Kurdistan Regional Government
Ministry of Planning • Ministry of Health

Health Sector Reform in the Kurdistan Region—Iraq

Primary Care Management Information System,
Physician Dual Practice Finance Reform, and
Quality of Care Training

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Preface

Since 2010, the RAND Corporation has worked with the Ministry of Health (MOH) and Ministry of Planning (MOP) of the Kurdistan Regional Government (KRG) to develop and implement initiatives for improving the region's health and health care system through analysis, planning, and development of analytical tools. Here we report on the activities in three distinct areas related to health and health care selected by the MOH and the MOP as priority areas for analysis and action. The areas of work are independent, but each contributes to laying the foundation for change through formative data development, policy and organizational reform options, training, and/or technical assistance.

This third phase of the RAND health sector project (reflecting work completed in 2013–2015) focused on:

1. development and use of a primary care management information system
2. health financing reform, with a focus on policy reform options to deal with physician dual practice, in which physicians practice in both public and private settings
3. hospital patient safety and quality training.

The RAND Corporation undertook this study at the request of the KRG under the auspices of the MOP and in collaboration with the MOH. The study team conducted the research from June 2013 through February 2015.

The findings should be of interest to those concerned about health care and health care-related policies in the Kurdistan Region—Iraq and in health care policy more generally.

This research was performed as part of RAND Health's Global Health Initiative. RAND Health has built an international reputation for conducting objective, high-quality, empirical research to support and improve policies and organizations around the world. Its work focuses on a wide array of domestic and international policy areas, including quality of care, health promotion, financing, organization, public health preparedness, domestic and international health care reform, and military health policy. A profile of RAND Health, abstracts of its publications, and ordering information can be found at www.rand.org/health.

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Summary

Introduction

Since 2010, the RAND Corporation has worked with the Ministry of Health (MOH) of the Kurdistan Regional Government (KRG) to develop and implement options for improving the region's health care system through analysis, planning, and development of analytical tools. Here we report on the activities in three distinct areas related to health and health care selected by the MOH and the Ministry of Planning (MOP) as priority areas. The areas of work are independent, but each contributes to laying the foundation for change through formative data development, policy and organizational reform options, training, and/or technical assistance.

This third phase of the RAND health sector project (reflecting work completed in 2013–2015) focused on:

4. development and use of a primary care management information system
5. physician dual practice within the context of health financing reform
6. hospital quality training.

Earlier reports (Moore et al., 2014; Anthony et al., 2014) described the KRG health care system—including primary care, health financing, and workforce projections—and presented initial analyses of the areas covered in more specificity here.

Primary Care Management Information System

Background

In the first phase of the RAND Health project (2010–2011), we comprehensively examined the KRG's primary health care system and offered nearly 60 specific recommendations, which we classified by degree of importance and feasibility. One of the most important and feasible recommendations was to establish a management information system (MIS) to monitor resources and services at primary health care centers (PHCs). Such a system would help managers monitor the location, staffing, equipment, and services at PHCs across the region and identify problems that require management attention. During the second phase (2012–2013), we developed and helped pilot such a system. During this third phase (2013–2015), we facilitated the collection of more complete data from all PHCs, analyzed those data, and identified a number of problems that warrant management attention related to population coverage, staffing, equipment, and services. This report describes the data collection efforts and focuses on the analyses and their implications.

Results from Most Recent Round of Data Collection

The effort to collect a new round of updated and more complete MIS data for 2013–2014 began in September 2013. Working with Kurdish-speaking MOH counterparts, the RAND team convened a half-day meeting with representatives from the health districts to orient them to the updated dual-language MIS form and made additional revisions to it based on their feedback. The information reflected on the form included basic information about the health center and detailed information on staffing (numbers and types), equipment and supplies, and services, as follows:

- report information
 - health center name and identification code
 - date submitted
 - name and telephone number of person completing the form
- basic information about the health center
 - jurisdiction: governorate, district, sub-district
 - location: Global Positioning System coordinates (latitude, longitude)
 - type of center (main PHC, branch or sub-center, family center)
 - catchment population
 - number of shifts per day (if two, whether public or consultation clinic)
- staffing
 - total number of each type of staff: medical doctor (all), permanent general practice physician, rotating physician, specialist physician (by listed specialty), dentist, pharmacist, nurse (all, and by level of training), traditional birth attendant, midwife, laboratory technician, medical or prevention assistant, dental assistant, pharmacy assistant, service staff
 - center director (physician, assistant, or other)
- equipment and supplies
 - number of beds
 - computer: number, functional status, trained user, number of users, type of use (statistics, administrative functions, pharmacy, other), Internet connection
 - laboratory equipment—presence, functional status, and presence of a trained user for each: microscope, centrifuge, autoclave
 - diagnostic equipment—presence, functional status, and presence of a trained user for each: ultrasound/sonogram, electrocardiogram (ECG), non-dental X-ray, dental X-ray, dental chair, dental tray
 - Ambulance
- services
 - medical/nursing—core services: child growth monitoring (and follow-up), vaccination (and follow-up), oral rehydration (packets, on-site administration), antenatal care (and follow-up)
 - medical/nursing—chronic diseases: hypertension (screening, management), diabetes (screening, management), mental health (screening, management)
 - medical/nursing—other: labor and delivery, family planning, health education, health visitor
 - dental: any dental services at center, type of dental service (restorations, simple extractions, procedures [e.g., dentures])

- diagnostic: any laboratory service; specified tests from blood, urine, stool
- pharmacy: basic essential medications or more than basic medications provided
- organized referral system: referral out, referral feedback to primary care center.

The revised form was transmitted to the District Managers in early November 2013 to begin data collection. In December 2013, RAND met with the Directors-General for Health in Duhok, Erbil, and Sulaimaniya (commonly known as Suli) to ask for their assistance in completing the data collection process in a timely manner. Data collection took several months, and final data were received by early October 2014.

This report reflects MIS data submitted for 605 centers, including 127 centers in Duhok, 180 in Erbil, and 298 in Suli. About one-third of the centers are main PHCs, and two-thirds are sub-centers. Mapping data were available for 532 (88 percent) of the 605 centers. Below we present a sampling of results described in detail in the body of the report.

Population coverage. Based on World Health Organization (WHO) recommended standards of two or three centers per 10,000 population, most of the KRG's main PHCs serve too many people (more than 10,000), and most sub-centers serve too few (fewer than 2,000), as shown in Figure S.1.

Staffing. Most main PHCs have at least one physician (100 percent of centers in Duhok and more than 80 percent in Erbil and Suli), typically more than one; but very few sub-centers (fewer than 20 percent in each governorate) have a physician, typically. About half of the main PHCs that have a physician also have a rotating general practitioner (GP). Main PHCs also have more nurses than sub-centers (an average of 13.0, with a range of 7.1 to 17.2, compared with an average of 2.5 nurses per sub-center, with a range of 2.4 to 2.8). The training level of

Figure S.1
Catchment Population Size for Main PHCs and Sub-Centers

nurses differs across the three governorates. In general, nurses in Erbil's main PHCs and sub-centers are better trained than their counterparts in Duhok or Suli—a higher proportion of Erbil nurses have formal nursing school training. In addition to nursing staff, about one-fourth of main PHCs have a midwife or trained birth attendant—2 percent of main PHCs in Duhok and 29 percent each in Erbil and Suli.

Compared with nearly universal physician staffing at main PHCs, only about one-half to two-thirds of main PHCs across the three governorates have a dentist. Of greater concern is the significant mismatch between dental staffing and dental X-ray equipment, especially in Duhok, and the indication that some centers in Erbil and Suli have dental X-ray equipment that is not functional and/or has no trained user. Mapping of individual centers indicates those with such mismatches. These maps can help district and governorate health authorities identify and remedy operational problems. Finally, relatively few main PHCs have a pharmacist. Only in Erbil do most main PHCs have a pharmacist (about 80 percent), compared with about 30 percent in Suli and about 10 percent in Duhok. Nonetheless, most main PHCs provide just basic medications, and some provide more than basic medications. PHCs without pharmacists draw on pharmacy assistants or other personnel to dispense medications.

Equipment. Nearly all main PHCs have a computer, and nearly all computers are functional. However, a significant number of centers that have a functional computer do not have a trained user, presumably rendering the equipment less than fully useful. This gap is especially true in Erbil. Nearly all main PHCs also have basic laboratory equipment: microscope, centrifuge, and autoclave. In main PHCs, most laboratory equipment is functional and has a trained user, with the exception of PHCs in Erbil. Most main PHCs also have ECG equipment, but far fewer have sonogram equipment. Most of this equipment is functional and has a trained user. Fewer main PHCs have X-ray equipment, but most X-ray equipment is functional and has a trained user.

Core primary care services. Most main PHCs and some sub-centers provide some—but not all—of the four core primary care services of child growth monitoring (GM), oral rehydration salt (ORS) packets and on-site treatment, vaccination (VAX), and antenatal care (ANC), as well as basic health education (Figure S.2). All main PHCs and sub-centers should be able to provide at least GM, VAX, ORS, and health education. Of these core services, ORS is the one most commonly available at sub-centers.

Governorate-level information provides a general picture but may not be directly actionable. Figure S.3 shows the proportion of Erbil centers that provide vaccination services at both the governorate and district levels. Departments of Health (DOHs) can use district-level information, as well as information on specific centers (presented in map format in this report but which could also be presented as tables listing individual centers), to help target improvements at individual centers. Using vaccination coverage as an example, the Erbil DOH could look at district-level information and may wish to focus on improving these services at main PHCs in the Merkeh Soor and Koya districts in particular, as well as in sub-centers throughout the governorate. The Director General of Health could look at center-level information (in either map or table form) to identify specific centers that warrant management attention.

Other primary care services. Most main PHCs provide screening and management of hypertension (HT) and screening for diabetes (DIAB). Many main PHCs also provide DIAB management. Some, especially in Duhok, also provide mental health (MH) screening and management. About half of the sub-centers in Erbil and Suli, but fewer in Duhok, provide HT screening and/or management; fewer provide DIAB screening or management; and virtu-

Figure S.2
Core Primary Care Services Provided at Main PHCs and Sub-Centers

RAND RR1658-S.2

ally none provides MH screening or management. MH services are relevant to addressing past trauma (experienced by torture survivors in the region) and current stressors, including the needs of the refugees and other displaced persons, whose numbers grew significantly during 2013–2014.

Operations. About half of the main PHCs in Duhok and Suli operate one shift per day. The other half operate two or three shifts per day. Nearly all sub-centers operate just one shift per day. Many centers have an ambulance; MIS maps can help inform the optimal distribution of current and new ambulances. Finally, referral systems are a critical component of effective primary care systems. Centers must be able to track patients referred out for testing or specialized services and receive feedback at the center. Many main centers have a system for referring patients out, but not for receiving information back. Even more concerning is that most sub-centers do not have any referral system. The shortfall in patient referral systems warrants management attention.

Figure S.3
Vaccination Services Provided at Main PHCs and Sub-Centers in Erbil, by District

RAND RR1658-S.3

Conclusions

The MIS data offer important insights about the location and status of PHCs, staffing, equipment, services, and operations across the Kurdistan Region—Iraq (KRI). They are useful for monitoring progress, identifying opportunities for improvement, and tracking improvements made. Although the geographic information system (GIS) data were also fairly robust, the maps suggest that reporting was incomplete from several districts in the Erbil and Suli governorates. While listings of characteristics for individual centers can be presented as tables, the maps may be more visually appealing and readily grasped; therefore, we believe that capture of GIS data for all centers is warranted to enable presentation of data in map format.

Most main PHCs may serve too many people, though the centers serving larger numbers of people have, on average, more doctors and nurses than those serving smaller populations. Most sub-centers serve too few people, based on international standards. This information regarding supply and demand at main PHCs and sub-centers can be used to plan for additional staffing, new centers, and/or upgrading of sub-centers to main centers in areas where centers serve too many people and, potentially, to consolidate sub-centers that serve too few people.

Staffing by physicians, nurses, dentists, and pharmacists is uneven across the KRI. Health leaders should consider feasible opportunities to improve staffing patterns, including, for example, upgrading nursing skills, better use of nurses, more assistants to help enhance the efficiency of doctors, and/or other viable solutions. It will also be important to correct mismatches between dental staffing and dental equipment so that dentists at centers have the equipment they need to provide services. The MIS data also identified centers where laboratory, X-ray, and/or other equipment should be repaired or replaced and where users should be trained.

KRI primary care main centers and sub-centers serve as a foundation for providing world-class core primary care services, as well as some chronic disease screening and management. The MIS data have identified areas of success at all centers, as well as opportunities to fill gaps in services provided. Filling such gaps seems feasible. Also important is the potential for the MIS to help inform emergency preparedness and response planning and to track services provided in areas where large numbers of refugees and other displaced persons have arrived. Effective referral systems and appropriate distribution of available ambulances will further strengthen the KRI's primary care services and are a cost-effective means to achieve better health outcomes for all persons served.

Finally, it will be important to institutionalize the MIS within the KRG so that it becomes a tool used by managers at all levels to monitor PHCs, staffing, services, equipment, and operations throughout the KRI. This includes primary health care programs carried out in collaboration with various partners, such as WHO, the U.S. Agency for International Development, and the World Bank. We recommend outsourcing the development of an online system that can be accessed by all appropriate officials, including the DOHs in the three governorates, the central MOH and MOP in Erbil, and relevant primary care partners. The system should be user friendly. It should be easy to access so that all appropriate users are able to enter updated data and generate tables, graphs, and maps. As such, it promises to be a simple yet powerful tool to help manage a foundational component of the KRG's overall health system.

Health Financing Reform: Dual Practice

Background

During Phase I (2010–2011), we identified dual practice (DP) as a policy challenge that substantially affects the efficiency and effectiveness of health care delivery. *Dual practice* refers to situations in which physicians work part of their time in the public sector and part in the private sector. In Phase II (2012–2013), we laid out general financing reform options and analyzed the policy approaches that could be taken to address the DP issue. In this third phase of the project (2013–2015), we conducted focus group discussions and interviewed a wide range of physicians regarding DP. Our goal was to develop specific policy options that would enable the KRG to adopt and begin to implement changes to address DP in the near future, given present data and managerial capacity. Overall, the analysis suggests practical, implementable changes that can improve the efficiency of the government sector while also expanding the amount of services available overall to the public.

Almost all KRI physicians choose to work in the private sector as well as the public sector once they reach consultant status. Most then engage in private-sector work in their own private clinics and/or in the rapidly growing number of private hospitals and surgical centers. Physicians are almost always paid for private-sector services in cash at rates that greatly exceed public-sector fees for comparable services. Because there is almost no private health insurance coverage, these fees are paid directly by the patients and/or their families. However, people who can afford the higher fees have been willing to pay for and receive care in the private sector because they believe that they get care more rapidly and that doctors will see them for more time, pay greater attention to them, and provide better follow-up.

Policymakers have expressed concern about DP. The fact that patients are willing to pay for care in private clinics suggests that access to care in the public sector, which is almost free, is

at capacity and/or that the quality of care is worse and waiting times are longer than in private clinics—or, at least, that the population perceives this to be so. We have previously estimated that without reforming DP, within ten years there will not be enough skilled physicians practicing in the public sector for the number of hours that will be required to fulfill the constitutionally guaranteed right to health care (Moore et al., 2014; KRG, MOP, 2013).

Furthermore, the DP situation in the KRI is resulting in the highly inefficient use of limited resources in the public sector. Currently, physicians are supposed to work 35 hours per week in the public sector, but most actually work only a fraction of that. However, they get paid a full salary no matter how many hours they actually work. It is well known that most physicians work far fewer than the required number of hours per day before departing to their private clinics. Physician compensation is adjusted for rank and seniority, but compensation is not related to the amount of time worked, the quality of work, physician specialty, or physician productivity. Physicians receive extra compensation for teaching in a medical school.

KRG health policy leaders recognize that DP is not only unsustainable and inefficient, but also that its existence makes health financing reform, a key KRG policy objective, very difficult to achieve. In *Kurdistan Region—Iraq 2020: A Vision for the Future*,¹ the KRG lists the introduction of “a sound health care financing system” as a key priority. The document goes on to say that to achieve a sound financing system, the KRG needs to “develop and implement a policy that pays for physician services based on the amount and quality of the services they provide.”²

Policy Challenges and Constraints

KRG decisionmakers seeking to address the DP issue face a number of challenges and constraints specific to dual practice, including:

- **Data:** Very few data are routinely collected or made readily available for decisionmaking. In the public sector, no data are routinely collected on the number of hours that individual physicians spend delivering care, the number of patients seen by physicians or the number of procedures that they perform, or the quality of the care that they deliver. Because the financing system is budget-based, no payment or reimbursement data exist that measure the volume of services provided by a physician.
- **Regulatory capacity:** The regulatory system required to address physician DP reform is considerable. However, the current ability of the MOH to regulate the health care system is limited by the lack of trained staff, resources, and existing regulatory systems.
- **Hospital management:** Hospitals are usually managed by prestigious physicians who are rarely trained in management. Hospital managers have little authority over staffing, budgets, or hiring. They cannot reward or penalize physicians for the amount of time they work or for their performance.
- **Funding:** Effective long-run change almost certainly cannot be achieved without significantly increasing public budget allocations so that physician pay can be raised to a level to be competitive with the private sector and to enable investments in other needed inputs and ancillary services. These investments in additional infrastructure (e.g., examining

¹ KRG, MOP, *Kurdistan Region—Iraq 2020: A Vision for the Future*, September 2013, p. 7.

² KRG, MOP, 2013, p. 7.

and operating rooms) and ancillary services are necessary for physicians to be able to work longer hours. Budgetary flexibility is already extremely constrained as the KRG deals with sporadic budget payments from Baghdad along with the demands of defending itself against the Islamic State of Iraq and Syria (ISIS) threat, which must take priority.

Physician Focus Group Data

To supplement preliminary discussions with physicians in the fall of 2013, RAND conducted six focus groups with about 150 physicians during the week of December 8, 2013. The focus groups were designed to gather information about physician conduct and preferences related to working in both the public and private sectors. We conducted two focus groups in each of the three main governorates—Suli, Erbil, and Duhok. In each governorate, we sought to talk to senior house officers and consultant physicians. As we anticipated, the younger physicians (senior house officers) generally did not practice in the private sector, while almost all consultants had their own private offices and/or worked in private hospitals. Many consultants were also medical university faculty. The participants spoke candidly and seemed to appreciate being given the opportunity to provide input into the policymaking process. We learned the following from these focus groups:

- **Required workweek:** Like all public employees, physicians are expected to work 35 hours per week. Because most physicians work six days a week, the 35-hour requirement has come to mean working from 8 a.m. to 2 p.m. five days per week with additional on-call hours. Most physicians are also on call about three days each month for 24-hour periods. Hours for emergency physicians are quite different.
- **Time actually worked in the public sector:** We asked focus group participants how much time they spend in the public sector before heading either to private practice or to a consultant clinic. Answers varied, but, in general, participants said that they spend about four hours per day in the public sector. When asked the same question, senior house officers, who are relatively new physicians still in training, responded that although there was a range, most consultant doctors who are more experienced and senior than the house officers spend fewer than three hours a day in the hospital before leaving for their own clinics. Indeed, some physicians are reported to spend an hour or less in the public hospitals, and some show up for public-sector duty only occasionally. All focus group physicians agreed that on average the older, more experienced, and better known a physician is, the less time he or she is likely to spend in the public sector. It also appeared that, on average, specialists spend less time in the public hospitals than do their GP colleagues. In short, over half of the salary paid to physicians is for work they never perform, which is a highly inefficient use of resources.
- **Primary reason for working in the private sector:** Almost universally, the first reason participants cited for engaging in DP was the need to make enough money, since public-sector pay is not sufficient to sustain their families. Everyone knew physicians could make many times their public salary in the private sector and/or by working in consultative clinics. We did not try to ascertain this differential in pay, but focus group comments suggest that it varies significantly by specialty and individual physician.
- **Secondary reasons for working in the private sector:** Other reasons included the following:

- Public facilities and equipment needed to enable longer public-sector hours are inadequate (e.g., inadequate office space, beds, and laboratories).
- Public ancillary services are not available all day, making extended practice difficult.
- Patient loads per hour are too heavy in the public sector to provide proper care but are much lighter in the private sector.
- Public-sector nursing staff are inadequate, poorly trained, and lack motivation and skills.
- We asked focus group participants to suggest ways to improve public-sector hospitals. Not surprisingly, their answers mirrored the reasons described for choosing to engage in DP, including better nurses, improved laboratories, reduced patient loads, more hospital beds, more examining rooms, reliable availability of medicine, adoption of an appointment system, creation of job descriptions, better referral systems and records systems, and longer hospital operating hours.
- **Requiring a public service period before private practice:** We elicited participants' views on requiring physicians to work a specific period of time in the public sector before private-sector practice was permitted. Physicians were willing to accept this as a policy change and thought that the policy would result in better trained and able physicians when they were eligible to treat private patients. This was true of both senior staff who would not be affected and house staff who would be affected if the policy were in place today.
- **Compensation levels:** We asked participants in the six focus groups what level of compensation would be necessary to motivate them to work more in the public sector. Answers varied by location, specialty, and seniority. The range of answers was very large, but it always involved a significant increase in compensation. Physicians often played off of each other. For instance, if an internal medicine specialist wanted a salary of \$8,000 a month, a surgeon—viewing himself as worth more—would respond with a number like \$10,000 a month. Indeed, the physicians from our interviews and focus groups seemed to think that a surgeon's pay should be about \$10,000 a month or higher. There was general frustration about the fact that all specialties were paid about the same and that physicians who saw more patients, worked harder, and worked longer hours were not rewarded monetarily.

Most physicians reported that they would prefer to work more than 35 hours per week and earn more pay through the public sector. The vast majority of physicians (over 80 percent) indicated that if pay were higher and resources were available to enable them to do their jobs, they would prefer to work only in the public sector because (1) they viewed public-sector care as being of higher quality in the sense that it offered a full range of services, which is not the case in most private clinics or even in private hospitals, which are usually similar to outpatient surgical centers, and (2) they sought a better work-life balance. This point was made across all focus groups across all three governorates, independent of the seniority of the group.

We looked in some detail at the case of GPs, who represent the largest number of physicians. Present GP salary levels were approximately \$1,200 per month, for which they were working approximately 15 hours per week (60 hours per month). We also discovered that incentivizing GPs to work the required 35 hours weekly (144 hours per month) would necessitate paying them \$2,000–\$3,000 per month (\$2,500 on average, according to consultants

and house officers alike). Many physicians said that they preferred to work longer hours (e.g., 40–50 hours per week) for even higher salaries (e.g., to \$4,000–5,000 per month for GPs).

Using the numbers above, we can estimate the supply curve for GP services and calculate on average how much the budget for GPs in the public sector would have to increase to staff hospitals at current levels. If monthly salaries were raised to \$2,500, GPs would be willing to work a full 35 hours per week; this is roughly double the amount they are now being paid, for which they would be willing to work roughly double the amount of time they now work in the public sector. If this policy were instituted and all else was constant, public facilities would require only half as many GPs as currently employed, each of whom would work about double the amount of time they currently work. However, the MOH would have to raise GP salaries.

To better understand the budget effects, we varied the salary needed to induce a GP to work a full 35 hours (\$2,500 to \$2,750) and calculated MOH budget increases needed for GP services to staff facilities at current levels. At a \$2,500 monthly salary, the overall budget for GP services would need to rise by only a modest 4 percent; in contrast, the GP services budget would need to rise by 14 percent if salaries were raised to \$2,750.

This exercise illustrates the following:

- The increase in budgets needed to achieve efficiency is much less than currently thought, since inefficiency is eliminated as the number of GPs employed is reduced.
- The needed budget increases are very sensitive to the amount of increase in GP salaries.
- A larger and more formal survey of physician preferences is needed for precise calculations.

We note that the salary increases needed to achieve 35 hours of work from GPs are much smaller than those for specialty groups like surgeons, who demanded much higher pay than GPs. Today, surgeons are, on average, working fewer hours than GPs. Thus raising GP salaries would also necessitate an even larger percentage increase in the budget for surgeons and other specialists.

We also learned from the focus groups that presently there are not enough examining rooms, hospital beds, or ancillary services to enable physicians, including GPs, to work the 35 hours they are supposed to work. The lack of resources varies by facility.

In sum: Physicians reported that they would prefer to work exclusively in the public sector if they could receive a higher salary and if resources necessary to do their jobs were available, despite the fact that the higher public-sector salary would still be lower than the salary they could earn in the private sector. It seems clear that the MOH could match its present manpower hours worked with fewer physicians each working longer hours, and end up with a more efficient system. In implementing these changes, policymakers will need to coordinate changes in hospital resources necessary for physicians to work longer hours, such as beds, ancillary facilities, and other services necessary.

Policy Options

Decision criteria: Before exploring the best policy options open to the KRG, we developed decision criteria against which to judge options, whether in isolation or in combination with other policies. Key criteria should include the degree to which the policy helps achieve KRG's national health care objectives—that is, the policy

- is easily implemented
- minimizes regulatory complexity (i.e., increases feasibility)
- ensures equity (e.g., does not promote a two-tiered health care system)
- is efficient
- minimizes public budget outlays
- ensures adequate supply of high-quality physician services in the public sector
- promotes improvements in the quality of care.

Options: We used these criteria and developed four feasible policy options (see Table S.1). All of the options also include a policy that requires physicians to work a certain number of years (e.g., three to five years) in the public sector before private sector work is allowed.

- **Option 1: Let the market evolve.** This approach would allow the market to evolve as it is today without direct policy intervention.
- **Option 2: Link time worked to compensation to incentivize physician behavior.** This option introduces incentives to get physicians to choose to work the full 35 hours required (or some other number of hours, as determined by the MOH) but leaves the decision on whether to work in the private or public sector to the physician. There is no clear separation between the public and private sectors, and physicians are not locked into either one. In this option, after a phase-in period of three to four years in which physicians would receive increasing bonus amounts if they worked the full weekly number of hours required by the MOH, the bonus would be included in physician base pay rates only for those physicians who worked the full standard number of hours set by the MOH. Bonus and pay rates would be calculated by specialty.
- **Option 3: Separate public and private practice during the day but allow evening private practice.** In this option, physicians choose to work either in the public sector or the private sector during the day. Physicians who choose the public sector are locked into that choice for a number of years (e.g., three to five years) but can choose to have a private practice in the evening after a full public-sector workday. Once each year, physicians who choose the private sector will be offered an opportunity to join the public sector if they wish. Such a policy will simplify administration and will also enable the MOH to better plan and budget for the future. Salary rates would be set separately by specialty, and the standard number of hours of work per week would be set by the MOH. The number of physicians hired in the public sector and the hours they would be required to work would be specified by the MOH.
- **Option 4: Separate public and private practice completely.** This option requires a physician to choose to work exclusively in either the public or private sector and, if he or she chooses the public sector, to lock himself or herself into that choice for a significant length of time (e.g., three to five years). Pay rates would be set separately by specialty, and the standard number of hours of work per week would be set by the MOH. The number of physicians hired in the public sector and the hours they would be required to work would be specified by the MOH.

No matter what policy option is chosen, we recommend phasing in the changes to achieve maximum impact and minimal disruption to care. We have laid out the phased introduction for each option in detail. The two preparatory phases envisioned are summarized below:

Table S.1
Characteristics of Policy Options

	Option 1: Let the Market Evolve	Option 2: Link Time Worked to Compensation to Incentivize Physician Behavior	Option 3: Separate Daytime Practice but Allow Evening Private Practice	Option 4: Separate Public and Private Practice Completely
Three to five years of public service required before work in the private sector is allowed	Yes	Yes	Yes	Yes
Decisionmaker in control	Physician	Physician	MOH ^a	MOH ^a
MOH controls number of physicians working in the public sector	No	No	Yes ^a	Yes ^a
Physicians working required hours set by MOH receive bonus during phase-in period	No	Yes	Yes	Yes
Work in private sector allowed after completion of daytime public service	Yes	Yes	Yes	No
Locks physicians who choose public service in this choice for a significant time (e.g., three to five years)	No	No	Yes	Yes
To work the option would require MOH to raise the standard workweek to approximately 40–50 hours	No	No	No	Yes
Easy to implement and administer	Yes	No	Mostly	Yes
Captures wasted resources in the present system	No	Some	Yes	Yes
Would reduce public pension payouts for time not worked	No	Requires policy change	Yes	Yes
Would likely result in two-tier care	Yes	Yes	Less so	Less so

^a Physicians choose whether to work in the public or private sector and are locked in for a number of years. The MOH is the actual decisionmaker because it sets the number of physicians it allows to work in the public sector even if more physicians desire to do so.

- **Phase 1 (Year 1): Prepare for Policy Change.** Phase I would involve agreeing on the details of policy change; working with affected groups, such as doctors, to gain support; and beginning to collect the data necessary to manage the selected policy option(s).
- **Phase II (Years 2–4): Reform Policy.** The details of Phase II vary depending on which option is selected, but in all cases this phase would involve raising physician salaries in steps over time as bonuses that would be paid only if physicians worked the required hours decided on by the MOH. During this phase, increases in capacity in terms of beds, ancillary services, and other requirements would be made in coordination with changes in physician hours.

Conclusions and Recommendations

We believe that all the options described above, with the exception of Option 1, would improve the financing system and efficiency of the KRG health system. Option 2 would lead to minimal improvements and would retain considerable inefficiencies in planning and budget. After evaluating the advantages and disadvantages of all options, we *recommend Option 4, which implements a full separation between the public and private sectors*. In this option, physicians choose to work in only the public or private sector, with no private practice allowed in the evening for those who choose public service. This option will eliminate waste, is easier to implement than the other reform options, and is flexible and adaptable to changing needs over time. Option 3, in which private practice is also allowed in addition to public service, runs the risk of doctors not complying and working more in the private sector, as well as continuing the abuse of referring public-sector patients to their own private practices.

We strongly caution that any plan should be phased in and coordinated so that the necessary inputs (facilities, medicines, and ancillary services) are available for physicians to do their work. Appropriate government funding and a willingness to enforce compliance will be required.

Creating a Sustainable Health Quality Infrastructure

Background

The KRG MOH and MOP are committed to modernizing the KRG health care system and to moving KRG health care in the direction of a world-recognized health care delivery system. To that end, one specific long-standing objective has been to begin building a quality infrastructure to support residents' health care expectations.

During the third phase of its support to the MOH, RAND provided training and support to advance the quality and patient safety agenda. This training was envisioned as a starting point for building the quality infrastructure throughout the region. Further, program trainees, armed with the appropriate skills and motivation, provide a workable and sustainable strategy for promulgating the quality agenda, sharing successes, and training teams from other facilities to advance quality improvement throughout the region.

RAND explored several different approaches to quality assessment and improvement to use as a framework for the training program. We considered the following dimensions when selecting the approach:

- comprehensiveness with respect to the breadth of health care activities in the KRI
- the general acceptability of the approach in other settings in which it was applied
- the use of a similar approach in nearby countries and by respected facilities in those countries
- the availability of expertise to train and mentor Kurdistan colleagues on aspects of the approach
- evidence that the approach was achievable and sustainable.

RAND selected the approach to quality used by Joint Commission International (JCI) as the basis for our training. JCI's approach has been implemented in a number of nearby quality health care facilities (e.g., in Turkey, the United Arab Emirates, and Qatar). Further, a number

of respected consultants with Middle East experience work with or have worked with JCI. JCI standards are recognized worldwide as a standard for hospital and health system quality. Importantly, it would be possible to use JCI standards as a framework for teaching quality and planning a stepwise approach that has the potential to ultimately lead to accreditation.

RAND was sensitive to issues and challenges faced by the KRG health care system. The region has many talented and dedicated people and a long history of excellence in education and health care. Devastated by the prolonged political Iraqi conflict over the previous decade, the region's advancement had been arrested, and facilities have decayed. Professionals were unable to advance their knowledge and careers. However, they retained their passion for returning the KRI to its place among the world's great peoples, an institutional memory of what was, and a strong vision for what the region and its medical system could again become. It was important, therefore, to select a system that could be modified so as to make stepwise progress toward meeting (or exceeding) all international standards, rewarding participants for incremental success in what would become a continual pursuit of excellence in health care.

Adopting the JCI framework for quality carried the potential for individual facilities to achieve internationally recognized accreditation as an affirmation of their commitment to quality without establishing the expectation that all facilities would meet those standards within a very short time frame. That is, stepwise progression toward meeting all standards should be rewarded, and those undertaking that effort must not be considered to have failed by not immediately meeting all standards.

The Initial Hospital Quality and Patient Safety Education Program

The goal of the initial quality endeavor was to create enthusiasm for advancing quality of care in KRI hospitals and to identify a group of quality leaders with the skills and demeanor necessary to propagate the quality agenda. To that end, it was important to identify individuals with sufficient authority and respect within their organizations such that there would be local traction for programs developed and deployed.

The KRG identified a delegation of eight senior leaders from the MOH and representatives from public hospitals from throughout the KRI to participate in a 3.5-day customized education program in Istanbul, Turkey, on February 23–27, 2014. This interactive and experiential program was organized and presented by RAND consultants in collaboration with Acibadem Hospitals Group, a private hospital system based in Turkey. Acibadem was selected as the training site because of its established quality reputation and its interest in knowledge-sharing.

The education program included a combination of didactic presentations, videos, case studies, small-group problem-solving exercises, larger group discussion, and evaluation demonstrations in a variety of patient care units. Acibadem Hospitals Group staff also shared their “quality journey.” Participants received a workbook that included all presentations and a copy of the *Joint Commission International Accreditation Standards for Hospitals, 5th Edition* (JCI, 2015), which became effective for accreditation surveys beginning April 1, 2014. The participants were very engaged, interested in the material, and eager to translate their learning into actual practice in KRG public hospitals.

On the last day of the education program, the content focused on change management and how the participants could begin to pilot specific quality and safety interventions, such as hand hygiene, in Kurdish public hospitals. The presentation began with a quote from the KRG health leaders themselves, made earlier in the training session: “Change begins with just one step. We must begin.”

Using an established methodology for change management, the group members established the following plan for pilot quality and patient safety improvement at their individual hospitals over the ensuing six months:

Step 1: Creating a Shared Initial Set of Improvement Opportunities

- infection control (hand hygiene)
- identification of patients
- emergency cart standardization
- safe surgery protocols
- completeness and standardization of medical record.

Step 2: Shaping a Vision

- improved health care through adoption of international best practices for quality and safety

Step 3: Mobilizing Commitment

- support of Ministries of Health, Education, Planning, and Finance
- support of community leaders (e.g., religious leaders, political leaders)
- support of the media in recognizing quality efforts by leading centers
- support of clinical leaders, junior doctors, ancillary health care personnel, and medical and nursing associations.

Step 4: Making Change Last

Step 5: Monitoring Progress

Progress on Implementation of Improvement Priorities

Since the training program, the KRG has been challenged with pressing health issues related to outbreaks of military conflict and an influx of refugees. Despite these challenges, significant quality and safety improvements have been implemented in at least one of the participating hospitals, West Erbil Emergency Hospital.

The hospital director, Dr. Lawand Hamid Meran, reported that despite the difficulties faced by his and other Kurdish hospitals in the 2014, he and his hospital team focused on:

- implementing a system for correct **patient identification**
- implementing available equipment, supplies, and processes for **hand hygiene**
- demonstrating **infection control** improvement
- fostering **improved communication** between doctors, staff, and patients
- instituting **monitoring systems** for the improvements above through use of trained observers.

Creating Momentum for the Future

The knowledge and attitude of the participants at the training session and the impressive improvements implemented by West Erbil Emergency Hospital and by others following the session confirm that a new, higher-functioning and higher-quality health care system in the KRI is possible. Therefore, RAND recommends that the MOH further build capacity in qual-

ity improvement and patient safety throughout the region's public health sector. RAND also recognizes that political conflict since the training has impeded the ability of very dedicated individuals to achieve the successes that are clearly possible. It will be necessary to help initial participating institutions reengage to the extent necessary while simultaneously working to expand regional participation.

One approach to such capacity-building is the development of a regional *Quality and Patient Safety Institute* based in Erbil that would use a train-the-trainer methodology. Hospital directors who have already demonstrated a commitment to leading quality and safety improvements should serve as co-faculty for future training, ultimately transitioning most if not all training to Institute staff.

Conclusion

RAND has continued to work with the KRG MOH and MOP to improve the KRG health system and help achieve the government's vision for the future. During the third phase of this project (2013–2015), we helped to implement the primary care MIS, presented options for addressing the problem of dual physician practice, and carried out initial training for health care quality and patient safety.

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Abbreviations

ANC	antenatal care
DIAB	diabetes
DOH	Department of Health
DP	dual practice
ECG	electrocardiogram
ENT	ear, nose, and throat
FMEA	Failure Mode and Effects Analysis
GIS	geographic information system
GM	growth monitoring
GP	general practitioner
HT	hypertension
IDP	internally displaced person
ISIS	Islamic State of Iraq and Syria
JCI	Joint Commission International
KRG	Kurdistan Regional Government
KRI	Kurdistan Region—Iraq
MH	mental health
MIS	management information system
MOF	Ministry of Finance
MOH	Ministry of Health
MoH	Minister of Health
MOP	Ministry of Planning
ORS	oral rehydration salt

PHC	primary health care center
RCA	root cause analysis
Suli	Sulaimaniya
SIA	Social Insurance Agency
USAID	U.S. Agency for International Development
USPHS	U.S. Public Health Service
VAX	vaccination
WHO	World Health Organization

Introduction

Since 2010, the RAND Corporation has worked with the Ministry of Health (MOH) and Ministry of Planning (MOP) of the Kurdistan Regional Government (KRG) to develop and implement initiatives for improving the region's health and health care system through analysis, planning, and development of analytical tools. Here we report on the activities in three distinct areas related to health and health care that were selected by the MOH and the MOP as priority areas for analysis and action. These are the thematic threads that have run through the various phases of RAND's health collaboration with the KRG. While the areas of work are independent of each other, each contributes to laying the foundation for change in the health care system through formative evaluation, data development, policy and organizational reforms, training, and/or technical assistance.

In the current, third phase (2013–2015), RAND focused on

- development of and ways to use a primary care management information system
- health financing reform with a focus on policy reform options to deal with physician dual practice (DP), in which physicians practice in both public and private settings
- hospital patient safety and quality training.

In earlier Phase I and Phase II reports (Moore et. al., 2014; Anthony et al., 2014), we described in some detail the health status and disease patterns in the Kurdistan Region—Iraq (KRI), which are not repeated here. We also described the KRG health care system—including primary care, health financing, quality, and workforce projections—and presented the initial analyses that laid the foundation for this third phase of work, which is the subject of this report.

Brief Description of the Current Health System in the KRI¹

Health care in the KRI is provided primarily in the public sector in 59 public hospitals and hundreds of primary health care centers (PHCs) distributed throughout the KRI. Care is also provided in the private sector in private physician clinics and in private and semiprivate hospitals. Care in the public sector is designed to meet the constitutionally established indi-

¹ More-complete background information from earlier phases of work are presented as background in the chapters that follow.

vidual right to health care services and to establish public health services to promote the public welfare.²

PHCs are of two types—main centers, which typically are staffed with at least one general practice physician and should provide most primary care services, and sub-centers, which do not have a physician and provide a more-limited range of services. Main centers provide a wide range of primary health and dental services, including vaccinations, child growth monitoring, oral rehydration treatment for diarrheal disease, treatment of minor health problems, and health education; some also provide antenatal care and screening and/or management of chronic diseases, such as hypertension and diabetes. To address the need for greater information for management purposes and determine the availability of services, equipment, and manpower in PHCs, the MOH has engaged in a detailed survey to operationalize the primary care management information system described in this report.

The KRG currently uses a budget-based system in which most public-sector health care is financed through the KRG budget. Although patients have some very small co-payment fees, most health care in the public sector is funded out of the KRG regional budget. About 6 percent of the overall KRG budget goes to the health sector, an allocation that is below that of other countries in the region (Anthony et al., 2014). This allocation translated to about \$300 per resident in 2013, significantly below per-resident expenditures in other middle-income countries in the region.

More than three-quarters of the MOH operating expenses is committed to salaries, which are paid directly to all government employees by the Ministry of Finance (MOF). Physician DP is one issue identified by the MOH as contributing to inefficiency and wasted resources and in need of reform. *Dual practice* refers to physicians who work in both the public and private sectors and who, in the KRI, typically do not work their contracted number of hours per week before heading to their private practices.

It must also be noted that the KRG budget since the invasion of Iraq by the Islamic State of Iraq and Syria (ISIS) in 2014 has been under extreme stress, which makes changes that require additional funding very difficult in the short run. Funds from Baghdad have not been forthcoming on a timely, regular basis since then, and new budgetary needs for security are formidable as a result of the crisis created by the ISIS challenge. The KRG rightly considers such needs to be of primary importance. Not only are security needs huge, but there are also now over 1.5 million internally displaced persons (IDPs) and refugees in the KRI who are in great need of assistance and cause a significant drain on the KRG budget.

Although the KRG has made rapid progress in delivering quality health care services, there are many areas of reform still to be addressed. For instance, there are no systems in place to gather needed policy data, to accredit hospitals or focus on quality improvements or error reduction, or to engage in constant quality improvement. To address some of its challenges related to quality of care, the MOH selected a handful of hospital managers and professionals to be introduced to international hospital standards and to be trained in the adoption of those standards. This group was trained in Istanbul in a hospital that had already adopted and implemented international standards. Over the course of the training in Istanbul, the KRG trainees shared ways to best implement the quality agenda in the KRI.

² Invest In Group, 2013; Moore et al., 2014; World Health Organization (WHO), 2009.

Organization of This Report

The chapters that follow describe the methodological approach, analyses, and recommendations related to each of the three major tasks: Chapter Two describes the primary care management information system; Chapter Three describes physician DP reform; and Chapter Four describes the patient safety and health care quality training. Chapter Five shares our conclusions.

Primary Care Management Information System

In the first phase of the RAND Health project (2010–2011), we comprehensively examined the KRG’s primary health care system and offered nearly 60 concrete recommendations, which we classified by level of importance and feasibility. One of the most important and feasible recommendations was the establishment of a management information system (MIS) to monitor resources and services at PHCs. No such system was in place at the time, nor were data on facilities, staffing, equipment, and services collected systematically or used, other than for annual reporting purposes. Such a system would help managers monitor the location, staffing, and services at PHCs across the region and identify problems that require management attention. During the second phase (2012–2013), we developed and helped pilot such a system. During this third phase (2013–2015), we facilitated the collection of more-complete data from all PHCs, analyzed those data, and identified a number of problems that warrant management attention related to population coverage, staffing, and services. This chapter describes the data collection process and focuses on the analyses and their implications.

As further background, the KRG primary care system includes two main types of health centers: main PHCs and sub-centers, or branches. In recent years, the KRG has also established larger “family centers” that have a larger number and broader range of staff and services than main PHCs; however, because the number of such centers was small when the MIS data reported here were collected, they are not reflected in our analyses. When the MIS data were collected, the KRG had not established or enforced clear standards for staffing, equipment, or services to be provided at each type of center. Stepping back, our recommendations from the first phase study in 2010–2011 addressed the following priorities:

- organization and management of primary care services
 - distribution of facilities and services
 - referrals and continuity of care
 - continuous quality improvement
- health workforce
 - education and training of medical professionals
 - human resource management
- health information systems
 - management information systems
 - surveillance and response systems.

We feel that our numerous recommendations from 2011 remain relevant for policy attention. However, the first critical action taken was to establish and pilot test the primary care MIS.

Data Collection and Processing

The effort to collect accurate, complete, and updated MIS data for 2013–2014 began in September 2013. The RAND team, in collaboration with MOH staff, convened a meeting of representatives from the health districts for a half-day session, which was conducted mainly in Kurdish. The purpose was to orient them fully to the updated dual-language MIS form and make additional revisions to it based on their feedback. The form was transmitted to the District Managers in early November 2013 for data collection. It captures the following specific data elements (see Appendix A for the full dual-language form):

- report information
 - health center name and identification code
 - date submitted
 - name and telephone number of person completing the form
- basic information about the health center
 - jurisdiction: governorate, district, sub-district
 - location: Global Positioning System coordinates (latitude, longitude)
 - type of center (main PHC, branch/sub-center, family center)
 - catchment population
 - number of shifts per day (if two, whether public or consultation clinic)
- staffing
 - total number of each type of staff: medical doctor (all), permanent general practice physician, rotating physician, specialist physician (by listed specialty), dentist, pharmacist, nurse (all, and by level of training), traditional birth attendant, midwife, laboratory technician, medical or prevention assistant, dental assistant, pharmacy assistant, service staff
 - center director (physician, assistant, or other)
- equipment and supplies
 - number of beds
 - computers: number, functional status, presence of a trained user, number of users, type of use (statistics, administrative functions, pharmacy, other), Internet connection
 - laboratory equipment—presence, functional status, and presence of a trained user for each: microscope, centrifuge, autoclave
 - diagnostic equipment—presence, functional status, and presence of a trained user for each: ultrasound/sonogram, electrocardiogram (ECG), non-dental X-ray, dental X-ray, dental chair, dental tray
 - ambulance
- services
 - medical/nursing—core services: child growth monitoring (and follow-up), vaccination (and follow-up), oral rehydration (packets, on-site administration), antenatal care (and follow-up)

- medical/nursing—chronic diseases: hypertension (screening, management), diabetes (screening, management), mental health (screening, management)
- medical/nursing—other: labor and delivery, family planning, health education, health visitor
- dental: any dental services at center, type of dental service (restorations, simple extractions, procedures [e.g., dentures])
- diagnostic: any laboratory service; specified tests from blood, urine, and stool
- pharmacy: basic essential medications or more than basic medications provided
- organized referral system: referral out, referral feedback to primary care center.

In December 2013, RAND met with the Directors-General for Health in Sulaimaniya (commonly known as Suli), Duhok, and Erbil to ask for their assistance in completing the data collection process in a timely manner. By February 2014, the RAND team had received MIS data for approximately 600 centers, but we had received geographic information system (GIS) data for only about 380 centers. In July 2014, RAND received updated MIS and GIS data. However, initial analyses indicated problems with the accuracy and completeness of data from centers in two districts in Suli; corrected data from these two districts were sent to RAND in early October 2014, enabling more-complete analyses across the KRI. The fully updated data reflected 605 centers; GIS data were available for 532 (88 percent) of those centers. From these data, RAND produced tables and graphs, which provide aggregate data by district, and maps, which indicate the characteristics of individual centers, including those with specific concerns.

Data Analysis and Findings

This report reflects MIS data submitted for 605 centers, including 127 centers in Duhok, 180 in Erbil, and 298 in Suli (see Figure 2.1). About one-third of centers are main PHCs, which typically have more staff, provide more services, and serve more people; two-thirds are smaller sub-centers.

GIS information was available for 532 (88 percent) of the 605 centers. The maps in Figure 2.2 show the distribution of centers. A few districts in Erbil and Suli account for most of the missing GIS information among the 605 centers reported.

Size of the Populations Covered by Centers

Based on a WHO standard¹ of two or three centers per 10,000 population and a comparable Iraqi standard of one center per 5,000 population, most main PHCs serve too many people (more than 10,000), and most sub-centers serve too few people (fewer than 2,000), as shown in Figure 2.3. Further analysis can help identify opportunities for potentially consolidating centers serving too few people and building new centers or enhancing staffing in areas where centers serve too many people.

¹ According to WHO, *A Basic Health Services Package for Iraq*, 2009, p. 11, international standards are two or three centers per 10,000 population (the Iraqi standard is one per 5,000 [World Bank, 2015]).

Figure 2.1
Numbers of Main PHCs and Sub-Centers Reported

RAND RR1658-2.1

Staffing

Most main PHCs, but very few sub-centers, have at least one physician (Figure 2.4). About half of the main PHCs that have a physician also have a rotating general practitioner (GP), referring to the one-year mandatory “rotation” for new physicians before they can pursue specialty training.

Most main PHCs have more than one physician, and they have, on average, more nurses than physicians (Figure 2.5). As shown in the figure, centers serving larger populations tend to have, on average, more doctors and nurses than centers serving smaller populations.

The level of training for nurses staffing main centers and sub-centers varies significantly across the three governorates. In terms of percentages, nurses at both main PHCs and sub-centers in Erbil are more likely to have the highest level of training—nursing school (green bars in Figure 2.6), compared with nurses in Duhok and Suli. Nurses at main PHCs and sub-centers in Duhok and Suli have mostly two-year institute-level training (orange bars) or only diploma-level training (red bars). Comparing main PHCs to sub-centers, nurses at sub-centers in Duhok and Suli tend to be better trained than nurses at main PHCs—a higher proportion of sub-center nurses have institute-level training rather than diploma training; the reverse is true at main PHCs, where the proportion of nurses with diploma-level training is greater than the proportion with institute-level training.

There is no clear KRG policy regarding placement of dentists at PHCs. Compared with physician staffing, only about one-half to two-thirds of main PHCs across the three governorates have a dentist (blue bars in Figure 2.7). Of greater concern is the significant mismatch between dental staffing and dental X-ray equipment and the functionality of equipment. For example, in Duhok, 66 percent of main PHCs have a dentist, but only 13 percent have dental

Figure 2.2
Locations of Main PHCs and Sub-Centers

RAND RR1658-2.2

Figure 2.3
Catchment Population Size for Main PHCs and Sub-Centers

RAND RR1658-2.3

Figure 2.4
Physician Staffing at Main PHCs and Sub-Centers

RAND RR1658-2.4

Figure 2.5
Average Number of Doctors and Nurses at Main PHCs, by Catchment Population

NOTE: Reporting of nurses from Erbil was incomplete.

RAND RR1658-2.5

Figure 2.6
Training Level of Nurses at Main PHCs and Sub-Centers, by Governorate

RAND RR1658-2.6

Figure 2.7
Dental Staffing and Dental X-Ray Equipment at Main PHCs, by Governorate

RAND RR1658-2.7

X-ray equipment; all of that X-ray equipment is functional, and most centers with X-ray equipment also have a trained user. In Erbil and Suli, most main PHCs that have a dentist also have dental X-ray equipment (in Erbil, 52 percent have a dentist and 48 percent have dental X-ray equipment; in Suli, 70 percent have a dentist and 57 percent have dental X-ray equipment); however, the equipment is not functional (light gray bars) and/or has no trained user (green bars) in a higher proportion of centers compared with Duhok. In Erbil, while 57 percent of centers have X-ray equipment, only 43 percent have functional equipment and a trained user; in Suli, 48 percent of centers have X-ray equipment, but in only 33 percent is the equipment both functional and accompanied by a trained user. Good management practice would include matching dental staff to necessary equipment and ensuring that the equipment is fully functional and has a trained user so that dental professionals are well utilized and can provide the intended services.

The maps indicate the centers where these mismatches occur (Figure 2.8).

There is also no clear KRG policy for placement of pharmacists at PHCs. Compared with physician and dental staffing, fewer main PHCs have a pharmacist (Figure 2.9). Only in Erbil do most main PHCs have a pharmacist.

There is also no clear KRG policy regarding which pharmaceutical products should be provided at the different types of PHCs, but, in principle, all centers (both main PHCs and sub-centers) should provide at least basic medications, and most main PHCs should provide additional medications. Most centers do, in fact, provide basic medications, but relatively few provide additional medications (Figure 2.10). It will be important to establish concrete policy regarding the medications that should be available at different types of centers and to capture the pharmaceutical inventories at each center in order to identify and address gaps.

Figure 2.8
Locations of Centers with Mismatches Between Dental Staffing and X-Ray Equipment

RAND RR1658-2.8

Figure 2.9
Percentage of Main PHCs and Sub-Centers with at Least One Pharmacist, by Governorate

RAND RR1658-2.9

Figure 2.10
Pharmacy Services Provided at Main PHCs and Sub-Centers, by Governorate

RAND RR1658-2.10

Only about one-fourth of main PHCs have a midwife or trained birth attendant—23 percent of main PHCs in Duhok and 29 percent each in Erbil and Suli.

Equipment

It is not clear whether standards for equipment at PHCs have been established, but it is clear that any such equipment should be functional and should have a trained user for it to be fully and properly used. This is not consistently the case for computers, laboratory equipment, and other diagnostic equipment across the KRI. For example, Figure 2.11 indicates that nearly all main PHCs have a computer (blue bars), and most computers are functional (gray bars), but in a significant number of centers with a functional computer, especially in Erbil, there is no trained user (green bars).

Nearly all main PHCs also have basic laboratory equipment (blue bars in Figure 2.12)—microscope, centrifuge, and autoclave. Except for Erbil main PHCs, most laboratory equipment is functional and has a trained user (green bars). In Erbil main PHCs, the centrifuge and/or autoclave is less likely to be functional and have a trained user.

Maps identify specific centers with nonfunctional equipment (red squares in Figure 2.13).

As with other PHCs that have these types of equipment, there appears to be no clear KRG policy regarding the placement of X-ray and other diagnostic equipment in PHCs. Compared with PHCs that have laboratory equipment, fewer main PHCs have non-dental X-ray or dental X-ray equipment (blue bars in Figure 2.14), but most equipment is functional and has a trained user (green bars).

Figure 2.11
Presence and Functional Status of Computers at Main PHCs

Figure 2.12
Presence and Functional Status of Laboratory Equipment at Main PHCs

RAND RR1658-2.12

Most main PHCs have ECG equipment, but far fewer have sonogram equipment (blue bars in Figure 2.15). Most of this equipment is functional and has a trained user (green bars).

Services

Core Services

All main PHCs and sub-centers should be able to provide the four core primary care services of child growth monitoring (GM), oral rehydration salt (ORS) packets and on-site treatment, vaccination (VAX), and basic health education; and most main PHCs should be able to provide some level of antenatal care (ANC). The majority of main PHCs provide those services, especially in Duhok, where the percentages for the various services range from 75 to 100 percent, compared with Erbil, where 93 percent of centers provide ORS but only 55 to 72 percent provide the other core services, and Suli, where the range for all five services is from 49 to 71 percent (Figure 2.16). With the exception of oral rehydration, fewer than one-fourth of sub-centers provide these core primary care services.

Departments of Health (DOHs) can use district-level information to help target improvements in service coverage. Figure 2.17 shows the example for vaccination services in Erbil governorate. The Erbil DOH may wish to focus on improving these services at main PHCs in the Merkeh Soor and Koya districts in particular, as well as in sub-centers throughout the governorate.

Figure 2.13
Locations of Centers with Functional and Nonfunctional Equipment: Microscope

RAND RR1658-2.13

Figure 2.14
Presence and Functional Status of X-Ray Equipment at Main PHCs

RAND RR1658-2.14

Figure 2.15
Presence and Functional Status of ECG and Sonogram Equipment at Main PHCs

RAND RR1658-2.15

Figure 2.16
Core Primary Care Services Provided at Main PHCs and Sub-Centers

Figure 2.17
Core Primary Care Services Provided at Main PHCs and Sub-Centers

RAND RR1658-2.17

Main PHCs and sub-centers that do not provide a specified service can be listed or presented in map format. MIS maps help pinpoint such centers geographically (Figure 2.18). The figure indicates both the type of center and district where vaccination services are provided (or not). For example, it indicates clearly that all but two main PHCs and many sub-centers in Duhok provide such services, including all main and sub-centers in the Bardarash district; most main PHCs in Suli provide vaccinations, but most sub-centers do not; and in Erbil, nearly all main centers in the Merkeh Soor and Choman districts fail to provide vaccination services.

Chronic Disease Services

The KRG has not institutionalized policy with regard to services for chronic diseases at PHCs, but the MOH clearly recognizes the burden of noncommunicable diseases and intends to incrementally add relevant services into the primary care system. Most main PHCs provide screening and management of hypertension (HT; Figure 2.19) and screening for diabetes (DIAB). Many main PHCs also provide DIAB management. Some, especially in Duhok, also provide mental health (MH) screening and management. About half of the sub-centers in Erbil and Suli, but fewer in Duhok, provide HT screening and/or management; fewer provide DIAB screening or management; and virtually none provides MH screening or management. MH services are relevant to addressing the needs of the refugees and other displaced persons, whose numbers grew significantly during 2013 and 2014.

Figure 2.18
Locations of Vaccination Services Provided at Specific Main PHCs and Sub-Centers

RAND RR1658-2.18

Figure 2.19
Chronic Disease Screening and Management, by Governorate

Operations

One way to accommodate large populations covered by a center is to expand the number of hours per day that services are provided. There is no KRG-wide policy regarding this, but about half of the main PHCs in Duhok and Suli operate one shift per day (light gray bars in Figure 2.20), and the other centers two or three shifts per day (medium gray and darkest gray bars). Nearly all sub-centers operate just one shift per day. Erbil centers did not report this information.

Many centers have an ambulance (Figure 2.21), but MIS maps might help inform the optimal distribution of current and new ambulances, such as the best distribution of ambulances to ensure transport of patients to district or higher-level hospitals. Regional and governorate-level health officials will best understand the road system, hospital locations and services, and patient demand—hence, where current and future ambulances should be placed to optimize patient transport.

Finally, referral systems are a critical component of effective primary care systems. Centers must be able to track patients referred out for testing or specialized services and receive feedback at the center. Many main centers have a system for referring patients out but not for receiving information back (Figure 2.22). Even more concerning is that most sub-centers do not have any referral system at all—neither for referring patients out nor for receiving information back. The shortfall in patient referral systems warrants management attention.

Figure 2.20
Number of Shifts per Day at Main PHCs and Sub-Centers in Duhok and Suli

Figure 2.21
Locations of Centers with an Ambulance

RAND RR1658-2.21

Figure 2.22
Locations of Main PHCs and Sub-Centers With and Without a Patient Referral System

RAND RR1658-2.22

Discussion

The MIS data presented here include more centers (605) than were included in the initial pilot test. Although the GIS data were also fairly robust (GIS data were available for 88 percent of the 605 centers), the maps suggest that reporting was incomplete from several districts in the Erbil and Suli governorates. Lack of GIS coordinates for all PHCs limits the range of ways in which complete MIS data can be presented (i.e., maps are incomplete). As summarized in the following sections, the data reported here suggest important opportunities for improvements related to catchment populations and geographic distribution of centers, professional staffing, basic equipment, services provided, and center operations.

Catchment Populations and Geographic Distribution of Centers

Most main PHCs have a catchment population over 10,000, which is above a world standard reported by WHO of two to three centers per 10,000 or the comparable Iraqi standard of one center per 5,000 people. Centers serving larger catchment populations tend to have more doctors and nurses, on average, than centers serving smaller populations, but it is not clear whether this staffing pattern fully overcomes the challenges of serving too many people. Most sub-centers and a small proportion of main PHCs serve too few people, based on international standards of approximately 5,000 minimum for main centers and 2,000 minimum for sub-centers. This information about main PHCs and sub-centers can be used to plan for additional staffing and upgrading of sub-centers and/or new centers in areas where centers serve too many people and, potentially, to consolidate sub-centers that serve too few people.

Staffing

Staffing by physicians, nurses, dentists, and pharmacists is uneven across disciplines and across governorates. For example, all main PHCs in Duhok and more than 80 percent in Suli and Erbil have at least one physician (very few sub-centers have a physician), but far fewer main PHCs have a dentist (63 percent overall, ranging from 52 percent in Erbil to 66 percent in Duhok and 70 percent in Suli) or a pharmacist (38 percent overall, with a wider range across governorates, from 10 percent in Duhok to 27 percent in Suli and 78 percent in Erbil). Health leaders should first consider whether it is important to standardize staffing patterns across governorates and, second, identify feasible opportunities to improve staffing patterns. Potential examples include upgrading nursing skills and using nurses more efficiently, adding more assistants to enhance the efficiency of doctors, and/or other viable solutions.

Equipment

While most main PHCs have basic computer, laboratory, and diagnostic equipment, the appropriate and efficient use of equipment depends on the equipment being functional and operated by a trained user. The MIS data indicate where each type of equipment is not functional or lacks a trained user—i.e., where laboratory, X-ray, and/or other equipment should be repaired or replaced and where trained users are needed to ensure the proper use of equipment. Thus, the MIS is useful for dynamic monitoring to pinpoint and fix problems and, thereby, to ensure that equipment is placed in appropriate centers, has a trained user, and remains functional. It will also be important to correct mismatches between dental staffing and dental equipment so that dentists at centers have the equipment they need to provide good services.

Services

In principle, KRI primary care main centers and sub-centers should serve as a foundation for providing world-class core primary care services, as well as some chronic disease screening and management. In practice, however, many main centers and sub-centers do not provide the full range of services appropriate to the type of center, as specified in guidance that RAND helped develop and the Minister of Health (MoH) approved and disseminated in December 2012. For example, all main PHCs should be able to deliver all core primary care services, such as child GM, VAX, oral rehydration for diarrheal disease, ANC, and health education. In principle, sub-centers should be able to provide at least GM, oral rehydration, basic first aid, and health education. MIS data have identified areas of success—where centers provide most or all required services—as well as opportunities to fill gaps where some services are currently not provided. Filling such gaps seems feasible. Also important is the potential for the MIS to help inform and track services provided in areas where large numbers of refugees and other displaced persons have arrived.

Operations

Careful matching of client demand to staffing and hours of operation will help ensure the best possible use and optimum efficiency of facility and personnel resources. Effective referral systems and the availability and appropriate distribution of ambulances will further strengthen the KRI's primary care services and are a cost-effective means to achieve better health outcomes for all persons served.

Conclusions

The MIS represents a simple but functionally powerful tool for managing primary care resources and services at the regional, governorate, district, and center levels. It is intended to provide information to guide planning and resource allocation for centers, staff, services, and equipment and to help managers track progress. Data were collected by staff in the respective DOHs; they were not reported directly by the center directors. More regular data collection will help overcome the challenges in initiating any new data collection system, as stakeholders at all levels become more familiar with the procedures and value the results. Our recommendations below aim to make the capture of, access to, and use of MIS data easier for users at all levels.

The data presented here point to specific problems that managers at the district, governorate, and regional levels can address, including important insights across the spectrum of primary care elements, such as the location and status of PHCs (uneven distribution and coverage of too many people in some instances and too few in others), staffing (uneven distribution, particularly of physicians, and apparent inadequate numbers of dentists and pharmacists within the primary care system), equipment (issues with the availability, functionality, and match between equipment and the types of professionals who use it), services (failure to provide the full package of even the most basic primary care services at many main PHCs and branches), and operations (e.g., number of shifts per day) across the KRI. These data are useful for monitoring progress, identifying opportunities for improvement, and tracking improvements made, such as addition of staff, repair or purchase of equipment, and provision of additional services.

We recommend that the KRG institutionalize the MIS so that it becomes a tool used by managers at all levels to monitor PHCs, staffing, services, equipment, and operations throughout the KRI over time. This includes primary health care programs carried out in collaboration with various partners, such as WHO and the U.S. Agency for International Development (USAID). As the next step toward institutionalizing the KRG's primary care MIS, we recommend outsourcing the development of an online system that can be accessed by all appropriate officials, including the DOHs in the three governorates, the central MOH and MOP in Erbil, and relevant primary care partners. The system should be user friendly—easily accessible by all appropriate users to enter updated data and generate tables, graphs, and maps. Another important next step is to further train and orient all key stakeholders so that they better understand the data available, how to capture them, and how to use them. We suggest that the current data elements be well established and used before new data items are potentially added. Once institutionalized, the MIS should empower and enable health managers at all levels to monitor primary care resources and operations, pinpoint problems, and track progress. As such, it can be a foundational component of the KRG's overall health system.

Physician Dual Practice Finance Reform

In an earlier report, RAND described the DP situation in the KRI (Anthony et al., 2014), where almost all physicians who are fully trained choose to work in both the private and public sectors—i.e., physicians engage in DP. They may conduct private-sector work in their own private clinics and/or in the rapidly growing number of private hospitals. Physicians in the public sector are paid a full salary by the KRG, while work in the private sector is almost always paid for in cash by patients and/or their families at rates that greatly exceed public-sector fees for comparable services.

Policymakers have expressed concern about DP. Both physicians and patients believe that the reason patients are willing to pay more for care in private clinics rather than receive care at virtually no cost through the public sector is because patients get faster and more intensive care, which they perceive as being better care, in private clinics. It is estimated that without reform, within ten years there will not be enough skilled physicians practicing the number of hours in the public sector that will be required to fulfill the constitutionally guaranteed right to health care (Moore et al., 2014; KRG, MOP, 2013). Furthermore, the DP situation in the KRI is highly inefficient. Currently, physicians who are supposed to work 35 hours per week get paid a full salary and full pension benefits upon retirement no matter how few hours they work, and all anecdotal reports indicate that they work far fewer than the standard. In effect, physician compensation is not related to the amount of time worked, the quality of work, or a physician's productivity.

KRG health policy leaders recognize that the present situation is not only unsustainable and inefficient, but also that its existence makes health financing reform, a key KRG policy objective, very difficult to achieve. In *Kurdistan Region—Iraq 2020: A Vision for the Future*,¹ the KRG lists introducing “a sound health care financing system” as a key priority. The document goes on to say that to achieve a sound financing system, the KRG needs to “develop and implement a policy that pays for physician services based on the amount and quality of the services they provide.”²

DP has always been present in the KRI but not as widespread as today. Before the first Gulf War, many physicians did not have private clinics. But during the war, regular salary payments from Iraq's public budget stopped, and physicians had few options other than opening offices where they could provide care for a fee.

After a short description of the KRI's current health financing system and the physician manpower situation, we summarize the literature on DP and its status in the KRI before turn-

¹ KRG, MOP, *Kurdistan Region—Iraq 2020: A Vision for the Future*, September 2013, p. 7.

² KRG, MOP, 2013, p. 7.

ing to the results of six focus groups that RAND conducted. The focus groups were designed to gather information about physician conduct and preferences related to working in both the public and private sectors. After examining possible approaches and constraints to address the challenges of DP, we present four feasible policy options that the KRG could adopt today to begin to reform the system.

Current Health Financing System in the KRI

As we indicated earlier, the KRG currently funds most health care through the KRG budget, which itself is dependent on the 17-percent allocation from the Iraqi national budget that is passed on to the KRG.³ Baghdad also provides certain equipment and medicines directly to hospitals and clinics, the value of which they deduct from the 17 percent. There are also separate allocations for health-related investment projects that are funded out of the public KRG regional and governorate budgets.

More than three-quarters of the MOH operating expenses are committed to salaries, which are paid directly to all government employees by the MOF. Physicians are paid a salary for their work in the public sector. In 2013, 73 percent of the KRG health budget was allocated to operating expenses (80 percent of which was for salaries) and 27 percent for investment (e.g., buildings and major equipment). About 6 percent of the overall KRG budget goes to the health sector, an allocation that is below that of other countries in the region (Anthony et al., 2014). This allocation translated to about \$300 per resident in 2013, significantly below per-resident expenditures in other middle-income countries in the region.

The KRI has about 11 physicians per 10,000 people. That ratio is lower than in neighboring Arab states, such as Turkey, Lebanon, and Jordan, but higher than in Iraq overall and higher than in impoverished Arab states, such as Syria or countries in northern Africa. Health resources per capita in the KRI lag far behind those in developed Arab states and Europe. RAND projections (Moore et al., 2014) indicate that the number of physicians will have to be increased significantly to keep up with population and income growth even before the recent influx of over 1 million refugees and IDPs is taken into consideration.⁴

In 2012, the KRI had approximately 6,000 physicians. RAND research (Moore et al., 2014, pp. 38, 165) conducted before the refugee crisis found that if the population continued to grow at current rates and KRI physician utilization rates were similar to nearby countries, the KRI would need an additional 1,070 physicians (an increase of about 18 percent) by 2015 and would need 2,097 additional physicians by 2020 (an increase of more than 33 percent). If the previous estimate was correct, then the KRI needed approximately 1,000 more physicians than it had in 2015 even before counting the need to service IDPs and refugees. Approximately 1,400 of the 6,000 physicians in the KRI (about 25 percent) are GPs.⁵

³ Greater detail on how the funding of health and health care is achieved in the KRI can be found in Anthony et al. (2014), pp. 8–19.

⁴ World Bank, 2015.

⁵ Invest In Group, 2013; Moore et al., 2014.

Substantially more physicians than this will be needed to meet the even faster-growing population that has resulted from the influx of IDPs and refugees.⁶ According to the World Bank, the 2014 ISIS invasion of Iraq has resulted in an influx of approximately 1.5 million refugees and IDPs into the KRI. This swelled the overall population of the KRI by 28 percent (World Bank, 2015),⁷ resulting in even more short-term pressure on the overburdened health care system. History has shown that many refugees either do not return home at all or do not return until long after their displacement. Unlike refugees, IDPs are not eligible for programs sponsored by the United Nations High Commissioner for Refugees, and when they would be able to return home is very uncertain. At present, the KRG is treating the situation as short term, but no one really knows whether this will also become a long-term issue that will require a long-term increase in health care facilities and manpower.

Discussions with physicians and policy officials, as well as the long waiting lines in public hospital and many PHCs, all indicate a significant need for increases in physician time in the public sector. The deficit could be partly made up by doctors working longer hours, which would greatly improve productivity, and/or by training more nurses and health workers to provide primary care. However, the option of utilizing more nurses in primary care seems years off at best, as RAND's earlier work (Moore et al., 2014) also indicated a significant need to improve the training, stature, and use of nurses and a need to increase their number by almost a third by 2020.

There are few statistics available on the makeup of the physician workforce by specialty. As a result of conversations with the MOH, we know that there are approximately 1,400 GPs, which would make them about 20 to 25 percent of the total physician workforce. Long lines at all public hospitals and anecdotal information confirm that there is a shortage of almost all types of physicians. That said, as part of its research to prepare for policy change, the KRG should have a current quantitative and qualitative sense of need before implementing specific policy change that alters compensation, so that policymakers do not accidentally give incentives to encourage an increase in specialists if, as is likely, the larger need is for more GPs rather than more specialist physicians. Once updated numbers are known, researchers could then benchmark the situation against other similar areas or countries to examine the number of each specialty per capita.

Almost all physicians finish their medical training, register with the doctors' union, and then become eligible to be hired to work in the public sector and receive a regular wage and other benefits, such as a pension upon retirement. Most physicians work only a fraction of the time they contract to work in the public sector before heading to their private clinics. Patients pay almost nothing for care in the public sector while paying a good deal out of pocket in the private sector. Although some health insurance companies are beginning to operate in the KRI, today almost no one has private health insurance.

The DP system that has evolved, in which physicians are paid a full salary no matter how many hours they work, is recognized by almost everyone, including policymakers and physicians, as being inefficient and badly in need of reform. This is particularly true in the present

⁶ Today the number of newly trained physicians is very close to the number of physicians leaving the workforce either through retirement, death, or immigration from the region. This may change as a substantial number of people and especially those with technical skills flee north to the KRI to escape the ISIS invasion in southern Iraq.

⁷ World Bank and KRG Ministry of Planning, *Kurdistan Region of Iraq Economic and Social Impact Assessment of the Syrian Conflict and ISIS Crisis*, Report No. 94032-IQ, draft, undated.

climate, where the ongoing budget crisis is forcing tough decisions and efforts to move to more efficient policies.

It must also be noted that the KRG budget since the invasion of Iraq by ISIS has been under extreme stress, making changes that require additional funding very difficult in the short run. As a result of the crisis created by ISIS, including security, refugee, and IDP needs, and the challenge presented by irregular receipt of funds from Baghdad, the budget of the KRG is under severe pressure. The KRG rightly considers such needs to be of primary importance, leaving little flexibility for policy reform funding.

What the Literature Says About Dual Practice⁸

DP describes a situation in which physicians see patients in both the public and the private health care systems. In the case of specialist physicians, DP may lead to arrangements with hospitals that allow physicians to see patients from both systems in the same facility. As is the case in the KRI, many people are willing to pay more to access care in the private sector because they face shorter waiting times, have more amenities, and perceive that care is of higher quality than in the public sector.

DP has two principal effects on a health care system and the health of populations. First, DP affects the efficiency of public health care delivery; however, the net impact can be positive or negative. Second, DP affects equity in terms of access to health care. Most health care systems in high-income countries limit DP (usually through incentives), rather than prohibit it. The limits on DP in these systems are designed to promote equity across individuals of different income levels and ensure access to care.

Policymakers in low- and middle-income countries usually face a very different situation when dealing with DP than those in developed high-income countries. In developed countries, there are usually enough physicians to service both public and private needs, and financing systems allow for payment options that can be used to ensure quality and to entice the required number of physicians to work in the public sector. In less-developed countries, budgets are not usually sufficient to pay public-sector providers a salary even remotely comparable to what they can make in the private sector, and often there is simply a shortage of physicians—particularly well-qualified ones—serving the public sector. Decisionmakers in such countries may want to impose limits on DP; however, to do so, they may have to overcome significant administrative, data, and political hurdles.

The experience in South and East Asia, where physicians have engaged in DP for years, is informative. Researchers found that in almost all countries in the region, more than 70 percent and usually more than 80 percent of physicians who provide clinical care engage in DP (Hipgrave, Nachtnebel, and Hort, 2013). Physicians' reasons for engaging in DP mirror those found in the KRI—enhanced income, better working conditions, fewer patients per hour, better-quality care, and control over their environment. Researchers have concluded that in Southeast Asia, “appropriately regulated, DP can improve health service access, quality, efficiency and equity” but “dual practice is most likely to have negative consequences in lower- and middle-income countries, where regulation of doctors' behaviour is often weak. Weak

⁸ RAND presented a more complete literature review in *Health Sector Reform in the Kurdistan Region—Iraq: Financing Reform, Primary Care, and Patient Safety* (Anthony et al., 2014, pp. 38–41). That detailed review is summarized here.

regulation of DP threatens equitable universal access to health care” (Hipgrave and Hort, 2013, pp. 1–2).

DP can have positive or negative effects on health care system efficiency; the net effect varies by country. DP acts to *increase efficiency* in the allocation of health care by offering the opportunity to purchase care in the private sector to patients who are willing to pay for high-quality physicians, better access, or more amenities. DP can also increase access by giving physicians a profit incentive to work longer hours or see more patients.

However, the profit incentive could *decrease efficiency* in the health care system if physicians shift patients to the more lucrative private sector or if they work less and less productively during the time they provide care in the public sector. The latter behavior is common in many health care systems with DP, including the KRI (Anthony et al., 2014). DP also often results in informal payments (kickbacks) to providers working in public facilities to refer patients to physicians in private practice (Lewis, 2000; Siskou et al., 2008).

DP decreases equity in the type and quality of health care received by individuals at different income levels. Low-income individuals typically do not have the resources to pay for private-sector care out of pocket or through their own private insurance.

Theoretically, DP may improve efficiency in the public system if providers increase efforts to improve quality of care in the public system in order to build the reputation necessary to operate a successful private-sector business (González, 2004). From a broader social welfare level, allowing individuals to purchase higher-quality care they want and can afford to pay for may reduce the amount of unmet demand (Siskou et al., 2008).

The literature, however, focuses often on the negative consequences usually associated with DP:⁹

- DP can lead to a two-tiered health care system in which high-quality physicians (who can command higher compensation) spend most or all of their time in the private sector, while lower-quality physicians become solely public-system providers. The result is great disparity between the care that the rich and poor obtain. Whether or not a two-tiered system develops hinges on the relative physician compensation in the public and private sectors and on the government’s ability to adequately regulate private practice.
- DP can lead to implicit public subsidization of private practice if providers use public facilities to see or recruit private patients.
- DP may promote increased or induced demand for care—i.e., higher utilization rates for private-sector care—because physicians in the public sector refer patients to their private clinics, where more services are usually ordered and paid for on a fee-for-service basis.

Dual Practice in the KRI

The Current Environment

According to current MOH and doctors’ union regulations, once physicians reach consultant status and register with the doctors’ union, they are allowed to practice in the private sector in the geographic areas where they provide care in the public sector. As the geographic restriction

⁹ See Hipgrave and Hort (2013); Hipgrave, Nachtnebel, and Hort (2013); Anthony et al. (2014); Siskou et al. (2008); Savedoff and Gottret (2008); and Lewis (2000).

is not usually enforced, physicians generally decide on their own how, when, or where they provide care in the private sector. Physicians often see patients in the public system in the morning, whether in hospitals or PHCs, and devote the rest of the day to private practice (Moore et al., 2014; Anthony et al., 2014). The amount of time spent in the public sector varies but is reportedly only a few hours or, in some cases, does not happen at all before they leave to work in private-sector settings. Most physicians maintain their own private clinics, but some work in private hospitals, private groups, and/or consultant clinics.

Physician Compensation

Physicians, dentists, and pharmacists are hired right after graduation centrally through the Council of Ministers and thereby become eligible to receive a government salary for life, as well as a guaranteed public pension upon retirement. Once a physician in training completes basic pre-clinical and clinical training, one or two years of general practice internship/residency, and the required year of service in a primary health care clinic, he or she registers with the doctors' union and becomes eligible to practice in the private sector. However, at this point, many physicians choose to continue their education to specialize in a particular medical or surgical sub-specialty, such as neurology or urological surgery.

A physician's level of pay varies by rank and length of service. Because of their educational achievement, most physicians start at a fairly high level in the government pay schedules. Physicians receive extra compensation for teaching in a medical school where they are staff of the Ministry of Higher Education.

Compensation varies somewhat by seniority and level of education but not by specialty, by the number of hours worked in the public sector, or by the quality of services provided—i.e., there is little relationship between performance, specialty, and pay levels in the public sector.

Physicians receive their salaries directly from the KRG MOF. Hospital administrators have no control over the salaries of the physicians working in their hospitals and very limited means either to reward hard work or to reduce the pay of someone who is not working productively or performing well. The same lack of control is also true of district health officers overseeing primary care physicians working in the PHCs in their areas.

Upon retirement, all physicians who have registered with the doctors' union receive a pension, which is also unrelated to the actual number of hours or years worked in the public sector over a lifetime of service.

In the private sector, doctors are almost always paid directly in cash by patients or their families. The amount charged varies by the demand for particular services and by individual provider, but it can be many times the amount charged in the public sector. Fees charged in the private sector are supposed to be below a specified limit, but, reportedly, this rule is almost never enforced. Unfortunately, there are no hard data on fees or the amount of income that physicians receive in the private sector.

All countries dealing with DP-related issues must confront them in the context of their own systems and situations. In the KRI, that reality includes

- a projected future shortage of physicians to meet demand in the public sector
- the population's expectations that all services will be virtually free in the public sector
- physicians being paid far less in the public sector than in the private sector
- public budgets that are too constrained to meet all the demands being placed on them

- a security and budget crisis brought on by ISIS and the IDPs and refugees that have resulted.

The Private Sector

KRI physicians working in the private sector practice in one of four settings: small private clinics; multiphysician clinics (these are often elaborate facilities with multiple rooms and modern equipment); private hospitals, which vary in size and sophistication; and public/private partnerships. Public/private partnerships have begun in the form of consultant clinics utilizing public clinic and or hospital space in the afternoons and semi-private wings in public hospitals. In consultant clinics in the afternoons after public clinic hours end, doctors use public clinic buildings to offer care to patients. There they can charge a fixed fee set by the MOH that is considerably more than in the public sector but less than in the private sector. Patients seem pleased because they are getting good care at a price that is lower than in the private sector. Patients pay 20 percent of the fee, while the MOH pays the other 80 percent.¹⁰

Policy Constraints

Decisionmakers in the KRI seeking to address the DP issue will face a number of challenges specific to dual practice. However, they will also face the following challenges or constraints that are generally common to any health reform in the KRI.

Data

Very few data are routinely collected or made readily available for decisionmaking in the KRI. To achieve its long-term health system goals, the MOH will need to address this information gap. The key data needed in this context for both the public and private sectors include

- number of patients seen at a center or hospital
- provider, diagnosis, and reason for visits
- number of hours worked by each provider per day
- number of patients seen by each provider
- number of procedures performed by each provider
- public sector physician need by specialty.

In the public sector, the data collected are usually simple counts of patients seen; these totals are then aggregated at the governorate level. Most PHCs and all hospitals have computers, but they are not effectively used, and digital data are not reported to a central repository. No data are routinely collected on the number of hours that individual physicians spend delivering care or the number of procedures they perform. Because the financing system is budget based, no payment or reimbursement data exist. Data as listed above, which are commonly available in other countries, would make it possible to determine physician productivity and quality and to link those variables to reimbursement if desired.

Data from the private sector detailing the number of hours that physicians work, the number and type of procedures performed, and how much physicians charge are completely lacking. Such data would enable comparison of prices between the public and private sectors,

¹⁰ Semi-private service wings were ended in early 2015 in response to the financial crisis caused by the ISIS invasion of Iraq and the influx of tens of thousands of refugees and IDPs.

calculation of the amount that physicians could earn in each sector, comparisons of the quality of care and waiting time in each sector, and analysis of the extent of DP.

Regulatory and Management Capacity in the MOH

Physician DP and financing reforms would require a robust regulatory system. The absence of such a system poses a considerable hurdle to reform. The current ability of the MOH to regulate the health care system is limited. The MOH has limited trained staff and resources and few regulatory systems in place. Even the building where the MOH is presently located is not conducive to modern management. It is old and dilapidated, has almost no conference rooms, and lacks good Internet connectivity.

The management challenges at both the national and governorate levels are compounded by a national hiring system for new employees that does not result in filling positions with qualified personnel. According to the MOH management team we interviewed, at least one-third of the workforce in the MOH office in Erbil is not skilled enough to perform the functions assigned to them.

Hospital Management

Currently, hospitals are usually managed by prestigious physicians who are not formally trained in management. In addition, hospital managers have little authority over staffing, budgets, or investment spending. If managers cannot hire their own staff or reward or discipline physicians for their performance, enforcement of any rules will be difficult. To address DP and a number of other issues related to hospital efficiency, individual hospital managers will need greater independence and authority.

Quality of Care

Today, people seek care in the private sector partly because they believe that care is better—in terms of both wait times and physician performance. If the KRG is to effectively deal with the DP issue, it must improve the quality of care in the public sector (and the public's perception of public-sector quality), which means improving the efficiency and timeliness with which it is delivered, as well as the quality of the care itself.

Funding

Without an increase in public budget allocations dedicated to DP reform, it is difficult to envision effective long-term DP reform being achieved. Larger allocations will be needed to bring public-sector salaries for physicians to a level that is more comparable to private-sector salaries if physicians are to be induced to focus their practices in the public sector. However, it is possible to design programs that are budget neutral for the first few years of reform so that the process need not wait until budget allocations are assured.

As mentioned earlier, the KRG budget today is under extreme stress: Funds from Baghdad have often not been forthcoming on a timely basis, and new budgetary needs created by the security expenditures needed to deal with ISIS, as well as refugees and IDPs, are considerable.

Physician Focus Group Discussion Findings

Methods

To supplement preliminary discussions with physicians earlier in the fall of 2013, RAND conducted six focus groups with about 150 physicians during the week of December 8, 2013. The focus groups were designed to gather information about physician conduct and preferences related to working in both the public and/or private sectors. (See Appendix B for Focus Group Questionnaire text.) We conducted two focus groups in each of the three main governorates—Suli, Erbil, and Duhok. In each governorate, we sought to talk to senior house officers and consultant physicians. As we anticipated, the younger physicians (senior house officers) generally did not practice in the private sector, while almost all consultants had their own private offices and/or worked in private hospitals. Many consultants were also medical university faculty. The focus group questions were developed during our conversations with physicians earlier in the year. We field tested the draft questionnaire in November 2013 and revised the questions accordingly.

At the beginning of each focus group, the RAND team explained that we had been asked to gather information by the MOH and MOP in order to better consider policy options related to DP that would, in turn, help improve the health care system. We stated that the purpose of the focus groups was to better understand doctors' habits and preferences related to DP so that we could develop realistic and evidence-based options on this issue for the ministers' consideration. We encouraged everyone to be candid and assured participants that the information provided would not be attributed to any individual. We made clear that the meeting was entirely voluntary and gave people a chance to leave if they wished to do so. No one left at the beginning of meetings, but occasionally a physician left during the meeting to attend to patients. Most returned if time allowed.

The focus groups generally lasted about 1.5–2 hours. In Erbil the meetings took place at Rizgary Teaching Hospital, in Duhok at Azadi Teaching Hospital, and in Suli at the office of the Director General of Health. The physicians who participated comprised a wide range of specialties and included physicians of all ages and of both genders. Participants were a good representative mix of physicians. Roughly half were consultant physicians, almost all of whom had their own private practices; the other half were physicians in their late twenties or early thirties who were completing their residency training (i.e., were senior house officers). With rare exception, the senior house officers were not working in the private sector. Groups ranged in size from almost 50 participants (one group) to groups of eight to 15, which were the norm. The participants spoke candidly and seemed to appreciate being given the opportunity to provide input into the policymaking process.

Findings

Time Worked

Time worked in the public sector: Like all public employees, physicians are expected to work 35 hours a week, by regulation.¹¹ Because most physicians work five days a week, the

¹¹ The regulatory requirement is 35 hours, but many physicians have little idea what the official requirement is. Many who work five days a week may not even know that the official workweek is 35 hours instead of 30 hours, as they work far fewer hours than any standard (which, at this point, has little meaning).

35-hour requirement has come to mean working from 8 a.m. to 2 p.m. five days a week and being on call two to three days a month for 24-hour periods.

We also found that, in many cases, an insufficient number of surgical suites contributed to some physicians working fewer hours than the standard. Hours for emergency physicians are quite different.

The schedules for teaching physicians are especially unpredictable. They split their time between the university, the hospital, and their own private practice. As we will discuss below, this fragmented practice pattern has led to a chaotic life for these physicians. Many physicians said they would gladly give up private practice for more consistency and better life balance in the public sector if compensation in the public sector were higher.

Time actually worked in the public sector: We asked focus group participants how much time they spent in the public sector before heading to either private practice or a consulting clinic. Answers varied, but participants said that, in general, they spent about four hours per day or less in the public sector. When asked the same question, senior house officers who were physicians still in training responded that although there was a range, most doctors spent less than three hours a day in the hospital before leaving for their own clinics. Indeed, some physicians reported spending an hour or less in the public hospitals, and some showed up for public-sector duty only occasionally. The older, more experienced, and greater the reputation of a physician, the less time he or she was likely to spend in the public sector.¹² Also, on average, specialists spent less time in the public hospitals than their GP colleagues.

Participants often mentioned that the present system, in which physicians retired to their private practices in the afternoon, was not always the case. Before the first Gulf War, physicians routinely worked from 8 a.m. to 4 p.m. Only a few had their own offices. After the first Gulf War, the political situation was uncertain, and Baghdad did not reliably pay physician salaries for some time. As a result, physicians turned to private practice options to support their families.

Motivation to Engage in Dual Practice

The primary motivation was earning extra money: Almost universally, the first reason participants cited for engaging in DP was the need to make more money. Everyone felt that the wages paid by the public sector were simply not sufficient to sustain their families. Many physicians were married to other physicians, but participants noted that even these families had a very difficult time. Everyone knew that physicians could make many times their public salary in the private sector and/or by working in consultative clinics. We did not try to ascertain this differential, but it seemed to vary significantly by specialty and individual physician.

Secondary reasons: Earning more money was rarely the only reason cited for DP. Other factors were consistently mentioned across the various focus groups we conducted. These included the following:

- *Inadequate public facilities and equipment:* In many cases, physicians said that they would be glad to work longer hours in the public hospitals, but the facilities necessary to do their jobs well were not available to them. They pointed out that there were too few examin-

¹² It seemed that doctors in Suli tended to spend more time in the public sector than physicians in Duhok or Erbil, but this pattern may have just been the result of the small sample of physicians we happened to interview.

ing rooms and operating theaters to meet physician needs, inadequate laboratories, not enough hospital beds, and poor availability of the latest equipment and supplies.

- *Public facility ancillary services not available all day:* Physicians noted that even if they wanted to work longer hours, they could not provide the care needed because the ancillary services needed to do their jobs, such as laboratory and X-ray services, were closed by 1:00 p.m. every day. Many specialists would be unable to provide quality care unless these services were also available.
- *Patient loads:* Physicians universally felt that they were required to see many more patients per hour than was appropriate for providing proper care. The number of patients seen varied greatly by whether the physician was a senior house officer or a consultant, but was always more than ideal. For instance, senior house officers in Duhok reported seeing 200–300 patients in a 24-hour period in the emergency room. House officers in the internal medicine clinic saw 50–60 patients in a four-hour period—about 12–15 patients an hour. At Rizgary in Erbil, radiologists reported that they were trying to do 30 magnetic resonance imaging (MRI) scans and 20 ultrasounds in a four-hour period. Ear, nose, and throat (ENT) was the busiest outpatient department. Three ENT specialists saw 160–180 patients in a four-hour day—about 15 patients per hour. In contrast, the number of patients seen per hour in the private sector is much lower and better controlled. As a result, physicians thought that they could provide better and more-professional care in the private sector.
- *Nursing staff:* Physicians in all regions stated that the nursing staff was inadequate, poorly trained, and lacking in motivation and skills. Of course, this is not true of all nurses in the region. However, the nursing staff in almost all public facilities has skills below the standard required for minimally adequate care. Physicians thought that the nursing staff in private facilities was much better. The higher wages attract better-quality nurses, and physicians demand, and get, more-motivated service.

Ways to Improve the Public Sector

We asked focus group participants to suggest ways to improve the public hospital sector. Not surprisingly, their answers mirrored the reasons described above for choosing to engage in DP. Issues related to quality of care and adequacy of the facilities were almost always mentioned first, followed by process and management concerns.

Quality of Care

- *Nursing:* Improve nursing care.
- *Ancillary services:* Improve the laboratories; currently, results are often incorrect or inconsistent with what physicians are observing.
- *Patient loads:* Reduce the patient load to a level at which physicians see only the number of patients for whom they can provide good-quality care.
- *Beds:* Provide more hospital beds and more rooms for seeing patients.
- *Medications:* Do a better job of ensuring that drugs and medical devices are available when needed.

Management Issues

- *Appointment system:* Implement an appointment system.
- *Job descriptions:* Provide everyone in the public health sector with a job description.

- *Referral*: Implement a better referral system. This is both a quality issue and a management issue. Because the primary care clinics are often inadequate or are assumed to be inadequate, patients come directly to the hospitals when they really do not need to. This overwhelms the facilities and requires physicians to see many more patients than is appropriate.¹³
- *Records*: Physicians felt that recordkeeping was inadequate and suggested that the KRI move to electronic records.
- *Keep hospitals open longer hours*: A number of physicians who had trained and worked abroad felt that the hospitals should be open much longer hours. Facilities overseas operate 24 hours a day, and it was suggested that most of the facilities in the KRI could do the same.

Compensation Levels

We asked participants in the six focus groups what level of compensation would be necessary to motivate a physician to work more in the public sector. Answers varied by location, specialty, and seniority. The most important factor seemed to be specialty. It often seemed that physicians played off of each other. For instance, if an internal medicine specialist wanted a salary of \$8,000 a month, a surgeon—viewing himself as worth more—would respond with a number like \$10,000 a month. (In this section, all salary levels given are monthly total salaries unless otherwise specified.) Physicians would often respond with a salary range like \$10,000–\$15,000 a month, depending on workload, or would say that the required amount depended on the number of hours worked and whether they could maintain their private practice. There was general frustration about the fact that all specialties were paid more or less the same and that people who saw more patients, worked harder, and worked longer hours were not rewarded monetarily.

Table 3.1 summarizes the monthly compensation that all physicians in various locations thought would be necessary to motivate them to work full time in the public sector. All were seeking substantial increases from current salaries, which are approximately \$1,200 a month, to levels at least double that.

Since a relatively large number of respondents were GPs, they presented the clearest picture. In general, both house officers and consultants felt that a salary of \$2,000–\$3,000 per month (an increase of \$800–\$1,800) was sufficient to motivate GPs to work the full required workweek (35 hours a week). Many physicians preferred to work longer hours (e.g., 42–50 hours per week) for even higher salaries (e.g., \$4,000–\$5,000 per month for GPs). Physicians seemed to think that a surgeon's pay should be about \$10,000 a month or higher. But, again, most physicians would prefer to work longer hours for even more pay. When we asked what kind of time commitment would be required to motivate physicians to work full time in the public sector, most physicians did not answer the question. Instead, they said that they preferred to work longer hours (e.g., 8 a.m. to 4 p.m. or even 8 a.m. to 6 p.m.) for an even larger increase in pay. The feeling was that a physician needed to make a certain level of income and preferred to reach that level by working only in the public sector, which would require working longer hours also.

¹³ In our earlier reports (Moore et al., 2014, and Anthony et al., 2014), we documented these issues and made numerous recommendations for improving the primary care system.

Table 3.1
Requested Pay for Full-Time Work Across Areas and Specialties

Seniority Level	Location	Specialty	Hours per Day	Hours per Week	Total Pay per Month (current U.S. dollars)
House officers	Erbil	GP	8 a.m. to 2 p.m.	30	\$2,000–\$3,000
			8 a.m. to 4 p.m.	40	\$3,000
			8 a.m. to 6 p.m.	50	\$3,000–\$4,000
	Duhok	GP	8 a.m. to 4 p.m.	40	\$4,000
		Pediatrician	8 a.m. to 6 p.m.	50	\$5,000–\$6,000
		Surgeon	8 a.m. to 6 p.m.	50	\$10,000
	Suli	GP	8 a.m. to 2 p.m.	30	\$3,000
		Surgeon	8 a.m. to 2 p.m.	30	\$10,000
		Obstetrician/ gynecologist	8 a.m. to 6 p.m.	50	\$10,000
Consultants	Erbil	GP	8 a.m. to 4 p.m.	40	\$3,000–\$4,000
		Surgeon	8 a.m. to 2 p.m.	30	\$10,000
		Internist	8 a.m. to 2 p.m.	30	\$20,000
		Radiologist	8 a.m. to 2 p.m.	30	\$20,000
			8 a.m. to 6 p.m.	40	\$40,000
		ENT	8 a.m. to 6 p.m.	50	\$15,000
		Neurologist	8 a.m. to 6 p.m.	50	\$12,000
	Duhok	GP	8 a.m. to 2 p.m.	30	\$4,000–\$5,000
		Surgeon	8 a.m. to 2 p.m.	30	\$9,000–\$10,000
		Internist	8 a.m. to 2 p.m.	30	\$4,500
		Obstetrician/ gynecologist	8 a.m. to 2 p.m.	30	\$9,000–\$10,000
	Suli	GP	8 a.m. to 6 p.m.	50	\$5,000
		Surgeon	8 a.m. to 6 p.m.	50	At least \$10,000
		Radiologist	8 a.m. to 6 p.m.	50	\$5,000

The vast majority of physicians (over 80 percent) indicated that if pay were higher and resources were available to enable them to do their jobs, they would prefer to work only in the public sector because they sought a better work-life balance and saw care as being of higher quality in the public sector, in the sense that there was a greater spectrum of care and a greater capacity to deal with complex cases. This point was made across all focus groups, independent of the seniority of the group and independent of governorate.

These results are generally consistent with a survey done in 2011 and presented at the International Congress on Reform and Development of the Health Care System in the Kurd-

istan Region in Erbil in February 2011.¹⁴ In that survey, 87 percent of physicians said that they preferred working longer hours (8 a.m. to 5 p.m.) for pay ranging from \$5,000 to \$10,000 per month. A recent survey conducted after the focus groups by the Planning Directorate of the MOH (KRG, 2015) found that 16 percent of physicians wanted an increase of 100 percent, 16 percent wanted an increase of 150 percent, and 40 percent wanted an increase of more than 200 percent.

If one examines the results of time worked today against the number of hours worked and salary requests to incentivize working a full workweek on the part of GPs, a number of factors become clear (see Appendix C for a technical analysis of results):

- Presently, GPs are being paid for 35 hours of work per week but are working less than half that amount, resulting in tremendous inefficiency and budgetary waste in the public sector.
- If GPs employed in the public sector worked 35 hours, the number of GPs needed to provide the same level of service being provided today would be about half the total employed today.
- In order to provide the same level of services, the amount that the budget for public-sector GP services would have to rise to fund higher GP salaries to induce physicians to work 35 hours will be partly offset by not needing to employ as many physicians as before.
- We looked at the case of GPs in some detail, as we had the most data for this group. Present GP salary levels were approximately \$1,200 per month, for which they were working approximately 15 hours per week (60 hours per month). We also discovered by extrapolation from responses (see Appendix C) that incentivizing GPs to work the required 35 hours weekly (144 hours per month) would necessitate paying them \$2,000–\$3,000 per month (\$2,500 on average, according to consultants and house officers alike). Many physicians preferred to work longer hours (e.g., 40–50 hours per week) for even higher salaries (e.g., \$4,000–\$5,000 per month for GPs).

Using the numbers above, we can estimate the supply curve for GP services and calculate on average how much the budget for GPs in the public sector would have to increase to staff public hospitals and PHCs at current levels. If monthly salaries were raised to \$2,500, GPs would be willing to work a full 35 hours per week; this is roughly double the amount they are now being paid, for which they would be willing to work a little more than double the amount of time they now work in the public sector. If everything else remains the same (i.e., if productivity were the same and the same total number of physician work hours was provided) and if this policy were instituted, public facilities would require only about half as many GPs as are currently employed, each of whom would work about double the amount of time currently worked. However, the MOH would have to raise GP salaries to achieve these results.¹⁵

To better understand the budget effects, we varied the salary needed to induce a GP to work a full 35 hours from \$2,500 to \$3,000 and calculated MOH budget increases needed for GP services to staff facilities at current levels. At a \$2,500 monthly salary, if the same number

¹⁴ Taher, 2011.

¹⁵ As mentioned in numerous places, the fact that the MOH would need fewer physicians to provide the same number of hours it does today does not mean that this is the optimal number. Physicians in many public facilities are overworked and, because of the lack of equipment or ancillary facilities, are not as productive as they could be.

of physician hours were provided as today, the overall budget for GP services in the KRI would actually fall by about 10 percent; in contrast, the GP services budget would need to rise by 7 percent and 24 percent if salaries had to be raised to \$2,750 or \$3,000, respectively.

This exercise illustrates that:

1. The increase in budgets needed to achieve efficiency is much less than currently thought, since inefficiency is eliminated as the number of GPs employed is reduced.
2. The needed budget increases are very sensitive to the amount of increase in GP salaries.
3. A larger and more formal survey of physician preferences and/or research on benchmarking is needed for precise calculations before final policy development can be accurately made.

We caution that the percentage salary increases (in percentages) from present levels needed to achieve 35 hours of work from GPs are much smaller than those for specialists, such as surgeons, who demanded much higher pay increases than GPs to work 35 hours per week. Today, surgeons are also, on average, working fewer hours than GPs. Thus, a much larger increase in salaries and budgets would be needed to induce surgeons and other specialists to work full time than the increase required for GPs. In other words, a much smaller fraction of the total budget increase to induce surgeons to work 35 hours per week would be offset by employing fewer of them than is the case for GPs.

We also learned from the focus groups that there are not enough examining rooms, hospital beds, or ancillary services to enable physicians, including GPs, to work the required number of hours because the lack of resources varies by facility.

In sum, physicians reported that they would prefer to work exclusively in the public sector if they could receive a higher salary, despite the fact that the higher public-sector salary would still be much lower than the salary they could earn in the private sector. It seems clear that the MOH could meet its manpower needs with fewer physicians, each working longer hours, and end up with a more efficient system. In implementing these changes, policymakers need to coordinate changes in hospital resources, such as beds, ancillary facilities, and other services necessary for physicians to work longer hours.

The data to determine physician need, compensation, and budgetary increases with accuracy by specialty group are not currently available. One way to acquire information on physician need would be to conduct a comprehensive survey across specialty groups to calculate with more accuracy the compensation and budgetary increases that would be needed by each specialty group to achieve the desired policy. As physicians might accept less than they would be likely to ask for to work the full 35-hour workweek, the results should be viewed with caution and increases made in stages to gain real experience as to the effect of salary increases on physician behavior. Because GPs are the largest group, they could be oversampled to get the best idea possible of what level of compensation would elicit how many hours of work in the public sector. The detailed survey should also cover physicians in different specialties. The pay differential between GPs and a specialty could also be looked at and calculated based on pay differentials seen in other countries and/or by looking at measures of the average compensation based on scales, such as the relative value scales used to set physician payment rates in the United States.¹⁶

¹⁶ Berenson et al., 2010.

Requiring a Period of Public-Sector Service Before Private Practice

The focus groups also elicited participants' views on requiring physicians to work a specific period of service in the public sector before private-sector practice was permitted. People were willing to accept this as a policy change and thought that, as a result, physicians would be better trained when they began treating private patients. Even house officers who were more likely to be affected by the new policy than doctors who have already reached consultant status thought that such a requirement was acceptable. However, they did think that there should be a phase-in period to reduce the effects on physicians just entering medical school. It was also clear that the new policy would need to be synchronized with specialty training. Such a policy would give some stability to the system and allow the MOH to better plan to meet needs in the public sector. Because, at present, the number of doctors trained is about the same as the number that retires or stops practicing (Anthony et al., 2014), the overall effect would not be sizable but would be helpful in some of the policy options presented below.

Policy Approaches**Decision Criteria**

Before examining the best policy options open to the KRG, we developed decision criteria against which to judge options in isolation and in combination with other policies. Key criteria should include the degree to which the policy helps achieve the KRG's national health care objectives. These include ensuring that a policy option

- is implementable with ease and feasibility
- minimizes regulatory complexity (i.e., increases feasibility)
- is equitable (e.g., does not promote a two-tiered health care system)
- promotes efficiency
- minimizes public budget outlays
- ensures adequate supply of high-quality physician services in the public sector
- promotes improvements in the quality of care.

We used these criteria as a basis for assessing the policy options described below.

Policy Approaches

Building on the literature and the nature of the KRG health financing systems, we identified four possible, non–mutually exclusive policy approaches for addressing DP-related issues:¹⁷

- Let the market evolve without constraints on DP.
- Impose legal and/or regulatory constraints that limit DP.
- Utilize incentives to direct or lessen the negative aspects of DP.
- Improve quality of care in the public sector.¹⁸

¹⁷ See Anthony et al., 2014, Chapter Four, for a fuller description of these options.

¹⁸ Quality of care is detailed in Chapter Four of this report. Therefore, it is not discussed in detail here.

In our earlier work (Anthony et al., 2014, pp. 44–47), we examined a full range of policy approaches in some detail. Here, we restrict our discussion to the set of feasible alternatives—i.e., those that the KRI could begin to implement within the next year.

As indicated, the first policy approach, “let the market evolve,” would be to do little or nothing and let the private sector emerge in response to market forces. This would mean continuing to pay physicians who engage in DP a salary for their public-sector participation, as is the case today. This essentially maintains the status quo. If such a policy were followed, either by intent or by inertia, it would most certainly lead to a two-tiered health care system. People who could afford to pay for private-sector care would do so, leaving the less fortunate to rely on the public sector. Higher-quality, better-trained physicians who can attract private-sector patients would be likely to spend even more time in the private sector, making the current situation even more inefficient.

The second approach listed would entail legal or regulatory controls on the amount of practice allowed in the private sector. Specific policies could include the following:

- **Require a specified number of years of public service before private practice is allowed.** Such a policy would be easy to administer and regulate. This policy is similar in intent to the current KRI requirement that physicians in training spend one year of service in a primary care setting to be eligible to graduate with a medical degree.

Defining the number of years of required service and the implementation timing in the physician training cycle would take some consideration, as many physicians pursue specialty training after becoming GPs, which takes years longer to complete. Sorting this out would require thoughtful policy directives. Such a policy would ensure that new physicians in the workforce would reach a certain level of competence and experience before they would be allowed in private practice and has a logical justification in that physicians would be paying back to society some of the costs of educating them. To mitigate the effect on physicians presently in training, a phase-in period would be advisable. From both regulatory and cost perspectives, such a policy appears very feasible.¹⁹

- **Require physicians to choose between working only in private or public practice.** Some countries require that physicians choose to work in either the public or the private sector; they are not allowed to work in both, either entirely or only at certain times. Advocates of this approach point to the advantages of establishing a clearly defined system that is relatively easy to administer and implement, as long as the government has the political will to enforce the policy. On the other hand, in the absence of adequate public-sector compensation for physicians, such a policy almost always leads to two-tiered medical care, in which good physicians work in the private sector, offering better care to those who can afford to pay, and/or physicians simply ignore the regulation.
- **Impose constraints based on time, income, or some other factor before private practice is allowed.** Given the KRG’s budget-based funding system, lack of data availability, and inadequate capacity to regulate and enforce policies, policies that rely on reimburse-

¹⁹ Similar obligations are found in other countries; for instance, in the United States, those whose training is paid for by the military, the U.S. Public Health Service (USPHS), and some other federal programs are required to repay their training in kind by spending a certain number of years on military or USPHS active duty or providing medical care in designated underserved areas before they can move to other practice environments.

ment or income strategies for public-sector work are not feasible today.²⁰ However, it would be feasible to require physicians to work a certain number of hours, perform a certain number of procedures, or see a certain number of patients per specified time period in the public sector before private practice is allowed. Such a policy would be relatively easy to administer but would require a system to monitor the amount of time physicians spend in the public health sector each day. There are simple systems, such as sign-in log-books, electronic swipe cards, or biometric monitoring, that are relatively easy to install and utilize. Many are relatively inexpensive, and we believe that they could be installed in the KRI within a year or so.

The third approach would utilize incentives to control and direct DP in ways that are consistent with national health objectives. Options within this approach include paying differentially for the same service provided in a public or private setting or, as has occurred more recently, linking payment to physician performance. Pay-for-performance approaches, which not only reward the quantity of services performed but also incorporate measures of the quality of that service, are becoming more popular. Such approaches are not currently feasible in the KRI because they require data and systems not available in the region. Therefore, this approach is not discussed in the subsequent policy options.

The fourth approach, “Improve quality of care in the public sector,” is discussed in detail in the next chapter.

Phased Implementation of Selected Policy

No matter which policy option is chosen, we recommend phasing in the changes to achieve maximum impact and minimal disruption to care. One reasonable phased approach is presented below.

- Phase I (Year 1): Prepare for Policy Change.
- Phase II (Years 2–4): Introduce Policy Reforms.
- Phase III (Year 5 and ongoing): Revise and Update Policy as Needed.

In all policy options, the first year (Phase I) is spent introducing interest groups, the public, and political leaders to the proposed changes and putting in place the prerequisites necessary to make the reform a success. In the second phase, which would last at least three years, the policy reform would be put into place. After some experience is gained with the outcome and experience of the reform introduced, revisions to the policy would be introduced in a third phase. This would be best based on the results of a formal evaluation of the reform policies introduced. Revision of policies could, of course, occur earlier if called for, but a formal evaluation of DP reform should also be conducted to hone and improve policies introduced.

In the preparatory first phase, in all policy options considered, we would expect the following actions, at a minimum, to be carried out leading up to policy reform.

²⁰ See Anthony et al., 2014, p. 46, for a fuller description of the options in this category not feasible in the KRI.

- *Announce the intention to change policy on DP.* As a first step, the MOH should consider announcing to physicians and the public its intention to change policy related to DP. The MOH should then request input from physicians and other health professionals and stakeholders to ensure that policy changes are well thought out and that buy-in is achieved to the extent possible. This is particularly important for the physician community, which might reject any call for change if it has not been consulted.
- *Implement changes required for successful DP reform.* The procedural changes required will depend on the policies chosen, but they will certainly include the following prerequisites to successful policy reform:
 - *Adopt a system to collect the data needed to implement the approved policy changes (e.g., hours worked per day).* The MOH will need to develop a way to track hours worked per day in all public-sector hospitals and PHCs. This can be achieved through signed time sheets, a punch clock, swipe cards, or biometric login. Once the system is in place, the tracking data can be reported electronically to the MOH on a weekly, biweekly, or monthly basis; the MOH can pass the data on to the MOF, which pays salaries.²¹
 - *Conduct research to inform policymakers about levels of physician compensation by specialty that would be necessary to achieve desired results.* There are a number of ways that this could be achieved. First, a detailed survey would collect information on what wage levels are needed to induce physicians in different specialties to work in the public sector for the range of hours being contemplated. Because physicians might accept less than they are likely to ask for, this would be a first step. Research to benchmark salary levels in the KRI with those found in surrounding and similar countries would also be informative. Finally, as the data from GPs (the largest group of physicians) would likely have the greatest precision, the differential between specialties and GPs could be looked at by benchmarking against other countries and/or looking at the average differential using ways of measuring the value of different services, like relative value scales.²² Increases in rates should take place over time to judge the response of physicians to the rate increases so that raises are not above those necessary to achieve the desired manpower levels. At some point when data systems allow it, a detailed assessment of physician manpower needs by specialty should be conducted to aid future planning and to better match public health needs, as well as the areas' budgets and social objectives. We also note that the MOH may decide to pay relatively less to some specialty groups that are in excess supply and pay relatively more to GPs to incentivize more physicians to become GPs and fewer to become specialists.
 - *Obtain approval of the policy change from the Council of Ministers* and a commitment to make the necessary funding available.
 - *Begin the process to train hospital managers in management and begin the process to give them more authority over hiring, firing, and rewarding physician behavior.*
 - *Upgrade the staffing and regulatory capacity of the MOH* through hiring and training.
- *Require physician licensure.* Implement a system of physician licensure, continuing medical education, and recertification to ensure that a high standard of quality care is maintained and that physician skills meet a certain established quality-of-care standard.

²¹ This policy should be reconsidered in the future, when and if hospital managers are given control over hiring and firing, as well as the level at which they pay their staffs, including physicians.

²² Berenson et al., 2010.

Feasible Policy Options

Restricting ourselves to options that are feasible—i.e., those that are implementable in the KRI in a few years—and drawing on the theoretical literature, our knowledge of the KRI, and the information gleaned from the focus groups, below we describe four specific policy options in detail (summarized in Table 3.2) that we feel represent the reasonable options open to KRG leaders *at this time*. The options combine components of the approaches described above to achieve results that best meet the decision criteria articulated. We also lay out how each option could be implemented.

As there is very little downside to requiring physicians to work a specified number of years in the public sector before being allowed to set up private practice, we include this policy action in all four of the policy options presented. The number of years required to meet the threshold

Table 3.2
Characteristics of Policy Options

Characteristic	Option 1: Let the Market Evolve	Option 2: Link Time Worked to Pay	Option 3: Separate Daytime Practice but Allow Evening Private Practice	Option 4: Separate All Practice
Three to five years of public service is required before work in the private sector is allowed	Yes	Yes	Yes	Yes
Decisionmaker in control	Physician	Physician	MOH ^a	MOH ^a
MOH controls the number of physicians working in the public sector	No	No	Yes ^a	Yes ^a
Physicians who work required hours set by MOH receive bonus during phase-in period	No	Yes	Yes	Yes
Work in private sector allowed after completion of public service	Always allowed	Yes	Yes	No
Locks physicians into public or private service choice for a significant time (e.g., three to five years)	No	No	Yes	Yes
Would require MOH to raise standard workweek (e.g., to 40–50 hours)	No	No	No	Yes
Consultant clinics could continue	Yes	Yes	No	No
Easy to implement and administer	Yes	No	Mostly	Yes
Captures wasted resources in the present system	No	Some	Yes	Yes
Would likely result in two-tiered care	Yes	Yes	No	No

^a Physicians choose whether to work in the public or private sector and are locked in for a number of years. The MOH is the actual decisionmaker because it sets the number of physicians allowed to work in the public sector even if more physicians desire to do so.

is somewhat arbitrary, but it could reasonably be set somewhere between three and five years following completion of postgraduate general medicine or specialty training.

Four options we suggest for KRG consideration are as follows:

- **Option 1: Let the market evolve.** This approach would allow the market to develop as it is today with limited government policy intervention. Government would continue to pay physicians who did not work the required workweek.
- **Option 2: Link time worked to compensation to incentivize physician behavior.** This option introduces incentives to get physicians to choose to work the full required number of hours that the MOH specifies but leaves the decision on whether to work only in the private or public sectors, or to work in the private sector after working in the public sector, to the physician.
- **Option 3: Separate daytime public and private practice but allow evening private practice.** In this option, a physician must choose to work in either the public or the private sector during the day but can choose to have a private practice after a full public-sector workday.
- **Option 4: Separate public and private practice completely.** This option requires a physician to choose to work exclusively in either the public or private sector and locks the public-sector physician into that choice for a set length of time.

For change to be successful, the government will need to monitor and enforce compliance of the option selected, which will entail significant political will. It is also highly likely that the KRG will need to increase physician pay so that individual physicians do not seek ways to get around the requirements imposed or defy them altogether.

Finally, the entire government pension system needs to be reformed. Because this is a governmentwide system, we have not dealt with it here. In Option 1 (let the market evolve), physicians would receive a pension automatically. For the other three options, we recommend that pension amounts be based on years of service.

Option 1: Let the Market Evolve

Policy: This approach would allow the market to develop as it is today without government policy intervention but would also require three to five years of public-sector service after becoming a consultant before private-sector work is permitted. Physicians would continue to be hired by the government and would receive a salary and pension benefits as they do today.

Under this option, the KRG would let the market evolve but would consider a number of regulatory changes to ensure quality and fairness in the marketplace, particularly for the poor. Regulations might include actions to ensure physician quality, set limits on private-sector charges, and ensure access to care for those who cannot afford private-sector care.

In this approach, DP will continue, the system will continue to be inefficient, and two-tiered care will likely continue to develop. This option solves none of the presently existing problems in the KRI but does involve the least amount of political decisionmaking.

Implementation: This is the easiest policy option to implement. It requires little government action, although such policies as a physician licensure system and requiring a certain number of years of public service before private practice is allowed should be put in place to enable the system to work better, ensure a minimum level of quality of care, and develop ways

to effectively meet the health care needs of those who cannot afford private care. This policy would avoid difficult political decisions and continue present trends. (See Table 3.3.)

Option 2: Link Time Worked to Compensation to Incentivize Physician Behavior

Policy: In this option, the KRG will provide higher compensation to physicians who work the full required number of hours set by the MOH, originally as a bonus and then in base pay. This option is designed to make the system more efficient by incentivizing more physicians to work the full current 35-hour workweek (or any other standard the MOH sets) before they engage in private-sector work. This option relies on physicians to respond to the incentives put in place but leaves them in control of how to spend their time and does not lock them into any longer-term arrangement. It does improve efficiency somewhat but not as fully as separate public- and private-sector participation in Options 3 and 4 below does. As in all options, a number of years of public service are required before physicians would be eligible to work in the private sector.

Implementation: To implement Option 2, the MOH will have to determine the standard workweek and then calculate the pay needed to incentivize physicians, by specialty, to work the number of hours desired.²³ This calculation should be informed by a detailed survey of physicians, as well as benchmarking against other countries or regions. After the initial year of preparing for policy change, physicians who work the required standard (e.g., 35 or more hours per week) set by the MOH will receive a bonus, which will increase their take-home pay but not their base pay for the first three years; physicians who do not reach the required level will not receive the bonus, but they would continue to receive their base pay.²⁴

Table 3.3
Plan to Implement Option 1

Year 1	Years 2–4	Years 5+
<ul style="list-style-type: none"> • Announce KRG intention to change DP policy. • Engage the physician community in discussions. This includes talking to the doctors' union, which regulates the private sector now. • Establish regulatory capacity to better oversee system. • Implement a physician licensure system. • Adopt a system to collect the data needed to monitor the system. • Obtain Council of Ministers' policy approval and funding commitments, if any. 	<ul style="list-style-type: none"> • Allow market to evolve and private practice to grow. • Allow private-sector work at the discretion of the physician. • Establish systems to monitor care and ways to ensure that those who cannot afford private care have adequate access to public care. 	<ul style="list-style-type: none"> • Update and revise policy as appropriate.

²³ As indicated, the MOH could conduct a survey to help determine compensation rates for GPs and then use the experiences of other countries or scales, such as relative value scale averages for specialties, to set specialty pay as some multiple of GP compensation. The MOH would also be advised to raise rates in stages to acquire data on the relationship between increases in wages and physician public-sector participation.

²⁴ An alternative to the bonus system would be to set an hourly pay rate by specialty and then pay physicians the number of hours worked multiplied by the hourly rate. Given the structure of the current system and its limited data collection and administrative capabilities, such a system would be very complex to implement and administer. It runs counter to the pres-

A system to track hours worked would have to be established to implement this option and monitor compliance. In this option, the MOH sets the rules, but the physician is the ultimate decisionmaker regarding the amount of work to perform in the public sector (as in the current system). Physicians would still receive base pay and retirement benefits even if they decide to work less than the standard minimum number of public-sector hours set by the MOH in the first three years.

In Year 4, the policy calls for the KRG to pay only physicians who meet the workweek standard. In Year 4, base pay would be raised by the amount necessary to incentivize the number of physicians needed by specialty in the public sector to work the number of hours set (i.e., original base pay plus bonus amounts). Only physicians who met the standard set by the MOH on a monthly basis would be paid. Physicians who did not meet the standard would not receive compensation in the month in question.²⁵ Note that one could also use compensation levels to induce the mix of physician specialties desired. For instance, if there are too few GPs interested in public service, their compensation relative to specialists could be raised.

Although this approach seems rather straightforward and would capture wasted resources so they could be redirected toward the cost of raising physician pay, such a policy would pose some significant administrative and political challenges. Administratively, the MOH would need to decide on the rules for counting hours and make those clear to physicians. For instance, vacation and sick days could and probably should count toward meeting the required hours per week. Other issues, such as how to handle time spent teaching in medical schools, are less clear. With more exemptions would come opportunity for abuse and a more-difficult administrative burden of enforcement.

Of equal or greater concern will be physicians who work a few hours short of the standard. They will likely demand some compensation, and there will be tremendous pressure on the MOH to pay these physicians something. To make the system work efficiently, the MOH will need to resist this pressure, but it may wish to consider a steeply graduated scale to deal with this situation more fairly. With a 35-hour standard workweek, one such scale would be to pay as follows: For less than 26 hours of work per week, pay is zero; for 26 to less than 30 hours of work, pay is 50 percent of base pay; for 30 to less than 33 hours of work, pay is 70 percent of base pay; for 33 to less than 35 hours of work, pay is 85 percent of base pay; and for 35 or more hours, pay is 100 percent of base pay.

The current standard workweek is 35 hours, but it is clear that most physicians who work in the public sector actually work far less than this; thus, the KRG would not need as many physicians employed in the public sector to provide the same total number of hours of public-sector services as it does today. The KRG should set rates in a way to achieve its targeted number of needed physicians by each specialty. Assuming that the workweek standard of 35 hours is not changed, if the new wage rates resulted in more physicians wanting to work in the public sector (i.e., up to the standard) than the target, the MOH could reduce pay levels,

ent civil service system and would not eliminate any of the waste in the present system. For these reasons, it would not be a wise policy choice, and we have not considered it in detail here.

²⁵ A variant of this option would be to have the KRG continue with the bonus system into the future and not raise base pay or stop paying physicians who did not meet the standard. However, this variant would continue the present inefficient system and would continue to waste resources on physicians who do not meet the standard but who would continue to be paid. Put another way, the system would not capture the wasted resources of the physicians who choose not to work the required minimum number of public-sector hours (but still receive full base pay), and those resources would not be available to help support increases in pay for physicians who work the required hours.

which would decrease incentives for physicians to work more hours. Conversely, if not enough physicians were working up to the target, the MOH could raise wage rates to increase incentives for more physicians to work to the standard. In this way, the optimum number of physicians could be reached. The reduction in costs as a result of paying fewer physicians in the public sector could be utilized to partly offset increases in program costs caused by increased compensation for physicians.

As physician need is location- and facility-specific, the MOH would also need to carefully study the number of physicians required by specialty and location to adequately meet service needs in the public sector. This calculation would also go hand in hand with the provision of the additional capital inputs needed, such as examining rooms, to enable physicians to work full time. This would be a significant administrative undertaking. Getting the right number of physicians may require the government to control somewhat where physicians can practice or to offer financial geographic incentives (i.e., an area enhancement in pay) to elicit the behavior desired. In this option, once physicians have worked the required number of hours, they would be free to engage in private-sector work as they see fit.

Overall, this option would give physicians a strong incentive to work the required number of hours in the public system. In this way, the inefficiency of paying physicians for a certain number of hours of service and receiving only a portion of that service would be eliminated by physicians themselves opting in or out of public service. However, that decision made by individual physicians on a monthly basis would severely limit the KRG's ability to plan effectively and would involve significant administrative challenges. An implementation plan for Option 2 is given in Table 3.4.

Table 3.4
Plan to Implement Option 2

Year 1	Years 2–4	Years 5+
<ul style="list-style-type: none"> • Announce KRG intention to change DP policy. • Engage physician community in discussions. This includes talking to the doctors' union, which currently regulates the private sector. • Establish regulatory capacity to oversee the system. • Implement a physician licensure system. • Initiate a physician survey to better determine salary and pension levels needed to support policy change. • Adopt a system to collect the data needed to implement and monitor the system adopted. • Obtain Council of Ministers' policy approval and funding commitments. 	<ul style="list-style-type: none"> • Publicly present details of revised policy changes based on public comments and survey. • Calculate pay increase needed to raise salaries 20 to 30 percent per year to approximate levels determined to elicit the number of physicians needed in the public sector through bonuses given at the end of the year. • Award pay increase as a bonus (not as an increase in base pay) based on previous month's hours worked. The bonus would be paid at the end of month. • Based on a detailed survey and other information, revise or raise bonus amounts to account for specialty. • Allow private-sector work after requirements set by the MOH are met. 	<ul style="list-style-type: none"> • Require physicians to work the number of hours set by the MOH (e.g., 36 or 42 hours a week) to receive compensation, which will now be through base pay. • Update and revise policy as new data and policy instruments become available.

Option 3: Separate Daytime Public and Private Practice but Allow Evening Private Practice

Policy: In this option, a physician chooses to work in either the public sector or the private sector during the day, and those who choose public service will be locked into that choice for a number of years (e.g., three to five years) but can choose to have a private practice after a full public-sector workday. The option includes a policy requiring physicians to work three to five years in the public sector after becoming a consultant before they are permitted to engage in private-sector work. The number of physicians hired in the public sector and the hours they would be required to work would be decided by the MOH. This option makes the MOH the primary decisionmaker and is designed to achieve a clear separation between public and private service. Once their daytime obligation is finished, the physicians would be free to work in private practice in the evening. The decision on the number of physicians by specialty and location, and even specifically who they might be, is in the government's hands. Because the decisionmaker is the MOH, the system allows for greater control, greater ability to plan, and easier administration.

As in Option 2, the MOH will need to calculate the amount of physician services required by specialty to meet its public-sector needs. This number of hours divided by the number of hours determined to be full-time work (e.g., 35 or 42 hours per week) can be used to calculate the number of physicians by type and geographical location needed to fully staff public facilities. Physicians will be given the option of working either in the public or private sectors during the day, up to the number of physicians needed by the MOH to fully staff its needs, but physicians who choose the public sector will be locked into this decision for the number of years determined by the MOH. Physicians who choose the private sector will have a yearly open period of time to change their minds and select the public service option with a three- to five-year lock-in period.

To make this option work, the MOH would need to raise physician compensation in the public sector to the level that research and experience shows would be necessary to motivate the desired number of physicians by specialty to work in the public sector.²⁶ We suggest that physician compensation be raised over a number of years and be paid as a bonus if and only if the required number of hours per week is worked. The exact salary level necessary by specialty to induce a sufficient number of physicians to choose the public sector would need to be derived from research and experience.²⁷

Implementation: This option is straightforward, easy to understand, and relatively easy to administer and implement. After a number of years of receiving bonus increases for working the hours required by the MOH, physicians would be required to commit to working in either the public or private sector, with those who choose the public sector locking themselves into that sector for some significant number of years (e.g., three to five years), while those who choose the private sector will be given a yearly option to elect into the public sector. Some additional special pay or benefits might also be needed to ensure that the desired number of highly skilled physicians is available to the public system.

²⁶ Pay differentials might also be needed to account for the cost of living in different areas to elicit the desired physician participation.

²⁷ As we suggested, a comprehensive study of physician payment needs should be conducted to inform this process. The results of such a survey supplemented by specialty differential experience in other countries and other payment systems can help in setting initial compensation levels. As it is politically easier to raise compensation rates than to lower them, initial rates would best be set on the low side of what research shows is the appropriate range to achieve desired results.

Allowing physicians to work in their clinics after completing their public service obligation does pose some risks. A good deal of political fortitude will be needed to monitor and enforce the system, which, if lacking, could lead to some physicians ignoring the rules and leaving early for their private practices, as they do today. Allowing evening private practice also leaves in place the possibility that physicians will simply refer public-sector patients to their private practices, thereby negating much of the social value of the policy option.

Transition to an optimally efficient system will also require the availability of the facilities and ancillary services that physicians need to do their jobs. Currently, if physicians were immediately required to be in the hospitals 35 hours per week, they would be idle a fair amount of the time because facilities and ancillary services are not available at a level commensurate with the needs of full physician staffing. This lack of needed inputs should be corrected over a number of years but as soon as possible.

Option 4: Separate Public and Private Practice Completely

Policy: Under this option, physicians indicate whether they wish to work in the public sector, and the MOH decides how many physicians it wishes to hire. Physicians hired by the MOH are locked into public service for a set length of time (e.g., three to five years). The option includes a policy requiring physicians to work three to five years in the public sector after becoming a consultant before being permitted to engage in private-sector work. The number of physicians hired in the public sector and the hours they would be required to work would be decided by the MOH.

This option would operate exactly as Option 3 except that the MOH would contract with public-sector physicians and those physicians would not be allowed to work in the private sector. This option has all the upsides of Option 3 with few of its negative aspects. It is the easiest of the reform options to implement and administer and is certainly the clearest and easiest for the public to understand. Because physicians are committed to either the public or private systems, their participation is clear, and monitoring behavior (in public-sector physicians) would be easier. Because physicians are locked into their choice for a significant period, administering the system should be fairly easy and requires few changes from the present civil service rules and procedures. Because the MOH is in charge of hiring and decisionmaking, it can plan effectively and deal with regional imbalances, should they arise. Given that private practice is not allowed in this option for physicians choosing the public sector, the MOH would need to raise the standard workweek to at least 42 hours per week, if not higher, so that physicians would be able to earn the level of compensation they feel is necessary to support their families. If the hours and overall salaries are not raised, the target income that physicians feel they must make would not be achieved, reducing the number of doctors that would choose the public sector and also ultimately increasing the price per hour worked that the MOH would have to pay.

Implementation: The other advantage of Option 4 is that it can be implemented quickly and effectively even if all the additional inputs discussed earlier (e.g., lab services, examining rooms) are not fully in place at the time of implementation. This is because, once the number of physician hours needed by specialty is determined in the survey process, payment rates can be set to induce only the number of physicians to work in the public sector that the infrastructure will support while additional inputs are put in place. Although it might take some time to transition, the number of physicians can be increased by increasing pay levels to motivate more physicians to participate.

However, it would be harder to reduce the number of physicians employed. Most will already be locked into multiyear commitments, which would need to be binding on the part of the government as well as the physician. The downside of this option is that too many high-quality physicians may decide to leave the public sector. This could be addressed by offering additional benefits to certain high-quality specialists to ensure that they do not leave the public sector. These benefits could include prestigious titles, enhanced equipment or special operating theaters, more reserved time for surgical suites, better retirement benefits, and reduced on-call time. (See Table 3.5 for implementation details.)

All of these systems require accurate reporting of data and political will to monitor and enforce the policies selected. The MOH would need a system to inspect the data received on a routine basis and would need to enforce data-collection rules. In the absence of enforcement, the system is not likely to function properly.

Table 3.5
Implementation of Policy Options 3 and 4

Year 1	Years 2–4	Years 5+
<ul style="list-style-type: none"> • Announce KRG intention to change DP policy. • Engage physician community in discussions. This includes talking to the doctors' union, which currently regulates the private sector. • Establish regulatory capacity to oversee system. • Implement a physician licensure system. • Initiate physician survey to better determine appropriate salary and pension levels needed to support policy change. • Adopt a system to collect the data needed to implement and monitor the system adopted. • Obtain Council of Ministers' policy approval and funding commitments. • Have the MOH determine required workweek (e.g., 35 or 40 hours a week). • Implement system to track physician hours worked and number of patients seen. 	<ul style="list-style-type: none"> • Publicly announce details of planned policy changes. • Raise physician pay beginning in Year 2: <ul style="list-style-type: none"> • In Year 2, award pay increase of 20 to 30 percent per year as a bonus for working the required number of hours. • At the end of Year 2, require physicians to choose either public- or private-sector practice for a fixed period of time (e.g., two or three years). <ul style="list-style-type: none"> • Set the workweek standard at 35 hours. • Incorporate bonus amounts into base salary for physicians who choose public service and raise pay by <ul style="list-style-type: none"> • the 20–30 percent noted above • and an additional amount to account for the increase in work to 42 hours a week. • For Option 3, evening private-sector work is allowed. • For Option 4, evening private-sector work is not allowed. • Based on detailed survey and other information: <ul style="list-style-type: none"> • Revise or raise bonus amounts to account for specialty, value added, and patients seen for Year 3 base pay amounts. • When data systems allow, adjust system to account for performance. 	<ul style="list-style-type: none"> • Update and revise policy as new data and policy instruments become available.

Other Issues

Changes that are being explored for reforming the health financing system could have a dramatic effect and could provide new opportunities for managing the DP issue. If the KRG were to move to a social insurance system, rewarding providers for both the efficiency and the quality of the services they provide would become possible. In any social insurance system, payments are usually made to hospitals on a bundled payment basis, such as diagnosis-related groups, to encourage efficiency. These payments may or may not include a physician component. Paying public- and private-sector hospitals similar amounts per procedure would stimulate competition between the public and private sectors.

The KRI is examining the following areas for reform: hospital management processes, hospital manager selection processes, the amount of authority and flexibility that public hospital managers have over budgets, and accountability. Hospital managers in most countries with well-functioning health care systems have the ability and latitude to introduce incentives that reward work and productivity, as well as the authority to make decisions affecting personnel and management. This could be achieved in a variety of ways, but perhaps the simplest in the current system in the KRI would be to transition to giving hospitals a global budget (i.e., a fixed yearly allowance) that they can use as they see fit—e.g., for salaries and equipment. A minimum level of quality would need to be enforced and guaranteed in public hospitals through regulation and licensing. The MOH is already investigating the implementation of a hospital licensure system based on international standards.

Conclusions and Recommendations

Taking into consideration all the information gathered, we believe that Option 4 is the best choice at this time for the KRI. Table 3.6 assesses the four options across a set of decision criteria.

Option 2 (which ties compensation to time worked and scales back payment to physicians who do not work the required number of hours) and Options 3 and 4 (which require physicians to choose between work in the public or private sectors) will improve the efficiency of the current system in the KRI; Options 3 and 4 are far more efficient than Option 2. Without special programs, no option is particularly good at retaining quality physicians in the public system, but we expect that the higher take-home pay that would result from higher pay rates and a longer standard number of hours worked, supplemented by the needed additional hospital inputs to allow longer hours to be worked, would result in significantly greater numbers of high-quality physicians choosing to work in the public sector than otherwise would be the case.

Options 3 and 4 (separation of public and private practice with and without evening private practice allowed) are transparent and relatively easy to implement, administer, and regulate. Option 4, which calls for full separation without allowing for private practice, is the most transparent and the easiest to enforce and monitor. Option 4 also eliminates the danger that public-sector physicians will refer patients to their private practices, which exists in Option 3. Given these factors, we believe that Option 4, which implements a full separation between the public and private sectors and locks physicians into their choice for a number of years without allowing for private practice after public sector, best meets the decision criteria laid out (see Table 3.6).

Table 3.6
Decision Criteria Applied to Options

Evaluation Factor	Option 1: Let the Market Evolve	Option 2: Link Time Worked to Compensation to Incentivize Physician Behavior	Option 3: Separate Daytime Public and Private Practice but Allow Evening Private Practice	Option 4: Separate Public and Private Practice Completely
Eases administrative implementation	Green	Orange	Green	Green
Minimizes regulatory complexity	Green	Orange	Orange	Green
Promotes efficiency	Red	Orange	Green	Green
Minimizes public budget outlays	Red	Green	Green	Green
Retains quality physicians	Red	Red	Orange	Orange
Promotes quality	Red	Red	Orange	Orange
Lowers investment expenditures	Green	Green	Orange	Orange
Promotes equal access to quality care	Red	Orange	Orange	Green

NOTES: Red = no, orange = neutral, green = yes.

As we have noted numerous times in this report, simply requiring or asking doctors to work longer hours will not solve the problem. The government either must be sure that the inputs (beds, lab services, etc.) necessary for physicians to do their jobs are present before the policy is implemented or must begin a program to ensure that the inputs will be ready when physicians are required to work longer hours. If a workweek requirement is set higher than the available inputs will support, physicians will end up sitting around for those extra hours, wasting resources. If the workweek requirement is set where present inputs allow for physicians to work fully—e.g., 20 hours—patterns of practice will be put into place that will be harder and more expensive to alter in the future, when the inputs necessary to support longer hours become available.

In summary, we believe that Option 4 (full separation of public and private practice for physicians) offers the KRI the best policy choice at this time. It eliminates waste, is fairly easy to implement, and is flexible and adaptable to changing needs over time. We caution that any plan should be phased in and will require additional government resources to fund purchase of inputs and higher physician pay. In addition, a willingness to enforce compliance will be essential over time if the policy reform is to succeed.

Political uncertainty in Iraq partly created by ISIS and budget constraints in the KRI complicate implementation. However, budgetary needs for the first year to fund a detailed survey, establish data systems, and put in place a system to track time in place are small. Therefore, we believe that reform should start as soon as possible and the timetable adjusted as needed to accommodate the evolving budgetary and political situation.

Creating a Sustainable Quality Infrastructure for the Kurdish Region—Iraq

The MOH and the MOP of the KRG have committed to improving and modernizing the KRG health care system. Their ultimate goal is to deliver better health care to the people of the KRI and to move its health care in the direction of a world-recognized health care delivery system.

Other parts of this report highlight progress to date in developing the infrastructure needed to achieve such a goal. It is clear that KRG leaders have the required motivation and passion. In terms of financing, the KRG will also need a financing design that aligns authority and responsibility for care delivery and rewards initiatives and efforts that achieve quality goals.

During Phase II of its support to the MOH and MOP of the KRG (Anthony et al., 2014), RAND collaborated with KRG health care leaders to realize the KRG's vision for people seeking care in Kurdistan. Initiatives focused on creating a health financing strategy and road map; laying out policies to deal with the issue of physicians who work in both the public and private sectors; developing an approach to address the issue of quality and patient safety; and addressing primary care issues, including developing an MIS and a set of services to be provided at each type of health center. Quality and patient safety were previously identified as a priority for training, capacity-building, and implementation of new and sustainable quality strategies.

During Phase III of its support to the MOH on hospital management, RAND provided training and support to advance the quality and patient safety agenda. This training was envisioned to be a starting point for building a quality infrastructure throughout the KRI. We envision that program trainees, armed with the appropriate skills and motivation, can begin to provide a workable and sustainable strategy to further the quality agenda, share successes, and train teams of members from other facilities to achieve quality health care advancement throughout the KRI.

We concluded that an initial didactic educational program with clinical quality leaders in the KRI was an appropriate initial place to start, given limited time and resources. For the reason stated above, we envisioned that with support from the RAND team, the initial participants would create enthusiasm for expansion in their institutions that could then serve as the basis for migration to other facilities. As noted below, we selected a facility that took a similar approach in Istanbul, Turkey, because this facility would demonstrate that the recommendations made on how to improve quality were both practical and doable. This education intervention is intended to be the first of many interventions undertaken by the Regional Quality and Patient Safety Institute discussed below.

RAND explored a number of different approaches to quality assessment and improvement to use as a framework for our training program. We considered the following dimensions when selecting the approach:

- comprehensiveness with respect to the breadth of health care activities in Kurdistan
- the general acceptability of the approach in other settings where it was applied
- the use of a similar approach in nearby countries and by respected facilities in those countries
- the availability of expertise to train and mentor Kurdistan colleagues on aspects of the approach
- evidence that the approach was achievable, sustainable, and achieved measurable results.

RAND selected the approach to quality used by Joint Commission International (JCI) to serve as the basis for training. RAND recognized that the JCI framework had been implemented in a number of quality health care facilities in nearby countries (e.g., Turkey, the United Arab Emirates, Qatar). Further, respected consultants with Middle East experience were working with or had worked with JCI. JCI standards are recognized worldwide as a standard for hospital and health system quality. Importantly, it would be possible to use JCI standards as a framework for teaching quality and planning a stepwise approach that had the potential to ultimately lead to JCI accreditation.

RAND was sensitive to issues and challenges faced by the KRG health care system. Kurdistan has many talented and dedicated people and a very long history of excellence in education and health care. Devastated by the prolonged political Iraqi conflict over the previous decade, the KRI's advancement has been arrested, and facilities have decayed from neglect. Professionals were unable to advance their knowledge and careers but retained a strong passion for delivering world-class health care. It was important, therefore, to select a system that could be modified in a way that provided stepwise progress toward meeting (or exceeding) all international standards, rewarding participants for incremental success in what would become a continual pursuit of excellence in health care. Adopting the JCI framework for quality carried the potential for individual facilities to achieve internationally recognized accreditation as an affirmation of their quality commitment without establishing the expectation that all facilities would meet those standards within a very short time frame. That is, stepwise progression toward meeting all standards should be rewarded and those undertaking that effort must not be considered to have failed by not immediately meeting all standards.

The Initial Hospital Quality and Patient Safety Education Program

The goal of this initial quality endeavor was to create enthusiasm for advancing quality of care in Kurdish hospitals and to identify a group of quality leaders with the skills and demeanor necessary to propagate the quality agenda. It was important to identify individuals with sufficient authority and respect within their organizations such that there would be local traction for programs developed and deployed.

A delegation of eight senior leaders selected by the MOH, representing public hospitals from throughout the KRI, participated in a 3.5-day customized educational program in Istanbul, Turkey, on February 23–27, 2014. This interactive and experiential education program

was organized and presented by RAND consultants in collaboration with Acibadem Hospitals Group, a private hospital system based in Turkey that had successfully implemented JCI standards. The Kurdish participants in this program included individuals from all regions of the KRI who were public hospital directors (five) and key MOH employees overseeing standards in clinical care (three). The group recognized that the KRG's vision for improving quality of care by 2020¹ addresses patient-centered services and patient safety. The vision statement was described as follows: "by 2020, an efficient health system that provides high-quality essential services to everyone to prevent, treat, and manage physical and mental illnesses and injuries." The vision statement provided a backdrop for the quality program initiative.

The RAND consultants who conducted the education program included Anne Rooney, R.N., M.S., M.P.H.; Laura Botwinick, M.S.; and Lee Hilborne, M.D., M.P.H. All three consultant faculty members have extensive experience in quality, patient safety, and JCI accreditation standards, and they designed this customized education to meet the specific needs of the participants.

The education program was held at Acibadem's flagship five-year-old hospital, Acibadem Maslak, a full-service hospital that has twice been accredited by JCI. Acibadem was selected as a host training site because of its established reputation for quality in the region and its interest in knowledge-sharing with others about its own quality and patient safety journey. The Acibadem staff also spoke both Arabic and English and had overcome quality hurdles not too dissimilar from those that exist in the KRI today.

The education program included didactic presentations with slides, videos, case studies, small-group problem-solving exercises, larger group discussions, and JCI tracer evaluation demonstrations conducted by a RAND consultant in a variety of patient care units within the hospital. Management staff from the Acibadem Hospitals Group also shared the "quality journey" of Acibadem, as well as information about the current environment for health care quality and patient safety initiatives in Turkey. Each participant received a copy of a workbook that included all of the presentations and a copy of the newly published *Joint Commission International Accreditation Standards for Hospitals, 5th Edition* (JCI, 2015), which became effective for accreditation surveys on April 1, 2014. The participants also received case examples of such tools as pain assessment forms, patient safety posters, medication management resources, and hand hygiene resources, both in hard and soft copies. The detailed agenda describing the education program is shared in Appendix D.

Participants were very engaged, interested in the material, and eager to translate their new knowledge into actual practice in Kurdish public hospitals. Priorities, challenges, and opportunities identified by quality leader participants are included in Appendix E. They established a focused vision for the quality improvement agenda: "Improved health care through adoption of international best practices for quality and safety." The group thought that the reference to "international best practices" would help to build support for the vision statement.

On the last day of the education program, the content focused on change management and how the participants could begin to pilot specific quality and safety interventions, such as hand hygiene, in KRI public hospitals. The presentation began with a quote from the Kurdish health leaders themselves, made earlier in the training session: "Change begins with just one step. We must begin."

¹ Kurdistan Regional Government, Ministry of Planning, *Kurdistan Region—Iraq 2020: A Vision for the Future*, September 2013.

Using an established methodology for change management, the group established a Proposed Pilot Quality and Patient Safety Improvement Agenda for their hospitals over the next six months. By group consensus, the participants identified their Top Five Quality and Safety Priorities, representing target interventions that they deemed feasible to implement in their respective hospitals almost immediately (see Figure 4.1):

- infection control (hand hygiene)
- identification of patients
- emergency cart standardization
- safe surgery protocols
- completeness and standardization of medical record.

To achieve the agreed-upon goals, quality leaders were unanimous that there needed to be a region-wide commitment to change. Engagement must include the Ministries of Health, Education, Planning, and Finance, along with community leaders (e.g., religious leaders, political leaders) and the media, to recognize the quality efforts by leading centers. The entire spectrum of the health care community, including clinical leaders, junior doctors, ancillary health care personnel, and medical and nursing associations, must also support the initiative. Course instructors stressed and the group agreed that the changes must be institutionalized—i.e., “woven into the fabric” of the organization—by looking at policies, guidelines, structures, rewards, incentives, training, equipment, and supplies (e.g., hand hygiene stations).

Monitoring progress is essential to success in achieving any specific goal. The group agreed to develop and collect baseline data measuring quality status at the start of any improvement effort, and then demonstrate improvement over time through objective measurement.

Progress on Implementation of Improvement Priorities

Since the February 2014 Quality and Patient Safety Education Program, the Kurdish region has been challenged with pressing health issues related to the war in Syria and ISIS invasion of Iraq that have resulted in an influx of over a million refugees and IDPs, as well as shortages of essential medications and supplies at some of the hospitals and many PHCs. Despite these real challenges, we are aware of some significant quality and safety improvements that have been implemented in at least one of the participating hospitals, West Erbil Emergency Hospital.²

The hospital director, Dr. Lawand Hamid Meran, reported that despite the difficulties faced by his and other hospitals in the region in the past year (2014), he and his hospital team focused on

- implementing a system for correct **patient identification**
- implementing available equipment, supplies, and processes for **hand hygiene**
- demonstrating **infection control** improvement
- fostering **improved communication** between doctors, staff, and patients

² We are not aware of the progress in other hospitals at this time, but we believe that other facilities have also made significant improvements in the quality of care.

- instituting **monitoring systems** for the improvements above through use of trained observers.

Examples of a few of the quality of care improvement activities at West Erbil Emergency Hospital are seen in Figure 4.1, including hand sanitation gel, a container for infection control, disposable booties, and new patient identification bracelets. Other activities have included time logs and unannounced inspections.

Creating Momentum for the Future

The knowledge and dedication of the participants at the training session were extraordinary. Equally impressive are improvements implemented by West Erbil Emergency Hospital and likely by others following the session. These changes confirm that a new, higher-functioning and higher-quality health care system in Kurdistan is, in fact, possible at a very reasonable cost. Therefore, RAND recommends that the MOH build further capacity in quality improvement and patient safety throughout the public health sector in the Kurdish region. RAND also recognizes that political conflict since the training has impeded the ability of very dedicated

Figure 4.1
Quality of Care Improvements at West Erbil Emergency Hospital

Hand hygiene gel on desk of hospital director

Sharps container for infection control

Disposable booties worn when entering patient room

New patient identification armband

SOURCE: Ross Anthony, October 2014.

RAND RR1658-4.1

individuals to achieve the successes that are clearly possible. It will be necessary to help initial participating institutions reengage to the extent necessary while simultaneously working to expand participation throughout the KRI.

One approach to such capacity-building is the development of a Regional Quality and Patient Safety Institute based in Erbil that would use a train-the-trainer methodology. Hospital directors at the West Erbil Emergency Hospital, who have already demonstrated a commitment to leading these quality and safety improvements, could serve as co-faculty for future training, ultimately transitioning most if not all training to institute staff. The institute's initial curriculum could be adapted as needed from the successful Hospital Quality and Patient Safety Education Program provided to the small group of hospital leaders in Istanbul in February 2014. Over time, the institute would become a resource and library for training materials, international best practices, and research findings related to high impact quality and patient safety strategies. Plans and methodology for the Regional Quality and Patient Safety Institute could be developed immediately and implemented within a year.

Conclusions

In this report, we have presented the methods, analyses, findings, and recommendations from our work in three areas of KRG's health sector: primary care MIS, physician DP, and the quality of care in hospitals. The KRG Minister of Health and Minister of Planning identified these as important for KRG health reform. We summarize our key findings and recommendations for each area in the sections that follow.

Primary Care MIS

Primary care is the backbone of a well-functioning health system in any country. The primary care system itself must function well: It must have the facilities, qualified staff, and equipment needed to provide a core set of health services to the entire population within a reasonable distance or amount of time from their homes. Health center operations should be efficient, and a referral system must be in place to ensure that patients receive additional diagnostic or treatment services that are not available in the primary care system; a mechanism must also be in place for sending information from such referral services back to the patient's own primary care center ("medical home"). Management of the primary care system requires a dynamic understanding of the location, staffing, equipment, services, and operations at all PHCs. The MIS is intended to provide such information. We demonstrated the feasibility and utility of the MIS by capturing robust data from more than 600 PHCs and presenting data summaries in table, graph, and map form. We identified a number of problems and suggested management approaches to address them. For example, some centers serve too many people, and others serve too few; the distribution of medical professionals is uneven (physicians, nurses, dentists, and pharmacists); most main and branch centers do not provide a full package of core services; some centers lack key equipment, and the equipment at some centers is not functional; and there is no referral system in place to ensure continuity of care. We recommend that the MIS be fully institutionalized, including development of online access for data entry and retrieval of data analyses and robust orientation for all users and managers.

Physician DP

We examined the problem that DP presents to health care reform in the KRI and the inefficiencies that result. We presented the results of a series of focus groups we conducted on DP and then laid out four options available to the MOH to reform the system in the near future

with the resources and managerial capacity available today or attainable in the next few years. We evaluated these options and recommended that the MOH consider a reform policy that would gradually raise physician compensation rates to a level that could be expected to result in sufficient physician manpower to fulfill its social obligations in an efficient way with minimal administrative complexity. The option recommended would have physicians choose, after a phase-in period, to participate in either the public or private sector but not both. Those who choose the public sector would be locked into that choice for some three to five years, while those who choose the private sector would have a yearly opportunity to choose the public sector if the MOH found that it needed additional physician manpower. Working hours would be raised for public-sector physicians to provide them with more pay to reach a salary threshold that they feel would enable them to support their families without private practice. The policy also envisions simultaneously increasing the facility and personnel inputs necessary for physicians to work longer hours, such as more examining room and operating theaters, longer ancillary service hours, and better and longer nursing hours.

Hospital Quality of Care

After evaluating the current status of quality improvement within KRI hospitals, we determined that there was both interest and motivation for improving quality of care delivered to those living within the KRI. It was important to establish a common framework to guide those efforts, and we selected JCI standards because they are well recognized internationally, hospitals with geographic proximity to the KRI had successfully implemented the standards, and the KRI has the ability to evaluate performance and initiate a stepwise approach to achieving the standards, with the ultimate goal of achieving JCI accreditation.

We agreed that an initial educational intervention was the place to start, with additional support and more in-depth initiatives to follow. Initial educational program participants represented clinical quality leaders from each area of the KRI who work in facilities recognized for leadership in their areas. Participation was enthusiastic, and, after initial discussion, the team collectively identified five priority areas: infection control (hand hygiene), patient identification, emergency cart standardization, safe surgery protocols, and completeness and standardization of the medical record. The RAND team agreed to provide ongoing support, guidance, and feedback on these initial efforts. Based on the results, additional quality improvement cycles would follow to modify interventions and extend programs beyond initial facilities.

Although subsequent political challenges in the area precluded full implementation of the guidelines and recommendations from the meeting, some organizations have successfully implemented changes that improve quality and safety of health care. When feasible, it would be worthwhile to reengage these facilities, including new and returning leaders, to reignite the enthusiasm for quality improvement in KRI hospitals.

Example Primary Care MIS Form

Primary Health Care Management Information System (MIS): Kurdistan Region Health Center Staffing, Equipment, and Services

	Data item	Response (FILL IN *ALL* GRAY BOXES) هه‌موو خا‌نه ره‌نگراوه‌کان بڕه‌که‌وه
Report راپۆرت	Health Center Name ناوی بنکە تەندروستی	
	Date report completed بەرپواری راپۆرتکردن	Month: مانگ
	Name of person completing report: ناوی ئەو کەسە فۆرمەکە پرده‌کاته‌وه	Day: رۆژ
	Telephone: تەلەفۆن	Health center ID code کۆدی بنکە تەندروستی
Basic Information about Health Center زانیاری سەرەتای دەرمانی بنکە تەندروستی	Governorate: پارێزگا	
	Dept of Health (DOH) بە‌زێوه‌رایه‌تی	
	District: قه‌را	Sub-District ناحیه
	GPS: Latitude خا‌لی پانی جی پی تی	GPS: Longitude خا‌لی درێژی جی پی تی
	Type of health center جۆری بنکە	Main PHC (MAIN) 1= بنکە سەرەکی Branch/Sub-Center (SUB) 2= بنکە لا‌وه‌کی Family center (FAM) 3= بنکە تەندروستی خێزانی
	Catchment (Population served) ژماره‌ی دان‌شت‌وان کە خ‌زمه‌نگ‌واری و‌ه‌رده‌گرن له‌ نا‌وچه‌که	Average number of patients seen (receiving services of the center) per month in a typical month ئاماره‌ی نەخ‌وش خ‌زمه‌ت‌پ‌و‌ز‌ا‌ری تەندروستی و‌ق‌ر‌ط‌ر‌ئ‌وه‌ له‌ م‌ا‌ن‌ط‌ی‌ل‌دا
	Number of shifts per day (1, 2, or 3) ژماره‌ی شی‌ف‌تی کار‌کردن له‌ رۆژ‌ن‌دا (1,2,3)	If two shifts, PUBLIC clinic (=1), CONSULTATION clinic (=2), or neither (=0)? ن‌ه‌خ‌ش‌تر دوو شی‌ف‌ته‌، ب‌ن‌گ‌ته‌ی ک‌ش‌ش‌یه‌ 1 , ر‌ا‌و‌ی‌ن‌گ‌ا‌ری 2 , جو‌ری ت‌ر 0
Staffing ستافه‌کان	TOTAL number of MEDICAL DOCTORS کۆی گ‌شتی پ‌ر‌ی‌ش‌که‌کان	TOTAL number of NURSES کۆی گ‌شتی پ‌ه‌رس‌ن‌اره‌کان
	# DENTISTS ژماره‌ی پ‌ر‌ی‌ش‌کی د‌دان‌؟	# nurses- top tier training - college (nursing school) ئ‌ی‌ش‌گ‌ت‌و‌ت‌و‌یان ب‌ی‌ن‌ی‌وه‌ - له‌ ک‌و‌لی‌ژ
	# PHARMACISTS ژماره‌ی پ‌ر‌ی‌ش‌کانی د‌ه‌ر‌م‌ا‌ن‌س‌از؟	# nurses - second tier training - institute (diploma) د‌ف‌ر‌جو‌ی ئ‌ی‌م‌ا‌ن‌ط‌ا‌
	# GPs - permanent ژماره‌ی پ‌ر‌ی‌ش‌کانی ر‌ا‌ه‌ن‌ه‌ری گ‌شتی	# nurses - third tier training - prepatory/high school ئ‌م‌ا‌ر‌ه‌ی ئ‌ت‌ر‌س‌ت‌یا‌ری - م‌ئ‌ش‌قی ئ‌له‌ س‌ی - د‌ف‌ر‌جو‌ی ئ‌م‌ا‌ن‌د‌یی ئ‌ت‌ر‌س‌ت‌یا‌ری
	# number of rotating doctors: ژماره‌ی پ‌ر‌ی‌ش‌کانی پ‌له‌به‌ند	# nurses - fourth tier training - trained/informal ب‌ئ‌ش‌ی‌وه‌ی ن‌ا‌ف‌ت‌ر‌م‌ی
	# Ob/gyn doctors and practitioners ژماره‌ی پ‌ر‌ی‌ش‌کی پ‌س‌پ‌و‌ری و پ‌ر‌ی‌ش‌کی ر‌ا‌ه‌ن‌ه‌ری ن‌ا‌ف‌ر‌ه‌تان و له‌دایک ب‌و‌ون‌؟	# TBA (Traditional birth attendant) ژماره‌ی م‌ا‌م‌انی م‌ی‌ل‌لی
	# Family medicine doctors ژماره‌ی پ‌ر‌ی‌ش‌کی پ‌س‌پ‌و‌ری خ‌ێزانی؟	# Midwives ژماره‌ی م‌ا‌م‌انه‌کان؟
	# Internal medicine doctors and practitioners ژماره‌ی پ‌ر‌ی‌ش‌کی پ‌س‌پ‌و‌ری و ر‌ا‌ه‌ن‌ه‌ری ه‌ه‌نا‌و‌ی؟	# Laboratory technicians ژماره‌ی ت‌ه‌ک‌ن‌یک‌ا‌رانی ن‌ا‌ف‌ی‌گ‌ه‌؟
	# Pediatric doctors and practitioners پ‌ر‌ی‌ش‌کی پ‌س‌پ‌و‌ری و ر‌ا‌ه‌ن‌ه‌ری م‌ندا‌لان‌؟	# Medical or prevention assistants ژماره‌ی کار‌م‌ه‌ندانی خ‌و‌پ‌ا‌را‌س‌تن‌؟
	# Radiologists ژماره‌ی پ‌ر‌ی‌ش‌کی پ‌س‌پ‌و‌ری ت‌ی‌ش‌ک و س‌و‌ن‌ه‌ر‌؟	# Pharmacy assistants ژماره‌ی ی‌ا‌ر‌ی‌ده‌ده‌ری د‌ه‌ر‌م‌ا‌ن‌خ‌ا‌یه‌؟
	# Surgeons پ‌ر‌ی‌ش‌کی پ‌س‌پ‌و‌ری ن‌ه‌ش‌ته‌ر‌گ‌ه‌ری؟	# Dental assistants ئ‌م‌ا‌ر‌ه‌ی ی‌ا‌ر‌ی‌ده‌ده‌ری د‌دان‌س‌از
	TOTAL number of STAFF: (پ‌ر‌ی‌ش‌که‌کان، کار‌م‌ه‌ندی خ‌زمه‌نگ‌واری و پ‌ه‌رس‌ت‌ا‌ران ه‌ند (کۆی گ‌شتی کار‌م‌ه‌نده‌کان)	# Service staff (driver, cleaner, etc.) ژماره‌ی کار‌م‌ه‌ندی خ‌زمه‌نگ‌واری؟
		Who is center director? (1=doctor; 2=assistant; 3=other). ک‌ی به‌زێوه‌یه‌ری ب‌ن‌که‌که‌یه‌؟ (1= پ‌ر‌ی‌ش‌که‌ 2= کار‌م‌ه‌ندی خ‌و‌پ‌ا‌را‌س‌تنه‌ 3= ه‌ی ت‌ر)

Primary Health Care Management Information System (MIS): Kurdistan Region Health Center Staffing, Equipment, and Services

		Data item	هه‌مو خانە رەنگکراوەکان بڕیکەرەوه (FILL IN "ALL" GRAY BOXES)		
بۆ وه‌لامی زۆریه‌ی تهم بڕیساریه‌ی خواره‌وه : بۆ نه‌خێر = 0 ، بۆ به‌لێ = 1 For most of the questions below: 0=no, 1=yes					
تایمه‌کان و ئێندوستیه‌کان Equipment and Supplies		ژماره‌ی قهره‌وێله‌کان؟ # beds	Have a functional landline telephone? تایا تله‌فۆنی به‌رده‌ست به‌رجه‌سته‌یه‌؟		
		ژماره‌ی کۆمپیوتەرەکان؟ # Computers	Functioning? تایا کارده‌که‌ن؟		
		How many people at the center use a computer? چه‌ند کەس له‌ بنکە‌که‌دا کۆمپیوتەر به‌کارده‌هێنێت؟ Computer used for statistics? (0=no, 1=yes, 9=not applicable) تایا کۆمپیوتەر به‌رجه‌سته‌یه‌ که‌ بۆ ئامار به‌کار بوونێت؟ (نه‌خێر، 1= به‌لێ، 9= په‌یوه‌ندی به‌ ئێمه‌وه‌ نه‌یه‌ 0=)	Internet access available? ئینتەرنێت به‌رجه‌سته‌یه‌؟		
		Computer used for administrative functions (letter, report, etc.)? تایا کۆمپیوتەر به‌رجه‌سته‌یه‌ که‌ بۆ کارگێری به‌کار (0=no, 1=yes, 9=not applicable) بوونێت؟ (نه‌خێر، 1= به‌لێ، 9= په‌یوه‌ندی به‌ ئێمه‌وه‌ نه‌یه‌ 0=)	Computer used for other purpose? (0=no, 1=yes, 9=not applicable) =تایا کۆمپیوتەر به‌رجه‌سته‌یه‌ که‌ بۆمه‌یه‌ستی تر به‌کار بوونێت؟ (0=نه‌خێر، 1= به‌لێ، 9= په‌یوه‌ندی به‌ ئێمه‌وه‌ نه‌یه‌ 0=)		
		Have a microscope? تایا مایکروسکۆپ به‌رجه‌سته‌یه‌؟	Functioning? تایا کارده‌که‌ت؟		
		Have a centrifuge? تایا سه‌نته‌رفوچ به‌رجه‌سته‌یه‌؟	Functioning? تایا کارده‌که‌ت؟		
		Have an autoclave? تایا ئۆتۆکله‌یف به‌رجه‌سته‌یه‌؟ بۆ پاک‌کردنه‌وه‌ی کۆلوپه‌له‌کان	Functioning? تایا کارده‌که‌ت؟		
		Have ultrasound / sonogram? تایا سۆنەر به‌رجه‌سته‌یه‌؟	Functioning? تایا کارده‌که‌ت؟		
		Have ECG machine? تایا ئامێری هێلکاری دڵ به‌رجه‌سته‌یه‌؟	Functioning? تایا کارده‌که‌ت؟		
		Have X-ray (not dental)? (که‌ بۆ ددانساری به‌کارناهێنێت)	Functioning? تایا کارده‌که‌ت؟		
		Have dental X-ray? تایا نیشکی ددانساری به‌رجه‌سته‌یه‌؟	Functioning? تایا کارده‌که‌ت؟		
		Have dental chair? تایا کورسی ددان به‌رجه‌سته‌یه‌؟	Have ambulance? تایا ئۆتۆمۆبیلی فریاکه‌وتن به‌رجه‌سته‌یه‌؟ (ئهمبیلانس)		
		Have dental "tray" (equipment)? تایا سینی شۆردنی ددان (هه‌رجه‌سته‌یه‌)			
	For all questions below (except for those with specified different codes): 0=no, 1=yes. بۆ وه‌لامی زۆریه‌ی تهم بڕیساریه‌ی خواره‌وه : بۆ نه‌خێر = 0 ، بۆ به‌لێ = 1				
	Referrals		Organized system for referrals OUT from health center? رێکخراو بۆ اجاله‌	Organized referral FEEDBACK system? سیستهمی رێکخراوی فیدبایک؟	
خه‌زمه‌نگه‌زاریه‌کان Services	دهرمان / په‌رساڤ Medical / Nursing	Child growth monitoring چاودێری گه‌شه‌ی منداڵ؟	Antenatal care خه‌زمه‌نگه‌زاری ڤێش و له‌کانی سکیرپون؟		
		Follow-up for children not coming for growth monitoring? تایا به‌دووداجون به‌رده‌وام ده‌گه‌ڕێت بۆ گه‌شه‌ی منداڵ که‌ ناگه‌ڕێته‌وه‌؟	Follow-up for women not coming for antenatal care? تایا به‌دووداجون به‌رده‌وام ده‌گه‌ڕێت بۆ نه‌و ئافه‌ره‌تانه‌ی که‌ سه‌ردانی 'خه‌زمه‌نگه‌زاری ئافه‌ره‌ت' ناکه‌ن؟		
		Vaccination (VAX) کوتاب؟	Maternity (labor & delivery) دایکابه‌تی و منداڵبون		
		Follow-up for children not coming for vaccination? به‌دووداجون به‌رده‌وام ده‌گه‌ڕێت بۆ منداڵ که‌ ناگه‌ڕێته‌وه‌ بۆ کوتاب؟	Family planning پلاندانانی خێزانی		
		ORS - Oral rehydration-packet for home? ORS	Oral rehydration - start treating at center? ORS پێدانی وه‌ک چاره‌سه‌ر له‌ بنکە‌که‌دا؟		
		Hypertension screening دباری کردنی په‌ستانی خۆن؟	Hypertension management/ follow-up? چاره‌سه‌رکردن و به‌دووداجون بۆ په‌ستانی خۆن؟		
		Diabetes screening دباریکردنی شه‌که‌ر؟	Diabetes management / follow up? چاره‌سه‌رکردن و به‌دووداجون نه‌خۆشی شه‌که‌ر؟		
		Mental health screening دباریکردنی نه‌خۆشی ده‌رونی؟	Mental health management/ follow up? چاره‌سه‌رکردن و به‌دووداجون نه‌خۆشی ده‌رونی؟		
		TB treatment (DOTS) چاره‌سه‌رکردنی نه‌خۆشی سیل			
		Health education / promotion هاندان و ڤه‌ترکردنی هه‌ویشاری نه‌ندروستی	Health visitor سه‌ردانکه‌رانی نه‌ندروستی		
	Dental	Any dental services at the center? هه‌یه‌ له‌ بنکە‌که‌تان؟	Dental - simple extractions ددان کێشانی ئاسان		
		Dental - restorations (fillings) ددانساری سه‌ره‌تای (په‌رکردنه‌وه‌)	Dental procedures (dentures) په‌رۆسه‌کانی ددانساری (ناقم)		
	Diagnostic تاقیکاری	Any laboratory service? تایا خه‌زمه‌نگه‌زاری تاقیکه‌ هه‌یه‌؟	Lab - urine WBC تێستی خروکه‌ سپه‌ه‌کانی میز		
		Lab - Hgb/Hct تێستی هیمۆگلوبینی خوین	Lab - urine pregnancy test (میز) تێستی سکیری؟		
		Lab - WBC تێستی خروکه‌ سپه‌ه‌کانی خوین	Lab - urine protein تێستی پروتینی میز		
Lab - ESR تێستی خانه‌تێکشکاوه‌کانی له‌ش-ترسب		Lab - Stool (ova/paras., coliforms) تێستی پیسای			
Lab - blood glucose تێستی گلوکۆزی خۆن؟		Any other tests? تێستی تر نه‌گه‌ر هه‌یه‌یت؟			
Lab - blood smear for malaria - collect? تاقیکاری په‌له‌کانی خۆن بۆ مه‌لاریا؟		Examine blood smear? تێستی په‌ره‌کانی خۆن؟			
Pharmacy دهرمانخانه‌	Basic essential medicines دهرمانه‌ سه‌ره‌تای و سه‌ره‌که‌یه‌کان	More than basic essential medicines دهرمانی تر بێجگه‌ له‌ دهرمانه‌ سه‌ره‌تای و سه‌ره‌که‌یه‌کان؟			

Focus Group Questionnaire on Dual Practice for the Kurdish Region—Iraq

Introduction

Explain to participants that all responses are off the record and will not be attributed to any individual without their prior permission. Also explain that the Minister of Health desires to look at policy around physician “dual practice” (practice where physicians work a few hours in the public hospitals before retiring to their own private clinics) and that RAND is seeking to gather information to provide him with both information and possible policy reform options. Explain who RAND is and how we are working for the KRG.

Questions

1. Background information: Can you all please indicate what your specialty is and what level of physician you are (resident, postdoc, consultant)?
2. Description of the dual practice status quo: How many *hours* do you typically work in public and private practice in a given week? How many patients per week do you see in each setting? How many hours a day do you usually work in the hospital before leaving for your private clinic?
3. Motivation for dual practice: Why do physicians follow the usual practice in the KRI of working only a few hours, if that many, in the public hospitals instead of the 7 they are supposed to provide before heading off to their own clinics? (Explore possible reasons, including compensation; how rounds are scheduled; prestige; lack of facilities and supporting ancillary services; better facilities, e.g., equipment, supplies, or staff; different type of patients; and lack of ancillary services in the public hospitals.)
4. How would you change the present situation: Would you change your current distribution of work across the public and private systems? If so, what would cause you to spend more time in the public or private sectors?
5. Satisfaction with care provided in the public system: How satisfied are you with the resources and quality of care in the public sector?
6. Compensation: Do you feel doctors are paid enough in the public sector? How much of an increase in pay would it take to convince you to work more in the public sector?
7. Hypotheticals on policy options to incentivize provision in the public system: What are the two or three major changes to the public system that would incentivize physicians to increase the care they provide in the public system? If compensation were identical

across the two settings, what would still have to change before physicians viewed both systems as equivalent?

8. Satisfaction with private care: How satisfied are you with the conditions and patients that you see in private practice?
9. Comparison: In general, would you say you prefer providing care in the public system or to private pay patients? Why?
10. Tracking time: What do you think of a policy that would track the hours you work in the public sector per week and pay those who worked longer hours more?
11. What would you think about a policy that made physicians choose to work either in the public or private sectors? Would your choice change if compensation in the public sector were doubled?
12. Do you have any other questions or are there other areas we have not discussed that you would like to explore?

Technical Review of Physician Compensation

General Practitioner Compensation Results

In a number of graphs below, we plot the results of the levels of compensation that GPs stated were needed to work a certain and varying number of hours in the public sector. Salaries are generally expressed in salary levels per month, while time worked is usually discussed in terms of hours per week. For clarity in this appendix and to enable us to discuss numbers in equivalent dimensions, we have given not only hours per week but also hours worked per month in parentheses. So 20 hours per week can also be viewed as 82 hours per month and is presented as 20 (82) below.

In Figure C.1, we illustrate the salary requests at different numbers of hours worked by average GPs (the black line). The sample we interviewed was very small, but the data we collected, supplemented by information from the literature, enabled us to plot this line. There was a

Figure C.1
Salary Requested by Physicians as a Function of the Number of Hours Worked per Week

RAND RR165B-C.1

wide range of opinion, with some GPs demanding substantially more than what is represented by the black line. The black line (OAEF) plots what we heard most often mentioned as the compensation that was thought to be appropriate at different numbers of hours worked per week for an average GP.

Focusing now on the black line, we know from the focus groups and MOH information that GPs today are paid \$1,200 per month and work about 15 hours per week (61 hours per month). This information is plotted as point A in Figure C.1. From the focus groups, we learned that, on average, physicians preferred to work longer hours (e.g., 42 hours per week [approximately 173 hours per month]) for even higher pay of around \$3,000 per month (point F). Point E is the point along the line that gives the amount of pay per month needed to get the average GP to work the full 35-hour week, which is the amount they are currently supposed to work.

We now examine the amount of resources wasted in the present system. In Figure C.1, we graphed only the average GP line. We know that the KRG is currently paying the average GP a monthly base salary of \$1,200 to work 35 hours per week (144 hours per month), which is point B on the graph. However, from the focus groups and other interviews, we learned that GPs are not working the full 35 hours per week but instead are only working about 15 hours per week (61 hours per month), which is represented by point A on the graph, but GPs are still receiving their full pay. The total amount of money paid out on average per month is \$1,200 for 144 hours of work, but less than half the time contracted for is provided. The box ABCD in both figures represents the value that the government pays for GP services per GP that it does not receive—i.e., wasted resources.

We also learned from the focus groups that there are not enough examining rooms, hospital beds, or ancillary services to enable physicians, including GPs, to work the 35 hours they are supposed to work. The lack of resources, coupled with the inadequate number of physician hours worked in the public sector, suggests three important policy observations:

1. To be efficient, the government should calculate the number of hours of physician time needed to staff public facilities properly and then calculate what pay will be required to induce that amount of labor to be supplied. In short, policymakers should pay only the amount necessary to motivate the provision of time required for running the hospitals at full capacity.
2. The number of hours worked by physicians must be implemented in conjunction with investments in hospital beds, equipment, examining rooms, and ancillary services necessary to enable doctors to work longer hours if the policy is to succeed.
3. If policies are properly implemented (i.e., physician pay is raised and physicians are required to choose between the public and private sectors), then the number of physicians required to fully staff public hospitals would fall, and some of the funds now being paid for work not performed (i.e., the wasted resources [box ABCD]) could be used to partly offset increases in physician pay. In short, some of the wasted funds could be more efficiently used to fund real physician work. Also note that because there will be fewer doctors working, that investment will end up being less than some may anticipate.

Figure C.2 represents the situation in which the government decides that it will pay GPs an amount needed, on average, to get them to work a 35-hour week (i.e., point E on the graph). There would be an increase in pay for physician services, but the government would

Figure C.2
Salary Requested by Physicians as a Function of the Number of Hours Worked per Week, with Added Indicators for Productive Work

RAND RR1658-C.2

need fewer physicians than it presently does to fully staff public hospitals. The average pay for GPs who stay in the public sector would increase from about \$1,200 to \$2,400 per month, but resources would now be allocated efficiently. Where the red-hatched box ABCD represented wasted resources before, it is now part of the increase in pay that will purchase productive work. The red triangle ABE represents the increase in pay needed to get GPs to work 35 hours per week that will not be coming out of wasted resources. Such an approach can be used to examine any combination of base salary payments to the amount of work that elicits from GPs or any other specialty.

Hospital Quality and Patient Safety Education Program Agenda, February 23–27, 2014

Day 1: Sunday, February 23, 2014

Overview of the state of global quality and patient safety initiatives; introduction to JCI accreditation standards and processes

0900–0945 (Anne Rooney and Laura Botwinick):

- Introduce host hospital leaders, Kurdish participants, and faculty.
- Review agenda.
- Share individual goals and objectives for the training.
- Review process and protocol for training program and discussion.

0945–1030:

- **Overview of the global quality and patient safety movement: What have we learned in the past two decades?** (Lee Hilborne)
- Key lessons of *To Err Is Human* and *Crossing the Quality Chasm* (Institute of Medicine, 2000 and 2001)
- What are the most important characteristics of a quality health care organization (e.g., focus on patient-centeredness, leadership engagement, physician engagement, teamwork, communication, culture, standards, standardized clinical and management processes)?
- Discussion questions:
 - What are the key strategic priorities for improving quality and safety in Kurdish hospitals and health care delivery settings?
 - How would you describe the current state of quality and safety in Kurdish hospitals?

1100–1200:

- **Introduction to accreditation as a framework for quality and safety** (Anne Rooney and Laura Botwinick)
 - Brief history of accreditation from origins with American College of Surgeons to a global movement, including working definition and key principles
 - Role of accreditation as a tool in building a national agenda for quality; how accreditation is relied upon as a credible and objective external evaluation
 - Interface of accreditation with external stakeholders, such as government, employers, the public, insurers, etc.

- Introduction to JCI accreditation: brief history, current state of accreditation world-wide, and overview of how standards are organized, survey process, tracer methodology, and ongoing measurement
- Discussion questions:
 - What role does government oversight play in ensuring quality and safety in Kurdish hospitals?
 - How are standards or licensing regulations used to standardize or improve care? How do you think that these standards can best be improved?

1245–1515:

- **Overview of JCI hospital accreditation standards (patient care functions)** (Anne Rooney)
- Discussion questions:
 - What are the key challenges in Kurdish public hospitals related to clinical care processes and functions (e.g., emergency care, patient assessment, medication management)?
 - How could the JCI standards framework help to address these challenges?

1545–1600:

- **Wrap-Up, Day 1:** Group will do a +/- exercise on flip chart (what went well and what would the participants change for following days)
- Question and answer session

Day 2: Monday, February 24, 2014

Continuation of JCI accreditation, organizational standards overview, Maslak Hospital's quality journey, model for improvement, and root cause analysis (RCA)

0900–0945:

- **Overview of JCI hospital accreditation standards (organizational functions)** (Anne Rooney)
- Discussion questions:
 - What are the key challenges in Kurdish public hospitals related to clinical care processes and functions (e.g., emergency care, patient assessment, medication management)?
 - How is the performance of these processes and functions measured and evaluated?
 - How could the JCI standards framework help to address these challenges?

0945–1045:

- **Key concepts and global strategies in patient safety**
 - Overview of global patient safety concepts and strategies (Laura Botwinick)
 - Introduction to JCI's International Patient Safety Goals (Anne Rooney)
- Discussion questions:
 - What are the major patient safety problems in Kurdish public hospitals?

- How do you track patient safety problems and overall hospital performance in this area?
- What are examples of patient safety strategies currently underway and/or being contemplated in Kurdish public hospitals?

1100–1230:

- **Presentation from Acibadem Hospitals leaders**
 - Journey to implement standards and quality management strategies, including practical strategies for engaging physicians and staff, project planning, and management (Acibadem faculty)
- **Questions for Acibadem panel:**
 - How was the decision made to pursue JCI accreditation? Why JCI?
 - How did the process get started? Who led it?
 - What was the role of senior leadership in the accreditation journey?
 - How were physicians engaged in implementing standards and improving care?
 - How was the project managed?
 - Did Acibadem track key indicators (e.g., infection rates, medication errors) at baseline or start of project and then compare at the time of the accreditation survey?
 - What was the overall financial cost (approximate) to meet the standards and achieve accreditation? Did improved outcomes offset the overall costs of achieving accreditation?
 - What were some of the challenges, and how did the hospital overcome them?
 - Which standards did the hospital find it most difficult to meet?
 - How were teams and staff engaged?
 - Has accreditation made a difference in terms of public perception or from a business perspective?
 - How does the hospital maintain adherence to the standards on an *ongoing basis*, not just at the time of the accreditation survey?
- **Group discussion** (moderated by Laura Botwinick)

1315–1400:

- **Introduction to a Model for Improvement** (Laura Botwinick)
 - Describe Institute for Healthcare Improvement approach (and others as appropriate)
 - Apply the model to an example quality problem to represent how to use in practice

1400–1430:

- **Introduction to tracer evaluation methodology** (Anne Rooney)
 - How used in accreditation survey, sampling, etc.
 - How it can be used as an internal quality management strategy
 - Walk through an example, engaging group to ask questions

1445–1545:

- **Introduction to RCA** (Anne Rooney and Laura Botwinick)
 - Overview of the RCA approach, the 5 Whys, etc.
 - Demonstrate an example of how and when it could be used

- **Small-group exercise** (two groups) to engage participants in doing a simulated RCA in response to a hypothetical sentinel event

1545–1600:

- **Wrap-Up, Day 2:** Group will do a +/-delta exercise on flip chart (what went well, what would the participants change for following days, how well did we meet goals)
- Question and answer session (Anne and Laura)

Day 3: Wednesday, February 26, 2014

Focus on demonstrations of tracer methodology in Maslak Hospital plus Failure Mode and Effects Analysis (FMEA) and presentation on Turkish National Quality Strategy and Agenda

0900–0915:

- Gather in conference room to review agenda for the day and protocol and expectations for touring hospital and tracer exercises

0915–1230:

Hospital tracer demonstrations (on-site in patient care areas)

- Note: Will do as two groups, with Anne Rooney leading delegation, one leader from Maslak will accompany. The other group will participate in small group exercise on RCA mapping.
- Visit representative (e.g., maternal/child, emergency department, surgery, lab, med-surg, outpatient services) patient care and diagnostic areas throughout the hospital (about 45 minutes per tracer) to demonstrate tracer methodology (Anne will take lead)

1315–1400:

Problem-solving session with Maslak Hospital: An FMEA Exercise

- A team from Acibadem Maslak Hospital will demonstrate for the group an **FMEA exercise** as part of overall quality and risk management approach used at the hospital (Laura Botwinick will facilitate discussion after exercise)

1415–1530:

Presentation on Turkey's National Quality Strategy and Agenda

- Presentation on current quality initiatives in Turkey (by Dr. Hasan Kus, President of the Turkish Society for Quality in Health Care and Acibadem leader)
 - What role does accreditation play as part of this national quality agenda?

1530–1600:

- **Wrap-Up, Day 3:** Group will do a +/-delta exercise on flip chart (what went well, what would the participants change for following days)
- Discussion of lessons learned from tracer exercise
- Question and answer session (Anne and Laura)

Day 4: Thursday, February 27, 2014

Strategic planning for implementing a quality and accreditation system in Kurdish public hospitals

0900–1015:

- Discussion and planning on lessons learned and practical strategies for implementing quality improvement, patient safety, and accreditation strategies in Kurdistan
- Discussion questions:
 - What does the group see as the greatest benefits that *could* be achieved from implementing the JCI Accreditation Standards and Patient Safety Goals?
 - What do you envision as the greatest challenges?
- Discussion of change management philosophy and application to quality and accreditation initiatives in Kurdish public hospitals
 - How can the initiative be designed and managed for the greatest likelihood of success?

1030–1200:

Project planning for quality implementation in Kurdish public hospitals

- **Group discussion and exercise: Design a high-level project plan for implementing standards at a national level**
 - Where to start? Baseline assessment and gap analysis
 - Project organization, responsibilities and accountabilities, teams, overall management, time frames
 - Financial considerations
 - Training needs
 - Policy and procedure development
 - What resources will be needed, such as improvements in the hospital environment, equipment needs, etc.
 - Identify two or three patient safety goals that could be implemented in your hospital in the next three months.
 - Leave with a project plan, time frames, and specific strategies.
 - What are you going to do tomorrow?
- **Wrap-up and evaluation of the training program (+/delta)**

Priorities, Challenges, and Opportunities Identified by Quality Leaders

The group identified the following strategic improvement priorities, which were used as a reference throughout the training:

- Improved referral system
- Access to care
- More focus on prevention/public health
- Need for evidence-based practices
- Need for standardization
- Design of the building and infrastructure
- Reporting system for key indicators (health information system): need data, current system is “sporadic,” and safety domain is priority
- Skill development for hospital/health systems administrators
- Improve nursing care and nurse competency
- Improve physician care
- Increase hospital capacity (reduce overcrowding)
- Better reporting and statistics (currently sporadic with no follow-up)
- Continuing medical education
- Improved patient communications

After discussing JCI standards, the group identified the following issues and challenges in the current environment, based on the standard review:

- Hospital policies and procedures
- Develop comprehensive written policies, procedures, protocols, tools.
- Limit family visits—or at least engage them in discussions about infection control.
- Human resources
- The whole hospital leadership team needs to be qualified. In Kurdish public hospitals, many people who are in leadership positions lack necessary competencies and interest.
- Need to change the attitude of clinical staff—e.g., patient assessment (spend more time with patient, report what they observe, continuity of care)
- Improve clarity of written communication (handwriting).
- Nurses often cannot read the care plan and must verbally communicate with the doctor to understand expectations.

- Improve staffing (e.g., maternity hospital sometimes has only two nurses for 50 patients, yet the leaders do not have the ability to locally recruit and hire more nurses).
- Need more paramedical or auxiliary staff to help the nurses assist the patients.
- Develop trained ambulance teams.
- With respect to nurse staffing, a challenge was identified with respect to local control of staffing and budgeting.
- There is no standardized process for professional staff to demonstrate their competence in caring for patients as a requirement for working at the hospital, both initially and on an ongoing basis.
- Regarding physician credentialing and primary source verification of education and training, the MOH keeps a record of the degrees, and the Ministry of Higher Education conducts the primary source verification. However, standardization of this process is an opportunity for improvement.
- Regarding physician privileging for procedures based on demonstrated competence, there is a standardized process for granting privileges for certain procedures. However, privileging for sub-specialty practice is an opportunity for improvement.
- There is no defined process for giving performance feedback to physicians.
- Patient rights
- Patient consent is used sporadically, not uniform across hospitals
- Informed consent for nonsurgical invasive procedures or blood administration
- Pain assessment (need process and tools) is generally not present in Kurdish public hospitals.
- Patient rights (e.g., C-sections: Do women have a right to request an elective C-section, even if not medically indicated?)
- Processes of care
- Transfers are a problem.
- Clear and documented care planning
- There was discussion on the importance of patient and family education and in involving patients as partners in their care. This was identified as a priority for improvement.
- There is a need to have a policy around patient record management. There was general consensus that this is a major opportunity for improvement—to standardize the content and completeness of the patient record.
- Medication safety
- “Crash” (emergency) carts are mostly nonexistent and/or not standardized.
- Discussion of the process related to the Selection and Procurement section of the Medication Management and Use chapter of the JCI standards: There was unanimous agreement that it should be revisited, updated, and standardized.
- There is a process for medication recall, as medication oversight is regulated by law and is followed. Hospital pharmacists review this, and they know where to find recalled medication in the hospital.
- There is no systematic process for reporting, analysis, or feedback on any adverse drug event.
- In hospitals where there is a clinical pharmacist who “rounds” with the physicians, this practice is seen as strongly positive. There is a new form from the clinical pharmacist that now appears in the record that is helpful.

- Need to reduce inappropriate prophylactic antibiotics through improved antimicrobial stewardship. Could save money by changing practices while having a positive impact on antimicrobial usage.
- Environment of care
- Overcrowding—patient flow is a problem.
- Improve hospital design for improved infection control.
- Patient safety infrastructure
- There currently is no adverse event or medical error reporting system.
- General indicators are tracked (e.g., maternal mortality, other WHO-designated measures).
- Some data (e.g., mortality data) must be risk-adjusted.
- There is no process to compare the performance across public hospitals.
- Hospital-associated infection rates are not tracked or trended. There is a major problem with antibiotic overuse versus focusing on front-line prevention of infections.
- There is not a standardized training program for all staff in responding to a fire, nor are fire drills conducted at least annually.
- There is no uniform standardized or approved list of abbreviations across all public hospitals.

Concluding considerations regarding engagement:

- The MOH is responsible for quality and safety oversight, and hospital directors are responsible for execution. The MoH and other MOH staff should participate in this quality and patient safety training.
- Leadership commitment to quality and patient safety is key!
- Consider more decentralization as an improvement opportunity, and define the authority of hospital leaders to make more decisions about resource allocation.
- Ensure that all staff and physicians are engaged in patient safety priorities (e.g., hand hygiene compliance).

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Since 2010, the RAND Corporation has worked with the Ministry of Health and Ministry of Planning of the Kurdistan Regional Government to develop and implement initiatives for improving the region's health care system through analysis, planning, and development of analytical tools. This third phase of the project (reflecting work completed in 2013–2015) focused on development and use of a primary care management information system; health financing reform, focusing on policy reform options to solve the problem of physician dual practice, in which physicians practice in both public and private settings; and hospital patient safety training within the context of health quality improvement.

Most main primary health care centers serve too many people, and most sub-centers serve too few people. Staffing by physicians, nurses, dentists, and pharmacists is uneven across the region. The data also identified centers where laboratory, X-ray, and/or other equipment should be repaired or replaced and where users should be trained. Though the required workweek is 35 hours, and all physicians are paid for these 35 hours, most physicians spent only three or four hours per day working in the public sector. The remainder of the time was often spent working in the private sector, where pay is much higher. The vast majority of physicians (over 80 percent) indicated that if pay were higher and public-sector resources were increased, they would prefer to work only in the public sector. To resolve the problems associated with dual practice, the authors recommend full separation between public- and private-sector practice.

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