC) and secondary services levels. For example, the MOHME could help define an expanded set of PHC services that build on the existing health interventions, but extending these to
include public health and personal care programs targeting NCDs. This expanded set of PHC services should specify target quality standards and would be standardized for, and shared by, all purchasers and providers. Longer term, combined integrated packages of primary care and secondary services need to be developed and standardized across insurers.

**The MOHME or another ministry should create and foster a new medical technology assessment (MTA) council and process.** Available data show an excess supply of magnetic resonance imaging (MRI) facilities. The MRI per capita in IR Iran is higher than that of countries of comparable per capita gross domestic product. This may be leading to induced demand for unnecessary services and driving up health care costs superfluously. A system for regulating the amount of expensive medical technologies should be developed for better assuring rational and appropriate use, across both public and private sectors. In Europe, particularly the Netherlands and Sweden, MTA has been used to rationalize the installation and use of high technology and high-end procedures. The MTA process uses a synthesis of evidence on safety, effectiveness, cost-effectiveness, and legal- and social-impact issues to manage and allocate drugs, devices, and procedures. The use of MTA findings can be integrated with changes in coverage, the benefits package, and updates of tariffs for services for MOHME and the social insurance organizations.

If the trend in health technology parallels trends in privatization of pharmacies, laboratories, and radiology centers, the public sector may want to consider divesting in these areas and instead focus resources on its stewardship function to ensure effective regulation, medical technology assessment, and rational utilization of such services, rather than increase the supply of services. Similarly for hospitals, which have a combined bed occupancy rate of 35–75 percent across public and private sectors, far below OECD standards of 80–85 percent occupancy.

### 4.1.3 Governance of Health Financing Agencies

**The social insurance organizations and other public insurance and payer organizations are fragmented, and too many health funds cater to privileged groups.** Either an existing body (e.g., Ministry of Social Affairs, Ministry of Health and Medical Education, or High Insurance Council) or a new entity (e.g., National Health Sector Board) needs to take a stronger leadership and coordinative role across the multiple insurers and payers of health. Regardless, the end purpose is to devise the optimal platform for streamlining public and private sector financing and purchasing of services. The board would oversee the tariff schedule for payers, help develop a unified benefits package for all, and supervise new purchasing and payment reforms. It also would work with other parts of the government to set overall expenditure targets, and monitor quality and access. The MOHME could chair an Oversight or Coordination Council.

**There is little or no regulation on health financing in the private sector.** Service tariff regulations are generally ignored. Nor is there governance to coordinate across public and private sectors for either financing or coordination of financing and provision.

**These collective changes in public health, delivery of services, and financing will require investment in the training of MOHME and other governmental staff in management and public health.** Strengthening the capacity of MOHME, for example, should proceed on various functions including policy analysis, health program planning and evaluation, financing, health management and information systems, and behavior change communications.
4.1.4 Strategic Planning of Human Resources in the Health Sector

The medical universities at the provincial level may need to focus more on medical manpower and medical education. The Islamic Republic of Iran needs a comprehensive human resources strategy and planning to ensure that the number and skill mix of available health workers matches the current and projected demand. It needs a new human resources policy that will match and support needed reforms in other parts of the sector. At the moment, no clear evidence of demonstrated linkages between projected human resources needs and intake into medical or nursing schools exists.

Medical curricula need to be modernized. The current curriculum focuses mainly on the specialized curative services; less attention and focus has been on preventive, palliative, and interprofessional fields. Iranian medical schools are still offering courses based on the system from the pre-revolutionary period; this inhibits medical students from learning about newly emerging diseases and health threats like NCDs. The government could consider a model medical curriculum that places the student at the center of the experience, is based on existing problems in the general well-being of the populace, and concentrates on a systemic approach.

The government will need to invest strategically for the future both in terms of material inputs like drug manufacturing and human resources such as creating a new “pipeline” of student talent in management and information systems, and in terms of revising the skill mix of and curriculum for new physicians, nurses, behvarzes, and paraprofessionals in the health sector.

4.1.5 Regulation of Pharmaceuticals, Medical Devices, and Other Inputs

Decouple some functions of the Ministry of Health and Medical Education (MOHME) to limit conflict of interest and promote specialization. For example, the regulatory function for the pharmaceutical sector sits within the MOHME. It could be preferable to have an independent, or quasi-independent, regulatory agency.

Interdependence of public organizations inhibits innovation and market competitiveness. The local pharmaceutical industry is fragmented, and the majority of manufacturing sites are old. The industry is not yet compliant with international good manufacturing practices (GMP). A factor that inhibits consolidation of the industry is that the owner of a large cluster of manufacturers (combined under one holding company) is at the same time the largest buyer of drugs namely, the Social Security Organization (SSO). There are also close linkages between the SSO and the MOHME. This triangular relationship between regulators, buyers, and manufacturers makes it difficult to agree on decisive steps that could increase the profitability and technical capability of the industry. Lastly, external competition is held down by price subsidies and high import duties, which in the long run may only create a drag on efficiency and innovation.

Within a broader social and legal framework, IR Iran will need to strengthen laws that impact on modernization of the health sector, and mainstream its legal policies with the international community. In brief, patent laws for new pharmaceuticals and intellectual property rights need to be recognized. Ambitions to become a member of the World Trade Organization will lead to obligations that are not compatible with the current level of protection of the national drug and device industry. Legislation and regulations on intellectual property rights and strong enforcement of intellectual property rights are required to motivate academics and companies to invest in discovery and innovation in the field of pharmaceuticals, medical devices, and software. Without enforcement of intellectual property rights in these fields, no commercial incentive can exist for firms’ investing in research and development costs to bring quality products to market.
4.2 Improve Allocative and Technical Efficiency: Upgrading the Delivery System

Different policy options will need to be considered to optimize the use of primary health care services, rationalize the use of hospital care, and curb the proliferation of hospital beds. Policy options should have one or more of the following objectives:

- Expand the role of the PHCs in the provision of ambulatory services to reduce the use of hospital outpatient services and inappropriate hospital admissions;
- Reduce the use of inpatient hospital services by reducing admissions, length of stay, or both;
- Improve the technical efficiency of resource use within hospitals, that is, to achieve the same output for less input;
- Rationalize any further growth in the delivery system infrastructure, particularly the hospital sector, through developing master plans or coordinated public–private strategies to guide all future investments.

4.2.1 Primary Care: A Multidisciplinary Approach

The Islamic Republic of Iran has developed an extensive network of primary health care (PHC) facilities. Their uptake, nevertheless, expresses variation between rural and urban areas. In the former, coverage is good except in some remote areas where services are still lacking. In the latter, the public PHC network has been crowded out by private general practitioners, narrow specialists operating as PHC physicians, and hospitals owned by the social insurance system, philanthropic organizations, and the private sector. In either case, rural or urban, forms of inequity persist in access to first line services.

Rural PHC centers are well staffed by behvarzes and urban PHC centers by female volunteers and general practitioners. The PHC centers provide essential health care and public health services for individuals, households, communities, and schools with an emphasis on women’s services (e.g., antenatal care and family planning), health care for children (e.g., immunization, nutritional care and education, developmental checks, and oral and dental care), and basic personal medical care (for example, basic follow-up of hypertension and diabetes mellitus, dressings, home visits, and injections). These services have good coverage and uptake.

The expansion of access to PHC in rural areas has enabled IR Iran to successfully reduce infant and under-five mortality rates as well as maternal mortality rates. However, under the current institutional arrangements, the PHC system continues to focus on management of health issues of the past and is not prepared to manage current and emerging public health problems, namely chronic illnesses—in particular, cardiovascular disease, diabetes mellitus, and mental illness—traffic accidents, burgeoning substance abuse with injecting drug use rapidly rising, and HIV.

At the same time, overall utilization patterns suggest increased demands on outpatient specialists. Utilization survey data have shown that the average waiting time to see a specialist was much higher than that of a general practitioner (GP). It is not clear, however, how appropriate the demand for specialist care is, i.e., if specialists are seen for complex cases that require specialist care, or if many cases could be managed by GPs or family medicine physicians.

Although primary health care is often equated with gatekeeping, it plays a much more fundamental role in any health system. The four main features of a good PHC system are: first contact access, continuity of care, comprehensive care, and coordination of care across levels of services. Each is discussed in turn.
First contact access ensures that new health problems and needs are met. This is well developed in the rural areas and less well developed in urban areas. Indications of the problems in urban areas are the high referral rates to hospitals as well as private general practitioners and narrow specialists operating out of clinics, hospital outpatient departments, and hospital emergency rooms (both in the public and private sectors). Whereas the PHC system is more uniform across rural areas, fragmentation is occurring in urban settings.

Continuity of care focuses on the patient over the long term namely, ongoing care for the person and not just the short-term duration of a disease. Continuity of care becomes compromised when fragmentation occurs, because patients have to move from one provider to another for their health care needs. This, in turn, has adverse consequences for outcomes of chronic illnesses, which improve with enhanced continuity and person-centered care.

Comprehensive care is a range of services appropriate to the common problems in the population that enables most health needs to be met. Core PHC activities in urban and rural areas comprising health education, prevention promotion, and basic personal health services have been appropriate to address priority areas of the past (i.e., infectious diseases). However, the services provided are no longer appropriate or comprehensive enough to meet the current and emerging health needs.

Coordinated care means that primary care is designated to coordinate patients’ access to and interaction with all levels and functions of the health system in order to address their well-being. The PHC model plays little or no role in coordinating the health system functions and has only a limited role in coordinating the patient journey. The absence of a primary or named physician to coordinate patient care further compounds these problems. Consequently, the PHC system is unable to provide any meaningful informational and personal continuity of care or coordination—preconditions for effective management of non-communicable diseases (NCDs).

The current organizational structure is inefficient, with multiple subsystems of funding organizations and providers, and with little or no coordination amongst them. This leads to fragmentation, fractured first contact access, and interrupted continuity of care.

Financing and purchasing capacities are weak. The presence of multiple subsystems also leads to a varied scope and quality of care, especially as the funders of health care (social insurance organizations) act as passive payers rather than strategic purchasers of services. Second, the resource allocation favors hospitals, with the share of PHC amounting to only around 10 percent of total health expenditures. This partly helps to explain why PHC has failed to develop a more comprehensive set of services that are appropriate to current and emerging needs. Third, the provider payment systems in PHC, based on salaries with no incentives for improving the quality and the scope of services, hinder development of more comprehensive and effective PHC services. This partly explains the high hospital referral rates.

Training curricula are limited. The service scope is limited by the narrow training received by the behvarzes. They are well trained to manage basic personal services and basic public health activities like family planning, immunization, prevention of communicable diseases yet lack the knowledge and skills to effectively manage NCDs.

The PHC services need to be re-evaluated given the changing disease burden and the weaknesses identified. Addressing these challenges requires multifaceted interventions aimed at health system strengthening and developing extended primary care. It will be important to at least pilot these initiatives and options to learn and then arrive at the optimal method for addressing human resources needs in the country.
Expand the existing set of PHC services. A new core set of services would need to emphasize improved continuity of care for common conditions. The services should include integrated public health programs, individual health education and promotion activities, disease prevention (at the primary and secondary levels), guideline-driven diagnosis, and management of key acute and chronic diseases. This core service package should have well defined quality indicators on effectiveness and efficiency. The core package of services should also include regular clinical audit undertaken by all PHC providers to monitor and improve quality levels.

Introduce an ‘additional service’ package—initially in progressive regions and in areas with greater population density—to further expand the scope of PHC services for NCDs (e.g., asthma, chronic pulmonary disease, diabetes mellitus, epilepsy, heart failure, ischemic heart disease, and mental illness). Most NCDs and injuries can largely be prevented when integrated, population-based public health strategies are combined with health care interventions that target high risk individuals. These services would need to be premised on evidence-based guidelines and emphasize a gradual shift of the services currently provided in hospitals to the PHC level; and this expanded role of the knowledge base would require the skills and competences of the behvarzes, health technicians, and general practitioners to be augmented through training. The introduction of this additional package of services, which emphasizes effective management of chronic illnesses, is critical to improving the health status of the Iranian population.

Strengthen referral and counter-referral systems. The gatekeeping function of PHC must be strengthened by transparent referral and counter-referral criteria to ensure patients accessing the secondary care level are first seen at the PHC level and appropriately referred. These criteria can be incorporated into clinical care guidelines aimed at improving the management of health problems at the PHC level and reduced hospitalization.

Increase allocative efficiency by gradually increasing financing allocated to PHC. Regulations could be changed to increase over time (within three to five years) the proportion of public resources (from state and social insurance) allocated to the PHC levels more consistent with countries that face substantial burden due to NCDs. In European and many transition countries around 30–35 percent of the total public health expenditure is allocated to PHC, more than three times what is allocated currently in IR Iran.

Introduce performance-based provider payment systems. The current provider payment system in PHC based on salaries does not distinguish between high and low performers. There are no incentives to improve the scope, quality, and efficiency of the services delivered. This limits ability of the PHC level to broaden the scope of care, move beyond the current gatekeeping role, and achieve the secondary-to-primary shift. Incentives linked to improvement in service quality would be beneficial too. For example, bonus payments could be made to providers that meet set quality criteria or additional payments provided for improving efficiency. Fee for service or per session payments could be used to strengthen existing services or to introduce new services to manage NCDs. New payment systems must be underpinned with robust health information systems that can capture timely and reliable data on individual providers and health professionals.

Create autonomous PHC providers and initiate contracting. Contracts between purchaser and provider organizations can be used to stimulate improvements in service quality and productivity. The PHC services would benefit from a shift from salary-based remuneration PHC system to mixed payment methods underpinned by service delivery contracts (as discussed above). To effectively implement contracting, a number of legal and regulatory changes need to be introduced to develop an enabling environment. Laws would need to be written to establish autonomous service providers as legal entities (e.g., public, private, not-for-profit, and non-governmental organizations) with appropriate managerial and financial autonomy to directly contract with purchasers. The resulting independence would enable
responsiveness to incentives created by contracts. Regulations would need to be clarified to better define the composition of PHC providers, and to team members (e.g., general practitioners, family medicine physicians, nurses, and behvarzes) their competences, roles, and responsibilities.

**Develop an integrated health management information system (HMIS) — health information technologies at the PHC level to inform policy makers, purchasers, providers, and users on the quality and efficiency of the PHC services provided.** The existing PHC information system needs to be expanded beyond collecting basic data and analytic functions, with the health system enhanced to ensure regular feedback of relevant information to service providers and planners. A core public health and PHC data set would need to be defined to better reflect the emerging NCD burden along with a core set of indicators (aligned with international good practice) that could capture efficiency and effectiveness of PHC providers. The new information system would need to have the appropriate technical platforms and architecture (in-line with internationally adopted standards), and the appropriate infrastructure to allow intra- and inter-organizational data sharing and two-way information flow between and within the different tiers of the health system.

**In the longer term, develop, test, and refine a new model of family medicine.** The rural PHC system based on behvarzes and general practitioners (GPs) could be strengthened by introducing family medicine (FM) physicians, specialist community nurses, social workers, and other professionals allied to medicine in order to augment the services provided in rural areas and to expand urban PHC. This would require investment to develop a PHC infrastructure adequately equipped to expand diagnostic and therapeutic capability to resolve problems at the PHC level. Purpose-built PHC facilities, appropriately equipped with clinical and information technologies, would need to create the right conditions to allow expansion of services and enable more integrated approaches to service delivery.

**Create family medicine teams or family medicine group practices (typically comprising family physicians, community nurses or behvarzes, and social workers) as independent entities with the freedom to contract with the MOHME and the social security organizations.** The current composition of the PHC team is too narrow to effectively manage NCDs and intersectoral work. Family medicine (FM) should be established as a specialty and family physicians used to staff PHC centers. The skills of the behvarzes need to be upgraded. Specialist community-based nurses (for example, for mental health, substance abuse, children, the elderly, and disease groups) should be included in the core PHC team along with social workers and professionals allied to medicine (such as physiotherapists) to implement public health interventions and to manage NCDs, with appropriate interfacing with social services and other sectors.

**Create consumer choice and improved gatekeeping and management of care through open enrollment programs.** Patients within a geographic area would need to have the freedom to enroll (during a designated period of time every year) with a FM team or a FM group practice of their choice. The geographic boundaries for the FM teams and FM group practices could be designated according to need to ensure equitable distribution of teams and to promote patient choice and access. The FM teams would need to have overlapping geographic boundaries within a designated area that is, defined so that the boundaries are coterminous with municipality or other administrative boundaries to facilitate multisectoral coordination. Rural areas with low population density may have correspondingly larger geographic territories designated as practice areas than urban areas, which will necessarily be smaller.

**4.2.2 Specialized and Secondary-Level Services**

**Performance at the level of secondary services is suboptimal in terms of technical efficiency of services.** Bed occupancy rates have remained low, ranging from 35 percent to 75 percent, with the SSO facilities having the highest occupancy rates. The average lengths of stay (ALOS) are much higher in
MOHME hospitals than in private hospitals. This could be due to variation in the case mix, or due to higher levels of efficiency in the private sector. One important option that might be considered not only for primary care, but also for hospital facilities, is greater autonomization.

**More flexibility and autonomy will improve the performance of the hospital sector while increasing accountability.** The government has introduced some hospital autonomy and piloted several public–private partnerships in an effort to improve efficiency. Information on this experience has been mixed and largely anecdotal. Savings in time and money may have resulted but lack of management expertise may have limited impact. These interventions need to be rigorously analyzed in order to guide policy makers.

**In the immediate future, cap the number of hospital beds.** Overall, only 82 percent of hospital beds in IR Iran are active and even these are not fully utilized. This wastes resources on utility costs, staffing and salaries, and maintenance. It might be cost-effective to cap or severely limit further expansion of hospital beds unless warranted by increased demand. Regional planning councils could oversee this process and develop guidelines for bed expansion. Older infrastructure could continue to be replaced, but no expansion of the overall numbers of beds would occur.

**At the same time, reallocate more beds from wards with low utilization to those with high demand,** and new wards created to accommodate the needs of patients with the most frequently seen diagnoses.

**Move away from input-based budgeting for facilities.** Many countries in the region have moved away from these input-based budgets often coupled with salaries for providers. Often with a purchaser–provider split under insurance, the system of payment is reoriented toward services or activities, as measured by outputs or even outcomes. IR Iran can move to some combination of global budgets and case-mix adjusted payment, building on its 60 ICD-based case payment categories developed for surgical interventions. The categories could be expanded up to 150, which would provide enough comparative data for payment purposes. Case-mix groupings have added value in that these are often used for medical review and quality assurance.

### 4.2.3 Emergency Services in Rural Areas

Traffic injuries comprise the number one burden of disease in the country, with the highest number of disability-adjusted life years (DALYs) accrued for the population. Once accidents occur, the lack of adequate medical facilities, including limited emergency services, and a general lack of qualified medical personnel have traditionally impeded prompt medical attention. More ambulances, hydraulic equipment, and better communication equipment for emergency services have recently been procured; response times have improved and mortality has decreased.

**More may be in needed—especially in rural areas of IR Iran as emergency and rescue centers often do not have adequate functioning communication facilities.** Most accidents (about 80 percent) are registered on urban roads, while most fatalities (81 percent) are registered on rural roads with 0.12 fatalities per casualty accident in rural areas compared to 0.02 in urban areas. The seriousness of accidents is higher on rural roads than on urban ones (0.56 and 0.18 casualties per accident respectively).

In Volume II of this report, the background sections were able to pull little analytic information on current programs. International best practice suggests a multipronged approach provided in Box 2.

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2 Approximately 500 ambulances were purchased using joint funds from the Government of the Islamic Republic of Iran and the World Bank under the Second Primary Care and Nutrition Project (effective closing date September 30, 2008).
Box 2
Steps to Strengthening Emergency Medical Services Programs

1. Establish public awareness programs to promote use of a single emergency telephone number, injury prevention (e.g., seat belts, motorcycle helmets, child car seats), and cardiopulmonary resuscitation (CPR);

2. Develop systems and capabilities to provide 24-hour ambulance service with appropriate response times;

3. Reach an interagency emergency medical services (EMS) agreement between the Ministry of Health and Medical Education, Ministry of Transport, and other relevant agencies and providers to determine the roles and responsibilities of each cooperating agency;

4. Institute a tiered EMS response system whereby regional paramedic-level staffed ambulances with advanced equipment are available in dispatch centers for transport of severe patients to higher level emergency centers;

5. Provide online medical assistance to ambulances in route to the hospital by a physician experienced in emergency care;

6. Identify the hospitals with Emergency Departments (ED) that are adequately equipped to receive emergency patients;

7. Train and certify ambulance providers in basic life support (BLS), at a minimum; consider offering BLS training in schools and universities;

8. Train and certify hospital ED staff, at a minimum, in advanced life support; in particular, formally train nursing staff in both nursing and basic emergency care; consider instituting an emergency medical training program in one of the schools of nursing;

9. Facilitate data collection and analysis and improve quality control by using existing standardized ambulance and ED patient record forms;

10. Conduct a survey of hospitals and ambulance providers to obtain standardized baseline data concerning equipment, training, and clinical capabilities; and

11. Develop a comprehensive strategy and action plan with clear targets and measurable objectives by having the Ministry of Health and Medical Education appoint a national EMS Coordinator along with an Interagency Advisory Committee.

Source: Disease Control Priorities in Developing Countries, 2nd Edition (World Bank 2006).

4.2.4 Quality of Care

The regulatory and quality assurance, and quality improvement functions need to be strengthened, especially for secondary level services. Medicine should be practiced on the basis of evidence. The MOHME will need to sponsor greater research and synthesis of available evidence on what works.

*Develop and implement evidence-based clinical guidelines.* There is a need to improve the evidence base of services provided through development and implementation of evidence-based care guidelines. The guidelines would improve the quality and efficiency of services for managing of NCDs and key acute conditions. These guidelines should define service content at the PHC level, but also thresholds for referral to secondary care level.

Effective implementation of evidence-based guidelines will require appropriate and coordinated incentive systems that emphasize improved health outcomes, user satisfaction, and efficiency.
Implementation of guidelines and performance-based payment systems must be underpinned by substantial investment in health information systems to enable assessment of service quality and outcomes.

Engage professional groups and provider organizations in the development and implementation of guidelines. As a first step, an appropriately staffed new Center for Evidence-Based Medicine should be developed. This should be followed by the establishment of a Guidelines Task Group charged with identifying priority areas for guidelines development and developing guidelines in a systematic manner.

Quality and guidelines are missing at the primary health care (PHC) level. In spite of a large body of empirical evidence showing benefits, there are no evidence-based guidelines at PHC level to manage chronic illnesses. Consequently, care is not informed by evidence at this level. A critical weakness in the health system is the limited information on quality, health outcomes, and costs, which makes it difficult if not impossible to ascertain the effectiveness and efficiency of PHC.

At the provider level, embed continuous quality improvement into clinical practice and organizational principles. Each PHC organization (FM team of FM group practice) and hospital facility should be responsible for undertaking clinical audit to demonstrate good clinical practice and rational prescribing. Clinical audit should be undertaken in areas where evidence-based guidelines have been introduced and should be team led. Clinical audit should be a requirement within contracts and be an integral part of the continuing professional development program.

Strengthen mechanisms for accreditation of health care providers at all levels of care. A quality enhancement agency should be established to first register then to accredit all health care organizations providing PHC services to the population. Only accredited PHC organizations should be able to enter into contracting arrangements with the purchasing agencies or provide private PHC services. The accreditation process should emphasize common quality standards for the services delivered, building and infrastructure, equipment, record keeping, patient records, patient confidentiality, teamwork, and continuing professional development.

The existing mechanisms of licensing and accreditation are managed by a unit in the MOHME, which may limit objectivity and independence. At present, quality mechanisms focus heavily on inputs and not outcomes, and the results are not made public for the patients to make informed choices. Clear guidelines need to be established for making explicit the sanctions/incentives for compliance with quality standards. This is in-line with Article 89 of the Fourth Five-Year Development Plan.

4.3 Improve Efficiency and Equity of Financing

Against the context of economic growth and falling rates of poverty, the government reported in 2005 that the total health expenditure of the country had grown to Rls 127 trillion, or 7.8 percent of gross domestic product (USD 205 per capita), up from 6.0 percent in 2002 and 4.8 percent in 1990. The government’s expenditures on health account for less than half of total national health expenditures, about 40 percent of which is spent through social security funds.

With health financing, IR Iran has made enormous progress over the last several years in extending insurance coverage to almost all of its population. The country enjoys increasingly sophisticated health insurance organizations to manage and purchase services on behalf of their enrollees. The rural health insurance program is the latest milestone in this progress since the revolution.
The Fourth Five-Year Development Plan calls for increased public sector funding and better financial risk protection for all of its citizens. The recent trends in expenditures suggest IR Iran is in a period of significant expansion of funding for health care. Already noted regionally and globally for its expenditure on health, at 7.8 percent, IR Iran is comparable to a higher income OECD country. And, although a rapid pace of growth appears to characterize current expenditures, a range of issues remain.

### 4.3.1 Sources of Funding

Funding for health is highly regressive and inequitable with large out-of-pocket payments; this is also true for the programs offered by the Social Security Organization (SSO) and the Medical Services Insurance Organization (MSIO). For the new rural health insurance program, rich and poor alike pay no premium, raising questions about a poorly targeted contribution structure. For the future, the government will need to balance equity considerations with assuring coverage and enrollment under its government employees program and under its new rural insurance program. Good evaluations of the new program could help pinpoint needed next steps.

*Examine other options for health revenues, especially as revenues for oil exports increase and as a high percentage of the private sector remains uncovered and without any insurance.* In the SSO, the payroll tax (for all social programs) is excessive by international comparisons. Further, the tax is on income and not assets, and a cap prevents full recovery of payment for the upper income groups. There is a further issue of payroll taxes and the link with formalizing the economy and with longer-term management of macroeconomic growth. High payroll taxes may discourage job formation and capital investment, and drive private sector businesses underground, especially small and medium enterprises. High payroll taxes dissuade the informal economy actors from coming into the formal sector and paying into the insurance schemes. In IR Iran, the level of the informal economy is estimated at around 20 percent of GDP. Furthermore, unemployment has remained high, at or above 10 percent since 1995.

*In the short term, delinking contributions and coverage may encourage more people in the informal sector to participate one of the established insurance systems.* There are good examples of governments using general revenues and revenue subsidies for better assuring universal coverage of its national health insurance program. This extends from rich (e.g., Japan) to poor (e.g., Moldova) countries. While IR Iran has a tradition and track record of general revenue subsidies to cover categorical groups, capturing the residually uninsured and informal parts of the workforce/economy remains elusive. Subsidizing premiums is one important approach, but other revenue mobilization approaches need to be explored.

### 4.3.2 Pooling and Management of Funds

The health financing system in IR Iran remains fragmented and contributes to inequities and inefficiencies in the allocation and use of resources. Fragmentation of risk pooling can increase administrative costs, and could lead to duplication of coverage and services. Fragmentation could also reduce the ability of the funds to leverage benefits from strategic purchasing, since multiple and competing purchasers could dilute incentives to improve on provider performance.

*There is a need to assess disparities across risk pools (Table 2) and develop a risk-adjustment mechanism across payers.* Some regulatory framework and stewardship capacity would be needed, but this would increase equity and better spread risks as well as encourage purchasers to manage purchasing arrangements more adeptly. This also could create a virtual single pool for all. In the longer run, the government might consider a unified single-pooled system of funding for a core package of services for its entire citizenry. This model is currently found in the United Kingdom, the Nordic countries such as Sweden and Norway, Canada, and in many Gulf Cooperation Council states. The model would lower administrative overhead and provide increased leveraging of purchasing and commissioning of services.
### Table 2

**Fragmented Financing of Health Care Services: Separate Health Pools, 2006**

<table>
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<tr>
<th>Public/Government</th>
<th>Trade Groups/Ministry of Finance</th>
<th>Quasi-Private</th>
<th>Private</th>
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<td>IR Iran</td>
<td>Municipalities</td>
<td>Day</td>
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<td>Armed Forces</td>
<td>Asia</td>
<td>Oil Companies</td>
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<td>Imam Khomeini</td>
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<td>Parsian Bank</td>
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<td>Helicopter Company</td>
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*Source: Ministry of Social Welfare 2006.*

#### 4.3.3 Resource Allocation

There is growing evidence that the health funds in IR Iran are not well targeted, nor well spent, raising issues of both macro- and micro-level efficiency and equity. The public budgets of MOHME are inequitably allocated across provinces. Provider payment systems are both complicated and providing the wrong sets of incentives. The line item and fee for service payment systems of insurers appears to be leading to overutilization, possibly provision of unnecessary services. The incentives in place encourage organizational rigidity by discouraging real organizational change while at the same time encouraging induced demand and cost escalation without any real impact on health status. High formal and informal payments by consumers affect all income groups but may be hurting access and quality for lower income groups.

**Benefits offered by the social insurance organizations should be aligned and standardized and should integrate primary and secondary services.** This will improve both efficiency and equity, help increase financial protection, encourage portability, and inject greater contestability into care at the primary and secondary levels. Additionally, the alignment of benefits by creating ‘core’ and ‘additional’ sets of PHC services will enable the social insurance organizations to contract with a plurality of providers, offering greater choice to the beneficiaries. The core service can be used as the basis for developing a per capita payment system for providers and the additional set to introduce performance-based pay, as discussed above.

**Create a new and more consistent set of payment rules and systems across insurers.** Variations across payers create systemic distortions: the incentives for providers become skewed and practice patterns become stilted, encouraging overuse of highly priced services and crowding out those that pay poorly. In brief, beneficiaries become stratified and inequities arise. A new payment system would need to restructure incentives and improve equity by implementing uniform rules across payers.

**Payment systems discussed in the above sections are not developed and implemented overnight, and some testing and piloting should be initiated.** Models have been discussed in the delivery systems sections above, but implementation steps must be developed. Pilots could be implemented in selected provinces, and with facilities developing improved costing and information systems. This could begin immediately and include both urban and rural areas.
4.4 Revitalize a Pro-Poor Strategy

The Islamic Republic of Iran has demonstrated a longstanding commitment to equity. Yet, large disparities continue to exist with respect to health conditions across economic groups. For example, infant mortality is around 2.3 times as high in the bottom 20 percent of the population as in the top 20 percent of the population. This is relatively high by regional and international standards.

Secondly, not everyone has insurance coverage, and coverage appears linked to income levels. Indeed, coverage has slipped back for the lowest two income deciles to 1990 levels (Figure 9). A universal health coverage law was passed 10 years ago, but IR Iran still falls short of universal coverage. An estimated 10–25 percent of the population still has no coverage, depending upon the source of data. The official government estimate is 10 percent. Anecdotally, there is a further concern of duplicate coverage, with families migrating from rural to urban areas or with a change in employment, individuals and families migrate across insurance programs sometimes retaining coverage for more than one insurer. This complicates a good accounting of coverage gaps.

The levels of out-of-pocket payments (OOPs) on average have been increasing as a share of income over time since 1990. The 2002 utilization survey of 3,500 households found that 29 percent of families of hospitalized patient incurred “catastrophic costs” of 50 percent or more of income. An estimated 18 percent of those who delayed care reported high costs as the reason for not seeking care. Overall, lower income groups spend more of their share of OOPs on pharmaceuticals, whereas upper income groups spend a greater share on presumably more discretionary services such as dental care. This has not fundamentally changed over time since 1990 (Figure 10). It may be inferred that co-pays are not as well targeted as could otherwise be to protect the lower income groups.

Under the current insurance system, some insured groups and some regions may not be receiving equity of access and equity to quality of services. The MOHME and other government leadership have expressed deep concerns about reaching the poor and rural groups in a well targeted fashion, and reaching the still uncovered.
**Who and where are the poor and impoverished?** Historic trends suggest around half of the poor now live in urban areas, and a recent World Bank study indicates that two-thirds of these urban poor reside in more or less identifiable slum areas. It would therefore appear that a significant number, perhaps a third, of the poor of IR Iran could be reached through health programs for urban slum dwellers.

**Develop a pro-poor program for the urban slums.** Lessons from the successful programs in rural areas, or models for strengthening primary health care services, could be considered for programs or piloting. These could be tied to other programs such as redefinition of the benefits package, greater out-of-pocket protection for pharmaceuticals, and insurance outreach programs for the informal sector.

**Utilize poverty mapping for the disadvantaged rural groups.** This technique allows identification of poverty levels in small geographic areas and not identifiable under the first two options. Should application of the technique show poverty to be heavily concentrated in some discrete number of communities, then a geographic approach focusing on everyone in these communities may work well.

**Alternatively, use proxy means testing to identify the poor when they are dispersed widely across geographic regions.** This technique uses one or more easily recognizable characteristics (e.g., lack of electricity or running water) as a substitute measure to help identify the poor. Highly focused outreach efforts, relying on health workers such as behvarzes, might then be developed.

**Identify methods to extend coverage to all in both rural and urban areas.** This effort will require some restructuring of the health financing system itself, including restructuring ways to raise revenues and coordinate across insurers. While reaching the informal sector will be a challenge, identifying the poor through associations, community groups, and other social networks is one possibility.

### 4.5 Develop an Evidence-Based Strategy and Policy for the Health Sector

The Islamic Republic of Iran is internationally recognized for its substantial numbers of scientific research publications and the capacity to generate information and analysis. Nevertheless, the last three decades have witnessed profound changes in information systems and information flows and the use of new and timelier information for policy.

**There is often a one-way flow of information at the provider level and at a systemic level.** For example, information flows from PHC providers that collect data to organizations that aggregate these data, yet the aggregated data does not flow back to the PHC providers (i.e., there is no feedback loop). Data collection systems are organized such that they prevent linking data on broad health determinants (e.g., lifestyle and risk factors), provider activities (e.g., utilization of services), costs, and outcomes (e.g., service quality and levels of morbidity and mortality).

**The Iranian health system has enormous opportunities to benefit from the development of an integrated health management information system (HMIS).** The HMIS would underpin all the essential administrative and clinical operations in modern health financing and health care delivery systems. Too often, the MIS investments are led by the introduction of new technology without adequate regard to the desired outcomes. Policy makers will need to ensure that HMIS investments would contribute to specific strategic objectives such as improving accessibility, equity, efficiency, and quality of care. The true power and benefits of HMIS come from synergy among the different components.

**The government would need to play a key role in regulating the development of common IT and MIS standards to ensure interoperability among different users and beneficiaries.** In particular, in the areas of disease surveillance and public health monitoring, a national HMIS would be required to capture health indicators across the country on a timely basis. The private sector would participate in this process in
order to develop common HMIS standards and procedures; and, because software today is often built at more than one site, a coordinating “hub” or “center” would need to be established to ensure interoperability of systemic components.

**Accelerate certain current pilots using new HMIS systems.** For example, hospital drug procurement, management, and utilization are not transparent. It appears that some hospitals are reallocating drug budgets to other items and utilizing outpatient prescriptions to supply patients with drugs. On the other hand, overprescribing, in terms of the number of drugs per prescription and the use of injections and antibiotics, is a common problem and one that creates unnecessary expenses and risks for patients. Thus far it does not appear that instruments have been implemented to effectively influence physician’s prescribing behaviors, although the Social Security Organization has developed a new database for prescribing data. There is no indication to date that the collected data been shared or well utilized.

**Better link research and analysis with public health policy and decision making.** There are still some gaps in knowledge of determinants of the various health outcomes and efficacy of different types of public health interventions in IR Iran. Health research is essential to pursue appropriate evidence-based intervention strategies to improve the health outcomes of the Iranian population, specifically those who are underserved or marginalized. Topics of importance and urgency include:

- Social determinants of the extremely high levels of depression among women.
- Operational research to find successful behavioral change strategies to prevent drug use among youth and male adults.
- Operational research to find successful lifestyle change strategies to curb overweight/obesity on a population-level basis.
- Sexual behavior and practices of injecting drug users to prevent the spread of HIV/AIDS and TB, and the interrelation of sex workers and drug use.
- Research on disparities in health outcomes and utilization of health services by income differences.

**Improve the information system for disease surveillance.** It should begin with the strengthening of monitoring and evaluation of current health programs. Easy to measure indicators for non-communicable diseases need to be incorporated into the existing reporting tools, and the peripheral levels should be able to use the data gathered and reported to manage finances and request personnel, supply, or additional funding to initiate programs to address the indicated needs.

**Develop integrated information systems as well as monitoring and evaluation systems that create links between health determinants, utilization, costs, and outcomes.** This can be done both at the primary and secondary care services levels. These systems would be useful for payment and quality, and they would provide a continuous infrastructure for evidence-based guidelines.

**Strengthen the linkage between research results and health systems interventions.** Key institutions such as the Institute of Public Health should play a more active role in ensuring effective coordination between medical research and health systems reform programs. This review found gaps in key areas of interest:

- Private delivery of services.
- Differences in the public–private mix across provinces and levels of urban centers.
- How many people have no insurance, how many people have duplicative insurance, and who are these groups.
• Impact of the new rural health insurance program extending coverage to 23 million people. Little more than anecdote is currently available. The size of the reform and its objectives make this an important evaluation: to provide family practice to everyone, to contract with both public and private providers, and to provide benefits for the rural populations in a more equitable way with urban populations. An impact analysis should be utilized to refine and extend reforms, especially to the rural poor.

Previous sections have discussed the role of information to improve quality through evidence-based medicine work and appropriateness of services through a new medical technology process.

**Institutionalize the national health accounts (NHA) process.** Updating the NHA every four years or so is not sufficient in a rapidly changing environment. The government will need to input as precise information as possible into the NHA matrices and update them annually or at least every two years. Reliable spending information is essential for rational resource allocation decisions for both the public and private sectors. Workshops and regional networks in the last few years have helped to train experts in NHA methods, and expertise exists in IR Iran. The next needed step is for the government to utilize this training and institutionalize the NHA process.

The use of NHA is broad based for policy purposes. For example, *it will be useful for the MOHME to produce NHA tables disaggregated by income quintile and by provinces, as part of the NHA work.* This work can be the basis for high level monitoring of equity in resource allocation. This can also be used later as the basis for a geographic allocation formula or a premium adjuster across payers. The NHA would need to be supplemented by health facilities and household surveys to evaluate the performance of the health systems and their impact on the beneficiaries in terms of their health services utilization, financial and economic status, and ultimately their health and welfare.

### 5. FROM TODAY TO TOMORROW: MEETING THE CHALLENGES AHEAD

The Islamic Republic of Iran has achieved significant gains in improving the health and well-being of its people since the revolution. Its rural primary care program is studied and emulated by countries around the world, whether rich or poor. Its health workers and researchers are recognized internationally. Its infrastructure of equipment and services are among the most sophisticated in the world. At this juncture in time, however, the health sector is facing new challenges brought about (somewhat ironically) by its own successes, that is, the rapidly changing profile of healthier people living longer lives than ever before.

With its new population profile, IR Iran will face a mixed set of challenges and opportunities. The Fourth Five-Year Development Plan places a strong emphasis on social justice, with individual health and security as one of the principal objectives. Among other things, the plan contains goals very similar to those that emerge in this report, namely, (i) good governance and modernization of state, (ii) improved regulatory and enforcement role of the government in health, (iii) reducing inequality in health outcomes and financial protection, and (iv) further improvement of health status of the population. These are ambitious but laudable goals. These efforts may certainly extend beyond the time frame of the current five-year plan effective until 2009–2010.

With its strong technical capacity and prospect of economic growth, IR Iran holds the potential for yet another breakthrough that will again be a model for its global neighbors. Its broad social and organizational goals are clear, but it will need to map out next steps and key strategic directions, both
short- and medium-term, in some detail, and implement with a high level of political commitment. The country will depend upon its health sector leadership to provide a pivotal role in planning, orchestrating, and advancing a next generation health sector that will bring a next level of benefits for the citizenry of the Islamic Republic of Iran.
BIBLIOGRAPHY


