



The Custodian of the Two Holy Mosques King Abdullah bin Abdulaziz Al-Saud

Prime Minister of the Council of Ministers - God Bless Him



His Royal Highness Crown Prince *Salman bin Abdulaziz Al Saud* 

First Deputy Prime Minister and Minister of Defense



His Royal Highness Prince

Muqrin bin *H*bdula*ziz* Hl Saud

Second Deputy Prime Minister and King Abdullah's Advisor and Special Envoy

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## FOREWORD



#### In the name of Allah, the Most Gracious, the Most Merciful

Our beloved country is witnessing broad development across all fields, especially the health sector which witnessed major expansion in investments and significant progress in access to and quality of services. Such development would not have been possible without the generous support and direct patronage of the Custodian of the Two Holy Mosques and Their Royal Highnesses the Crown Prince and the Second Deputy Premier - God bless them. The Ministry has been keen to record this revitalization of the health sector through health information, statistics and indicators to reflect the available health resources and services provided by the Ministry to the citizens and residents of the Kingdom.

The efforts exerted by the Ministry are culminated in the issuing of an annual statistical book that highlights health status trends and identifies health priorities and needs. The report provides factual figures and indicators of health services at various levels of care including preventive, diagnostic, therapeutic, and rehabilitative services delivered in accordance with the latest evidence-based medicine and state-of-the-art medical technologies. It also provides a snapshot of the key achievements and health projects across the various regions of the Kingdom with a focus on the vision of 'Patient First' that the Ministry endorsed years ago. In addition, the book addresses the continuous collaboration between the Ministry of Health and other health sectors, including private hospitals and health centers.

I am delighted to present to the reader the 'Health Statistics Annual Book' for the year 1433H (2012G) which sheds light on the integrated comprehensive health care system and its development during the year. This book, also, briefs readers on the health services provided by the Ministry to pilgrims in seasons of Hajj and Umrah in the holy sites of Makkah and Medinah and at the ports of entry for pilgrims whether by land, sea or air. It is our hope that the report serves as a reference document to health practitioners, specialists, researchers, and scholars, as well as policymakers at the Ministry to help in the development of plans and strategies that provide the best possible health services.

I ask Allah the Almighty to guide us to what he loves and pleases; May all our deeds be purely dedicated to Him.

#### Dr. Abdullah bin Abdulaziz Al Rabiah

Minister of Health



# ABOUT THE MOH





#### Mission

The Ministry of Health (MOH) is committed to the mission assigned to it since its first coming into being; i.e. the provision of healthcare at all levels, promotion of general health and prevention of diseases, in addition to developing the laws and legislations regulating both the governmental and private health sectors. Aside from that, MOH is accountable for performance monitoring in health institutions, along with the research activity and academic training in the field of health investment.

#### Vision

The Ministry of Health (MOH), by way of its objectives, policies and projects, seeks to accomplish a promising future vision; namely, delivering best-quality integrated and comprehensive healthcare services.

#### Values

The following set of basic values and principles govern the work in all MOH facilities:

Patient first Justice Professionalism Quality Honesty and transparency Teamwork Initiative and productivity Societal involvement



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	o.6: Total death by region, place of death and nationality, 1433H



### SECTION I.

### HEALTH STATUS

Chapter 1: Main Indicators

# 1. MAIN INDICATORS

The Ministry of Health in the Kingdom of Saudi Arabia is committed to providing the latest health statistics and information for all partners in the health sector, including decision-makers and health care service providers. From that end, the Ministry issues its annual report which includes all the figures and data pertaining to health care across different sectors of the Kingdom. Among the most important data to be included in this report are the main indicators that reflects the growth of the health sector and the development of health services over the past couple of years. Indicators gain their importance for two chief reasons: First, they provide an ample review of the current situation in terms of health performance. And second, indicators allow for a close assessment of health strategies and stand on the progress towards achieving the stated goals, whether short-or long-term. This first chapter of the report offers a detailed record of the most important demographic, economic, and health indicators in the Kingdom. As well, it presents a geographical distribution by the thirteen administrative regions of the kingdom and the trend over time for some selected indicators. And similar to other chapters of this report, this chapter displays the most important points in 'sound-bite' boxes that compare the performance of the Kingdom, show the trend across time, and present the key achievements at the level of the Kingdom.



#### HOW DOES KSA COMPARE?

- Life expectancy in KSA for year 2012 (73.8 years) exceeds the regional average by 5.8 years and exceeds the global average by 3.8 years.
- Percentage of population under 15 years of age in KSA for year 2012 (30%) is almost similar to that of the Eastern Mediterranean Region (34%) and is higher than the percentage reported globally (27%).
- Crude birth rate (per 1,000 population) in KSA for year 2012 (22.5) is lower than both the regional (31.4) and global (24.3) averages.
- Crude death rate (per 1,000 population) in KSA for year 2012 (3.8) is lower than the regional rate (6.3) and is almost half the global rate (7.9).
- Infant mortality rate (per 1,000 live births) among Saudis for year 2012 (16.2) is 63% less than the regional rate (44) and 56% less than the global rate (37).

Source: World Health Statistics Report (2013), World Health Organization

#### TREND OVER TIME...

In terms of health human resources, there has been an increase in the rate of personnel per 10,000 population between years 2006 and 2012, with an increase of 20% among physicians, 46% among dentists, 35% among nurses, 47% among pharmacists, and 38% among allied health professionals.

#### KEY ACHIEVEMENTS ...

Incidence rate of measles decreased by more than two thirds between years 2006 (3.41 per 100,000 population) and 2012 (1.01 per 100,000 population).

Between the years 2006 and 2012, overall immunization coverage for DPT, OPV, BCG, MMR and PCV across the Kingdom increased from 95% to around 98%.

#### Table 1.1: Demographic indicators, KSA, 2012

Indicator		Year
Total Estimated Population Size	29,195,895	2012
Crude birth rate per 1,000 population	22.5	2012
Annual population growth rate (%)		
Total	3.19	Between
Saudi	2.21	2004 & 2010
Non-Saudi	5.61	
Percentage of population under 5 years (%)	10.85	2012
Percentage of population under 15 years (%)	30.37	2012
Percentage of population 15- 64 years (%)	66.89	2012
Percentage of population 65 years & above (%)	2.73	2012
Total fertility rate	2.87	2012
Life expectancy at birth		
Total	73.8	2012
Male	72.8	2012
Female	75.2	
Percentage of low birth weight (%)	8.8	2011

Source: Central Department of Statistics & Information

#### Table 1.2: Economic indicators, KSA, 2012

Indicator		Year
Gross Domestic Product (GDP) per capita (in USD)	24,911	2012
Percentage of MOH Budget of total governmental budget (%)	6.8	2012
Per capita MOH expenditure (in USD)	430	2012

Source: Central Department of Statistics & Information

#### Table 1.3: Immunization coverage, KSA, 2012

Indicator	Percentage (%)	Year
Pentavalent Vaccine*	97.7	2012
Oral Polio Vaccine (OPV)	97.7	2012
BCG Vaccine	98.6	2012
MMR Vaccine**	97.8	2012
Pneumococcal Conjugate Vaccine (PCV)	97.7	2012

\* Includes Diphtheria, Pertussis, Tetanus, Haemophilus influenza type B and Hepatitis B \*\* Includes Measles, Mumps and Rubella

#### Table 1.4: Health resources, KSA, 2012

Indicator	Rate (per 10,000 population)	Year
Physicians	24.4	2012
Dentists	3.41	2012
Pharmacists	5.3	2012
Nurses	47.8	2012
Allied health professional	26.3	2012
MOH primary health care centers	0.77	2012
Hospital Beds (all sectors), KSA	20.9	2012
MOH hospital beds	12.3	2012
Other governmental sector hospital beds	3.8	2012
Private hospital beds	4.8	2012

#### Table 1.5: Morbidity indicators, KSA, 2012

Indicator	Rate (per 100,000 population)	Year
Poliomyelitis	0.00	2012
Whooping cough	0.02	2012
Measles	1.01	2012
Tetanus (All ages)	0.07	2012
Neonatal tetanus per 1,000 live births	0.02	2012
Pulmonary TB	8.83	2012
Extra-pulmonary TB	3.50	2012
Pulmonary & extra-pulmonary TB	12.33	2012

#### Table 1.6: Mortality indicators, KSA, 2012

Indicator	Rate	Year
Crude death rate per 1,000 population	3.8	2012
Infants mortality rate per 1,000 Saudi live births	16.2	2012
Under 5 mortality rate per 1,000 live births	18.7	2012
Maternal mortality rate per 10,000 live births	1.4	2012

Source: Central Department of Statistics & Information

Table 1.7: Population by nationality and region, KSA, 2012

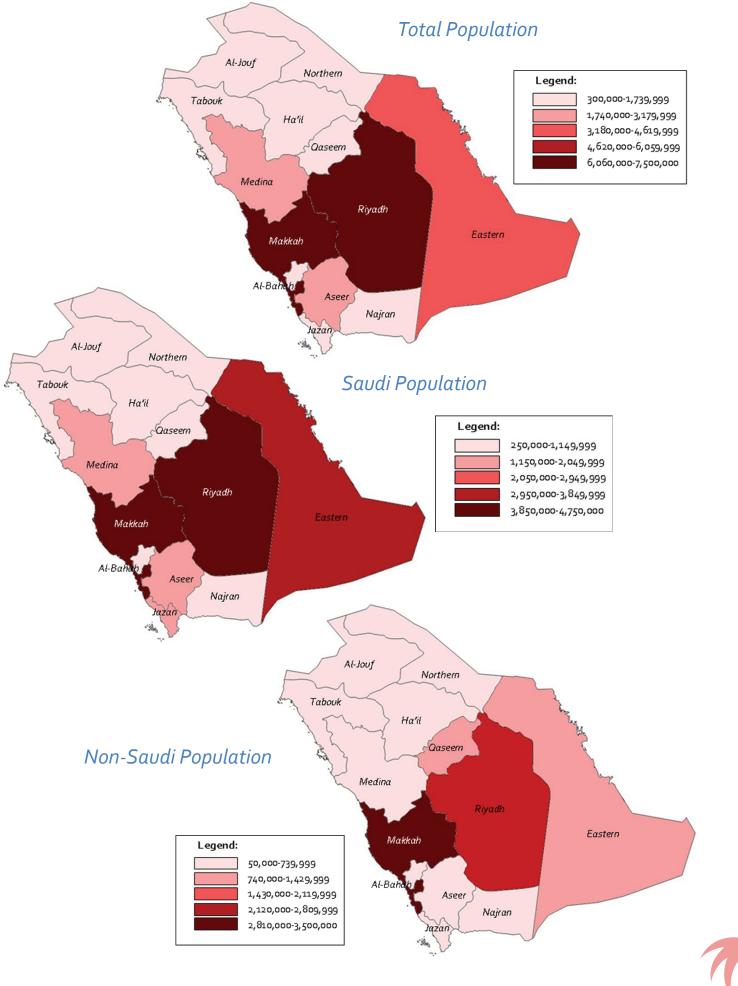
Regions	Saudi	Non-Saudi	Total
Riyadh	4,556,482	2,753,484	7,309,966
Makkah	4,364,881	3,107,094	7,471,975
Medinah	1,338,831	572,167	1,910,998
Qaseem	984,618	319,005	1,303,623
Eastern	3,065,883	1,348,395	4,414,278
Aseer	1,693,198	351,872	2,045,070
Tabouk	701,120	144,737	845,857
Ha`il	516,655	122,044	638,699
Northern	284,388	58,110	342,498
Jazan	1,171,898	288,642	1,460,540
Najran	426,751	114,593	541,344
Al-Bahah	369,711	70,216	439,927
Al-Jouf	370,216	100,904	471,120
Total	19,844,632	9,351,263	29,195,895

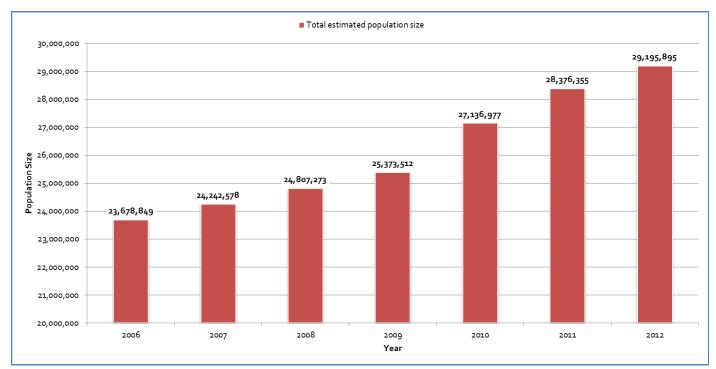
#### Table 1.8: Rate of MOH hospital beds per 10,000 population by region, KSA, 2012

Regions	Population	Hospital beds	Bed rate (per 10,000 pop- ulation)
Riyadh	7,309,966	7,473	10.2
Makkah	7,471,975	6,933	9.3
Medinah	1,910,998	2,647	13.9
Qaseem	1,303,623	2,409	18.5
Eastern	4,414,278	5,111	11.6
Aseer	2,045,070	2,870	14.0
Tabouk	845,857	1,125	13.3
Ha`il	638,699	1,095	17.1
Northern	342,498	910	26.6
Jazan	1,460,540	1,800	12.3
Najran	541,344	1,070	19.8
Al-Bahah	439,927	1,035	23.5
Al-Jouf	471,120	471,120	28.7
Total	29,195,895	35,828	12.3

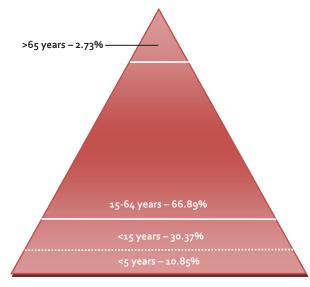
The administrative regions include the following health regions:

Riyadh, Makkah (Jeddah, Ta'if, Qunfudah), Medinah, Qaseem, Eastern (Al-Ahsa'a, Hafr Al-Baten), Aseer (Bishah), Tabouk, Ha'il, Northern, Jazan, Najran, Al-Bahah, Al- Jouf (Qurrayat).

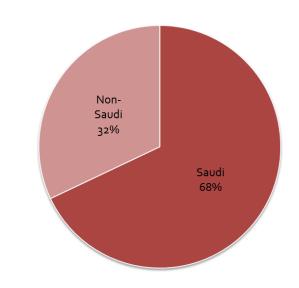














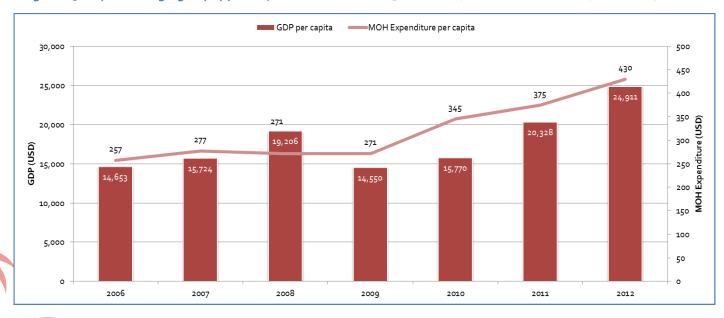


Figure 1,5: Selected economic indicators for the time period 2006 - 2012

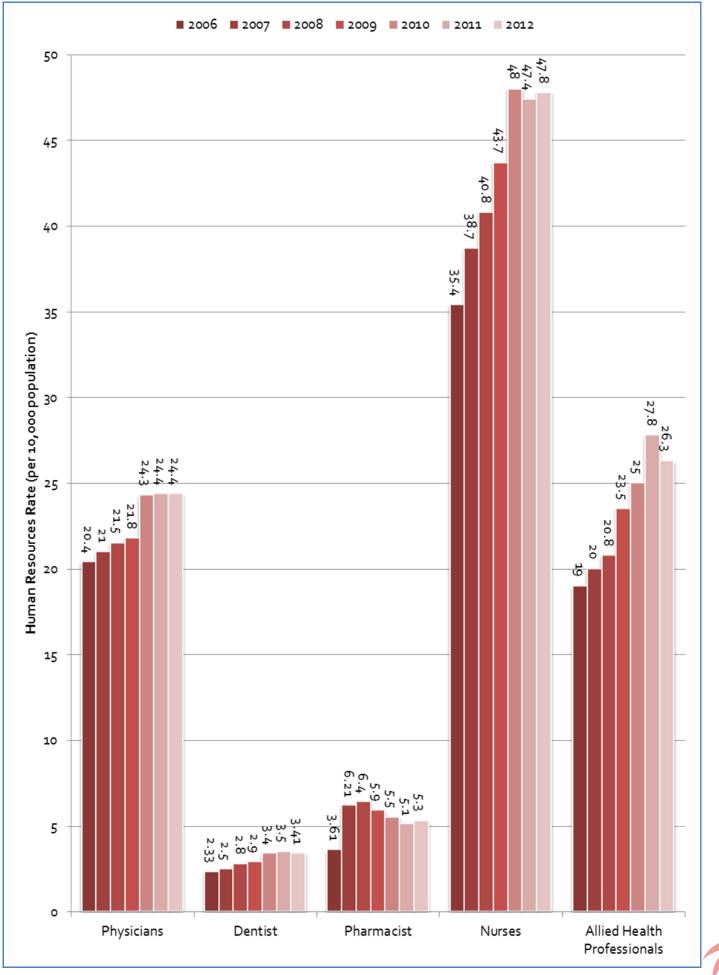


Figure 1.6: Health human resources in the Kingdom for the time period 2006 - 2012

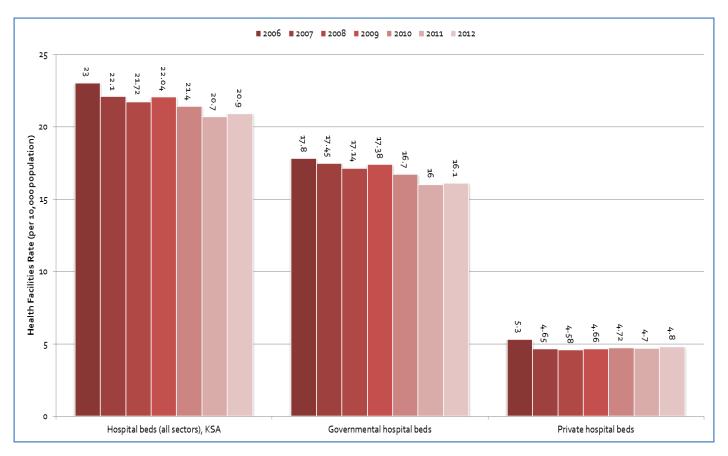


Figure 1.7: Hospital beds in the Kingdom for the time period 2006 - 2012

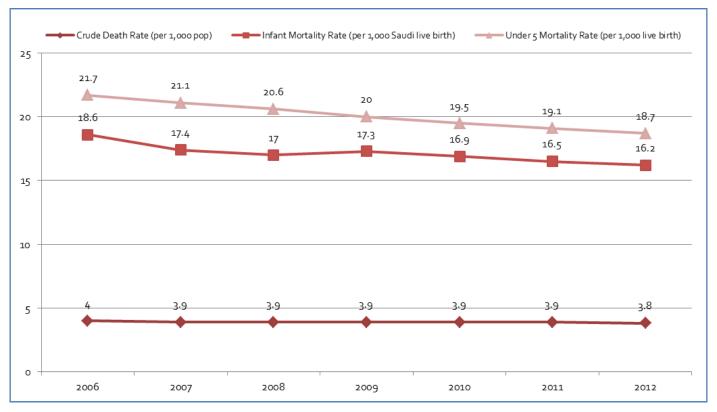


Figure 1.8: Selected mortality indicators in the Kingdom for the period 2006 - 2012



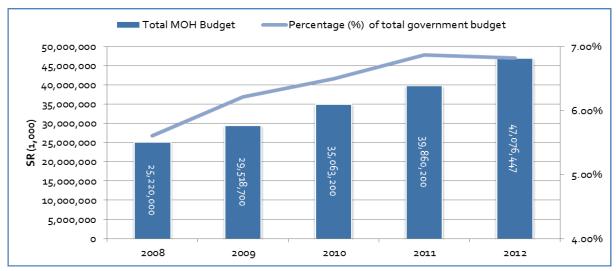


### HEALTH RESOURCES

Chapter 2: Health resources at the MOH Chapter 3: Primary health care centers at the MOH Chapter 4: Hospitals and beds at the MOH Chapter 5: Health resources in other governmental sectors Chapter 6: Health resources in the private sector Chapter 7: Total health resources in all health sectors in the Kingdom Chapter 8: Medical education Chapter 9: Training

#### A Glance at the Ministry of Health Financing

The financial appropriations of the government budget allocated for the Ministry of Health (MOH) is considered the main financing source for health resources. The Saudi government exerts effort to ensure continuous support to the MOH through the five year developmental plan, in which the allocated MOH budget undergoes continuous increase.





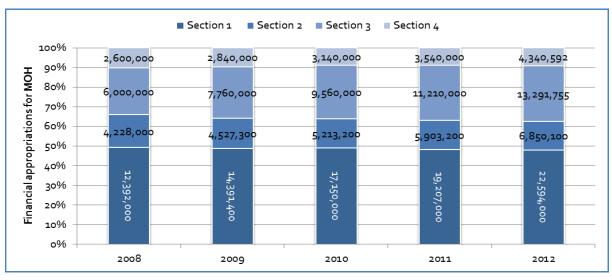


Figure IIb: Financial appropriations of the MOH budget (values in SR 1000), 2008-2012

Budget Year	Approved Positions	Health Cadre	University Teaching Staff	Teachers Cadre	Workers	Total
2009	42,769	130,073	1	2	3,173	176,018
2010	43,881	139,099	1	2	3,086	186,069
2011	45,731	148,851	1	2	3,087	197,672
2012	47,917	157,431	1	2	2,087	208,438

#### Table II: Job post appropriations for MOH, 2009-2012



### SECTION II.

HEALTH RESOURCES

Chapter 2: Health resources at the MOH

2.

### HEALTH RESOURCES AT THE MOH



#### Health Facilities of the Ministry of Health

Table 2.1 displays the distribution, by region of the Kingdom, of the health facilities of the Ministry of Health (MOH) that are providing various health services during the year 2012. The highest number of hospitals are present in Riyadh (46) and Makkah (37), and the highest number of primary health care (PHC) centers are present in Riyadh (435) and Makkah (355). In total, the MOH operates 259 hospitals and 2,259 PHC centers.

#### Health Manpower in facilities of the Ministry of Health

The reported health manpower employed at facilities of the MOH comprised four categories: physicians (including dentists), nurses, pharmacists, and allied health professionals (including technical personnel). Figure 2.1 shows the distribution of the four categories of health manpower at the MOH and their rations per 10,000 population across the regions of the Kingdom. For physicians, the highest ratio is present in Northern Borders (26.07 physicians per 10,000 population). For nurses, the highest ratio is present in Al-Jouf (66.10 nurses per 10,000 population). For pharmacists, the highest ratio is present in Najran (1.37 pharmacists per 10,000 population). For Allied Health Professionals, the highest ratio is present in Northern Borders (27.59 professionals per 10,000 population).

The distribution of the four categories of health manpower at the MOH by region, nationality and gender is displayed in Table 2.2. The total number of physicians (including dentists) is 35,841. The number of Saudi physicians (including Saudi dentists) is 9,119 (representing 25.4% of the total number of physicians at the MOH). The total number of nurses is 82,948. The number of Saudi nurses is 45,875 (representing 55.3% of the total number of nurses at the MOH). The total number of pharmacists is 2,154. The number of Saudi pharmacists is 1,810 (representing 84.0% of the total number of pharmacists at the MOH). The total number of allied health professionals is 45,698. The number of Saudi allied health professionals is 40,031 (representing 89.8% of the total number of allied health professionals at the MOH).

#### **KEY ACHIEVEMENTS** ...

Between years 2008 and 2012, the proportion of Saudis from the total health manpower employed at the MOH increased from 48.0% to 58.7% .

More specifically, there has been a marked increase in the proportion of Saudis within the nursing workforce during that time period, from 44.5% in 2008 to 55.3% in 2012.



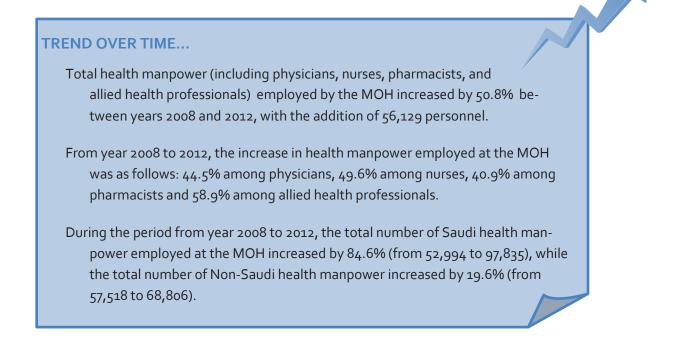
In 2012, there are 2.3 nurses for every physician employed at facilities of the MOH in the KSA, in comparison to 1.3 nurses for every physician in the Eastern Mediterranean Region (EMR) and 1.8 nurses for every physician globally.

Source: World Health Statistics Report (2013), World Health Organization

Figure 2.2 represents the change in proportions of health manpower employed by the MOH by nationality during the time period of 2008-2012. From the total health manpower, the proportion of Saudis increased from 48.0% in 2008 to 58.7% in 2012.

Table 2.3 displays the distribution of allied health professionals employed by the MOH by specialty, and provides further details on the proportions of each specialty by nationality and gender.

Tables 2.4 and 2.5 display the distribution of technical & administrative personnel and workers employed at the MOH, respectively, by gender, nationality and region.



### 2012 Health Statistics Annual Book

### Table 2.1: Total MOH facilities by region, 2012

Region	Hospitals	PHC centers	Cardiology Center	Oncology Center	Dental centers	Diabetes Center	Dialysis Cen- ter	Hemodialysis machines	Rehabilita- tion centers	Central laboratories	Health cen- ters control at entry points	Anti- smoking clinics	Forensic Medicine
Riyadh	46	435	1	1	3	1	30	697	1	1	1	11	1
Makkah	37	355	1	1	7	5	16	547	3	3	2	9	4
Medinah	20	154	1	0	2	1	11	307	0	1	3	8	1
Qaseem	18	159	1	1	1	1	13	251	1	0	0	3	1
Eastern	32	248	2	1	4	3	14	383	3	1	7	4	3
Aseer	27	317	0	0	3	2	16	339	1	1	1	4	1
Tabouk	11	73	0	0	1	1	7	136	0	0	3	1	1
Ha'il	11	100	1	0	1	0	9	121	1	1	0	1	1
Northern	7	45	1	0	2	1	5	109	0	0	1	3	1
Jazan	19	155	0	0	1	2	7	234	0	0	2	1	1
Najran	10	65	1	0	2	1	4	81	0	1	2	2	1
Al - Bahah	10	101	0	0	2	1	6	119	0	1	0	7	1
Al - Jouf	11	52	0	0	3	1	5	137	1	1	1	2	2
Total	259	2,259	9	4	32	20	143	3,461	11	11	23	56	19

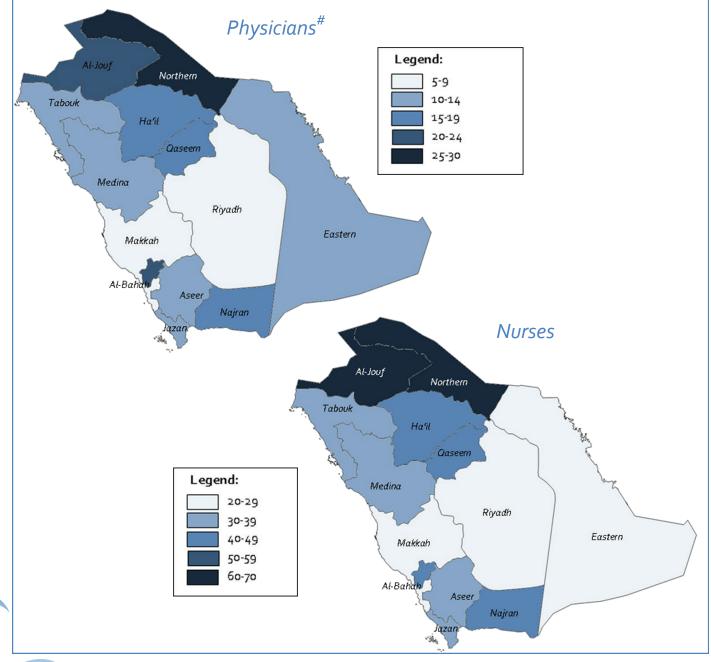


Figure 2.1: Ratio of health manpower in MOH facilities per 10,000 populating by region, 2012

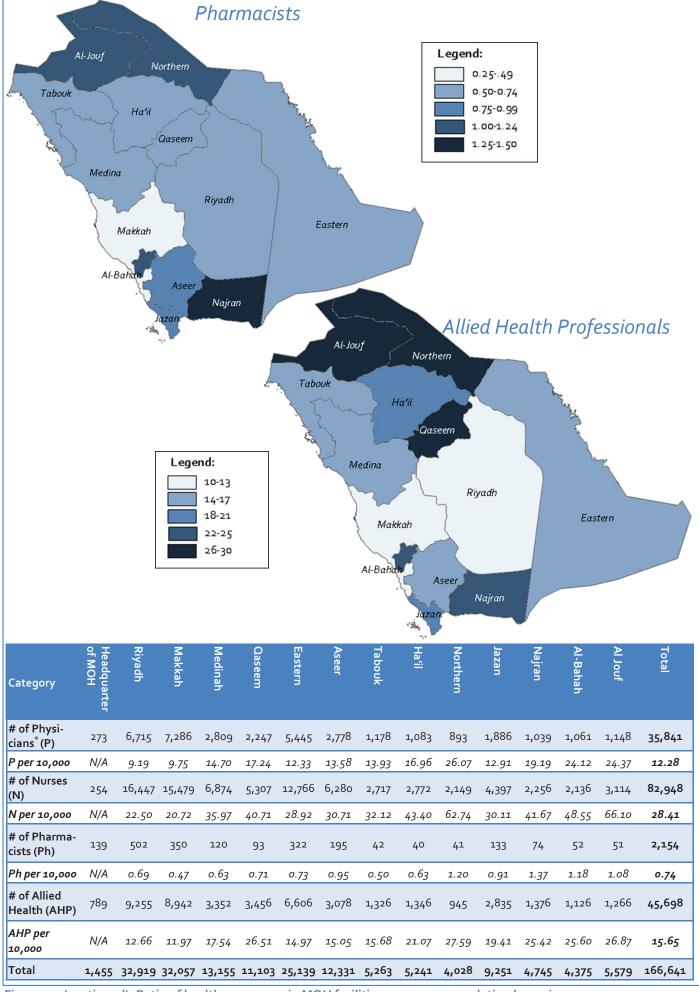


Figure 2.1 (continued): Ratio of health manpower in MOH facilities per 10,000 population by region, 2012

\* Includes dentists

## 2012 Health Statistics Annual Book

### Table 2.2: Total manpower in MOH facilities by region, category, gender and nationality, 2012

		Tot	:al		Headquarter of MOH				
Category	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females	
Physicians <sup>#</sup>	6,051	20,264	3,068	6,458	83	155	24	11	
Nurses	19,409	1,423	26,466	35,650	216	5	28	5	
Pharmacists	1,202	176	608	168	116	0	23	0	
Allied Health Professionals	33,995	1,396	7,036	3,271	718	1	69	1	

	Riya	dh			Makka	ah		Medinah			
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females
1,341	3,534	559	1,281	1,719	3,153	1,278	1,136	537	1,513	244	515
3,284	555	3,737	8,871	3,914	332	4,651	6,582	1,905	17	2,435	2,517
172	14	294	22	168	57	86	39	80	9	19	12
6,662	376	1,508	709	6,195	341	1,862	544	2,698	47	495	112

	Qase	eem			East	ern		Aseer			
Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females
165	1513	52	517	1,211	2,541	814	879	464	1,776	44	494
1229	44	1068	2966	2,028	323	6,136	4,279	1,405	45	1,821	3,009
59	12	8	14	165	16	121	20	162	6	13	14
2788	64	219	385	4,266	265	1,766	309	2,287	122	311	358

	Tab	ouk			На	91		Northern			
Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females
43	857	16	262	29	807	5	242	8	720	3	162
897	20	1,073	727	795	16	907	1,054	588	7	1,006	548
23	5	12	2	34	4	1	1	21	6	9	5
1,074	33	154	65	1,029	33	93	191	685	11	116	133

	Ja	zan			Na	jran			Al-Bahah				Al-Ajouf		
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females												
298	1,236	14	338	40	792	4	203	66	796	5	194	47	871	6	224
1,043	15	1,778	1,561	513	15	296	1,432	552	29	184	1,371	1,040	0	1,346	728
98	24	6	5	59	4	5	6	19	14	0	19	26	5	11	9
2,565	19	166	85	1,145	17	70	144	878	41	81	126	1,005	26	126	109

# Physicians include dentists

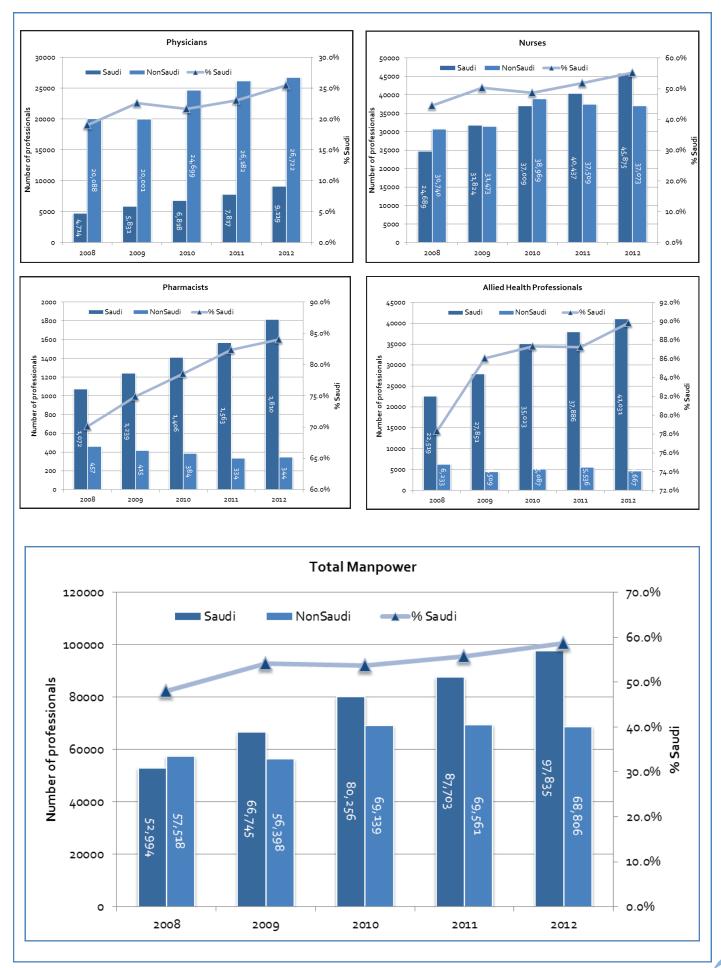


Figure 2.2 : Total manpower in MOH facilities by nationality, 2008-2012 # Includes dentists

Table 2.3: Allied health professionals in MOH facilities by specialty, nationality and gender, 2012

	Saudi		Non-	Saudi		
Specialty	Male	Female	Male	Female	Total	% Saudi
Research/Health Services Specialist	982	21	2	4	1,009	99.4%
Radiology Specialist	465	105	16	59	645	88.4%
Physiotherapist	526	233	46	47	852	89.1%
Public Health Specialist	248	36	11	0	295	96.3%
Dietician	445	225	2	4	676	99.1%
Sociologist	869	473	1	4	1,347	99.6%
Specialist/Lab Analyst	1,804	501	46	85	2,436	94.6%
Psychiatric Specialist	403	162	8	0	573	98.6%
Hearing Specialist/Speech Pathologist	23	39	8	8	78	79.5%
Optometry Specialist	143	113	2	4	262	97.7%
Specialist Statistician	165	8	0	1	174	99.4%
Medical Records Specialist	17	13	4	12	46	65.2%
Other Specialists	430	196	80	65	771	81.2%
Surgical Technician	1,355	48	42	243	1,688	83.1%
Lab Technician	4,648	1039	198	645	6,530	87.1%
Radiology Technician	4,078	668	110	487	5,343	88.8%
Assistant Pharmacist (Technician)	5,457	813	73	276	6,619	94.7%
Anesthesiology Technician	1,209	9	94	208	1,520	80.1%
Physiotherapy Technician	1000	351	72	220	1,643	82.2%
Dietary Technician	638	51	4	19	712	96.8%
Prosthetics Technician	63	3	27	1	94	70.2%
ECG&EEG Technician	12	9	26	36	83	25.3%
Dental Technician	404	90	15	33	542	91.1%
Optometry Technician	271	3	0	6	280	97.9%
Hearing/Speech Technician	0	7	6	0	13	53.8%
Sanitation Supervisor	2,986	2	12	0	3,000	99.6%
Statistical Technician	506	13	3	0	522	99.4%
Sterilization Technician	72	2	70	58	202	36.6%
Medical Records Technician/Medical Secre- tary	2,380	1039	75	231	3,725	91.8%
Other Technicians	2,396	764	343	515	4,018	78.6%
Total	33,995	7,036	1,396	3,271	45,698	89.8%

Desien	Sa	udi	Non-	Saudi	Total	04 Coudi
Region	Male	Female	Male	Female	Total	% Saudi
Riyadh	8293	2137	602	200	11232	92.9%
Makkah	8535	1333	1002	277	11147	88.5%
Medinah	5175	527	214	2	5918	96.4%
Qaseem	2982	219	2582	96	5879	54.4%
Eastern	6161	1490	918	106	8675	88.2%
Aseer	3835	196	944	80	5055	79.7%
Tabouk	1146	98	490	19	1753	71.0%
Ha'il	1145	90	311	6	1552	79.6%
Northern	716	69	170	0	955	82.2%
Jazan	2682	116	303	2	3103	90.2%
Najran	1211	40	353	0	1604	78.0%
Al- Bahah	1593	76	1307	410	3386	49.3%
Al- Jouf	1204	128	164	0	1496	89.0%
Total	44,678	6,519	9,360	1,198	61,755	82.9%

Table 2.4: Technical and administrative personnel in MOH facilities by gender, nationality and region, 2012

### Table 2.5: Workers in MOH facilities by gender, nationality and region, 2012

<b>_</b> .	Sa	udi	Non-	Saudi	<b>*</b> . 1	l % Saudi	
Region	Male	Female	Male	Female	Total	% Saudi	
Riyadh	1985	453	4926	1186	8550	28.5%	
Makkah	3522	521	5886	2664	12593	32.1%	
Medinah	1750	468	1043	513	3774	58.8%	
Qaseem	1302	130	1618	672	3722	38.5%	
Eastern	1415	268	2529	990	5202	32.4%	
Aseer	1309	460	2543	913	5225	33.9%	
Tabouk	484	107	860	415	1866	31.7%	
Ha'il	391	155	855	414	1815	30.1%	
Northern	450	93	1164	305	2012	27.0%	
Jazan	1978	212	1503	357	4050	54.1%	
Najran	427	28	940	325	1720	26.5%	
Al- Bahah	494	69	630	227	1420	39.6%	
Al- Jouf	331	51	782	426	1590	24.0%	
Total	15,838	3,015	25,279	9,407	53,539	35.2%	



Chapter 3: Primary health care centers at the MOH

# 3. PRIMARY HEALTH CARE CENTERS AT THE MOH

# Primary Health Care (PHC) Centers at the Ministry of Health

The Ministry of Health (MOH) is the major governmental agency entrusted with the provision of preventive, curative and rehabilitative health care for the Kingdom's population. The MOH provides Primary Health Care (PHC) services through a network of health care centers, which included 2,259 centers in 2012. Figure 3.1 shows the distribution of the centers as well as the ratios per 100,000 population across the 13 provinces of the Kingdom. The highest ratio is present Al-Bahah (22.96 centers per 100,000 population).

The total number of PHC centers at the MOH increased over the recent years (2008-2012), as demonstrated in Figure 3.2. Figure 3.3 further displays this increasing trend in the number of PHC centers during the time period of 2008-2012, while providing numbers by region of the Kingdom. The largest growth in the number of PHC centers was noted in Makkah (23%) and Riyadh (20%).

Each PHC center provides health services to 13,455 people, on average. Figure 3.4 demonstrates the availability of dental, X-ray, and laboratory services within the PHC centers across the 13 provinces. The highest percentage of centers with a dental clinic is present in Qaseem (89%). The highest percentage of centers with X-ray equipment is present in Ha'il (52%). The highest percentage of centers with laboratories is also present in Ha'il (89%).

### TREND OVER TIME...

- The total number of PHC centers at the MOH increased by 17.4% from year 2007 (1,925 centers) to 2012 (2,259 centers).
- The rate of physicians (including dentists) employed at PHC centers of the MOH increased from 2.3 physicians per 10,000 population in 2008 to 2.9 physicians per 10,000 population in 2012.
- The rate of nurses employed at PHC centers of the MOH increased from 5.2 nurses per 10,000 population in 2008 to 5.6 nurses per 10,000 population in 2012.
- The rate of pharmacists employed at PHC centers of the MOH dropped from 0.07 pharmacists per 10,000 population in 2008 to 0.05 pharmacists per 10,000 in 2012.

The rate of allied health professionals employed at PHC centers of the MOH increased from 2.1 professionals per 10,000 population in 2008 to 3.5 professionals per 10,000 in 2012.



### **HOW DOES KSA COMPARE?**

In 2012, there are 1.9 nurses for every physician employed at PHC centers of the MOH in the KSA, in comparison to 1.3 nurses for every physician in the Eastern Mediterranean Region (EMR) and 1.8 nurses for every physician globally.

Source: World Health Statistics Report (2013), World Health Organization

### Health Manpower in PHC Centers at the Ministry of Health

Figure 3.5 displays the distribution of the four categories of health manpower employed at PHC centers of the MOH and the ratio of manpower per 10,000 population by region for the year 2012. There is a total of 8,390 physicians (including dentists), 16,317 nurses, 137 pharmacists and 10,113 allied health professionals in all PHC centers. Al-Bahah has the highest ratios for all categories of manpower: physicians (7.64 per 10,000 population), nurses (17.62 per 10,000 population), pharmacists (0.11 per 10,000 population), and allied health professionals (7.25 per 10,000 population).

The proportion of total health manpower at PHC centers of the MOH by nationality and gender for year 2012 is displayed in Figure 3.6. The proportions are further detailed in Table 3.1 by the region of the Kingdom. The change in proportion of health manpower by nationality for the four categories of manpower during the time period of 2008-2012 is shown in Figure 3.7.

Table 3.2 reveals the proportions of physicians (by main specialty) and dentists by gender and nationality. Furthermore, Table 3.3 shows changes in the total number of physicians (by main specialty) and dentists by nationality over the time period 2008-2012.

### **KEY ACHIEVEMENTS ...**

The proportion of Saudis within the total health manpower employed at PHC centers of the MOH increased significantly from 57.5% in 2008 to 71.4% in 2012.

### Health Statistics Annual Book 1433

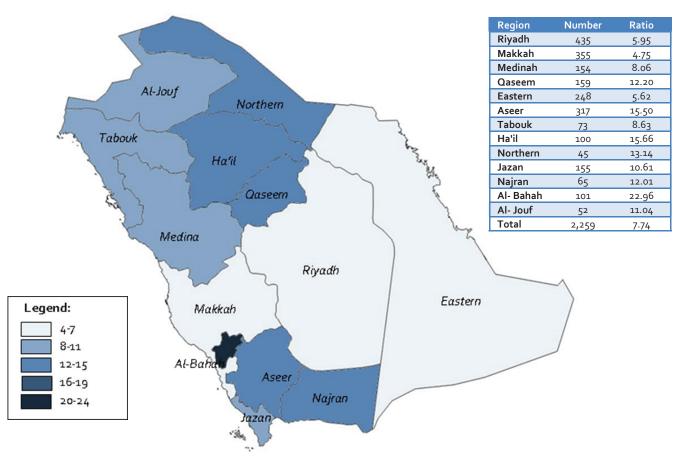


Figure 3.1: Ratio of MOH Health Centers (HC) per 100,000 population by region, 2012

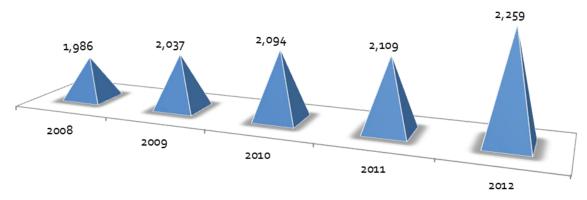
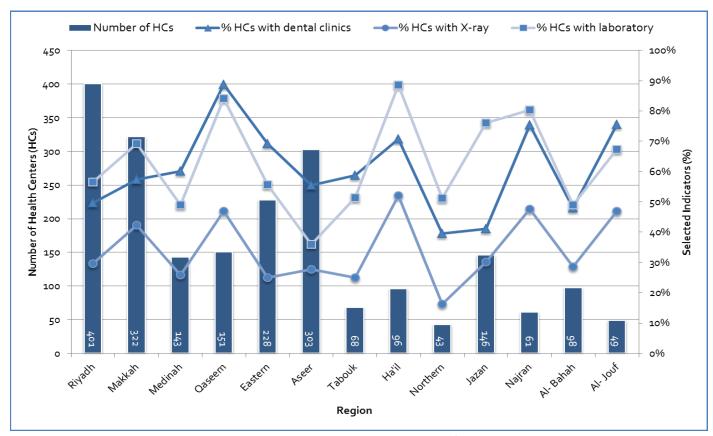


Figure 3.2: Trending of total MOH health centers, 2008-2012



Figure 3.3: Trending of MOH health centers by region, 2008-2012

### 2012 Health Statistics Annual Book





\* Represents data for 2011 due to absence of 2012 data

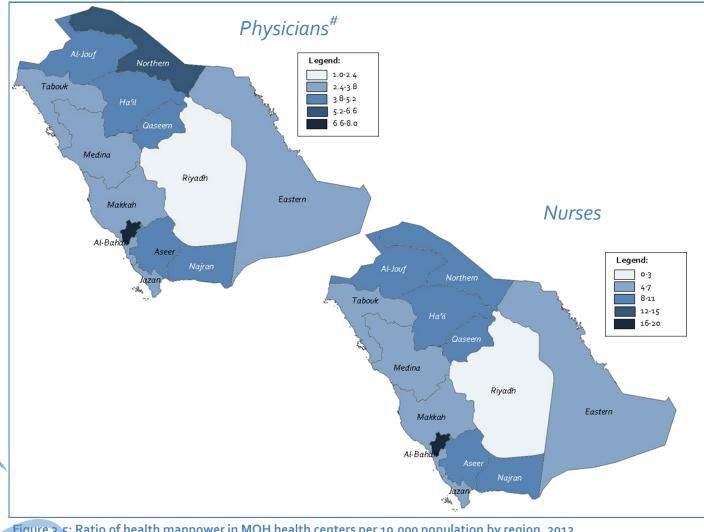


Figure 3 5: Ratio of health manpower in MOH health centers per 10,000 population by region, 2012 # Includes dentists

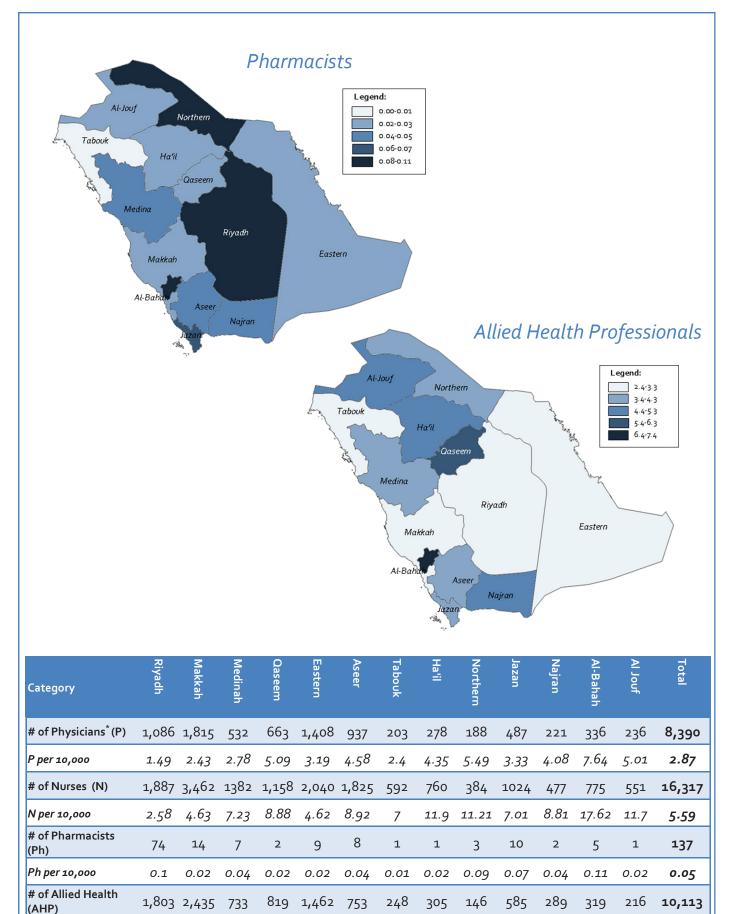


Figure 3.5 (continued): Ratio of health manpower in MOH health centers per 10,000 population by region, 2012

3.68

2.93

4.78

4,850 7,726 2654 2,642 4,919 3,523 1,044 1,344 721 2,106 989 1,435 1,004 34,957

4.26

AHP per 10,000

Total

2.47 3.26

3.84

6.28

3.31

4.01

5.34

7.25

4.58

3.46

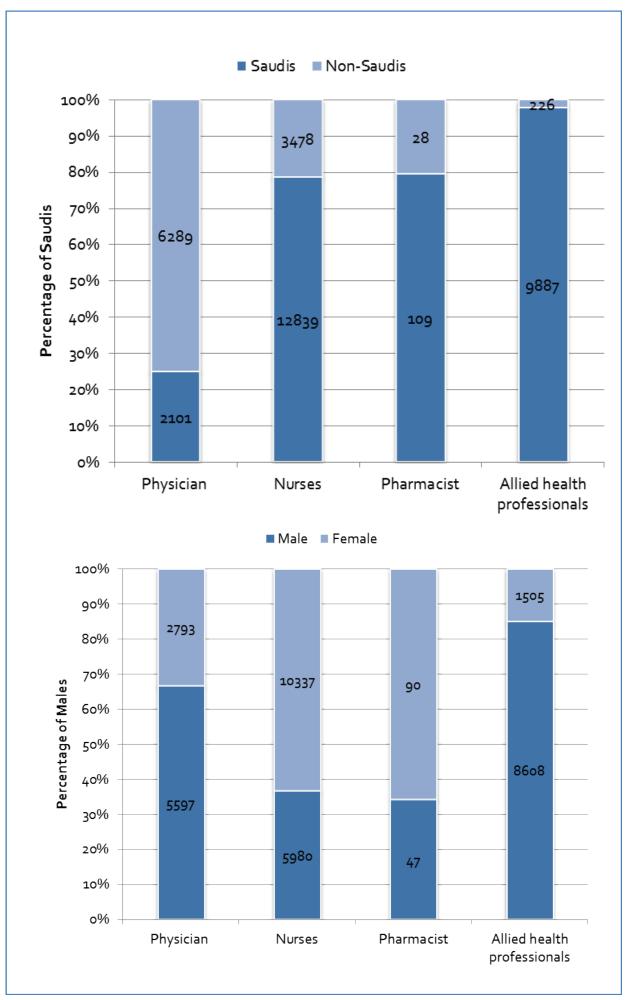


Figure 3.6: Proportions of manpower in MOH health centers by nationality (top) and gender (bottom), 2012

### Table 3.1: Manpower in MOH health centers by region, category, gender and nationality, 2012

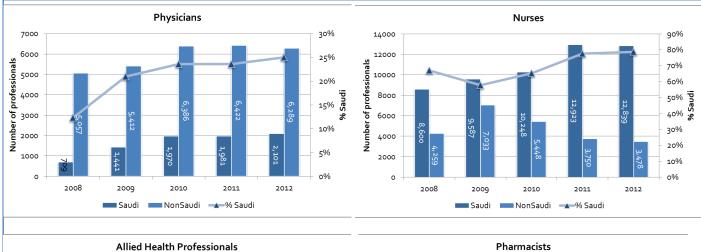
Catagory		Tot	al	
Category	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females
Physicians <sup>#</sup>	1,293	4,304	808	1,985
Nurses	5,940	40	6,899	3,438
Pharmacists	27	20	82	8
Allied Health Professionals	8,598	10	1,289	216

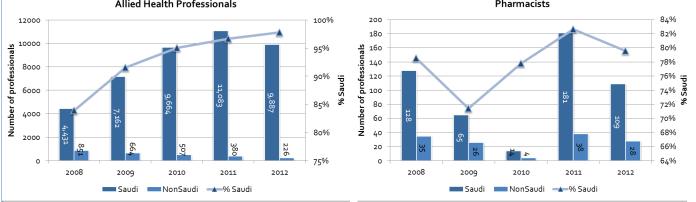
	Riy	vadh			Ma	kkah		Medinah			
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females
169	486	128	303	416	652	395	352	112	229	54	137
743	6	920	218	1,422	2	1,291	747	618	0	555	209
2	0	72	0	7	3	3	1	1	3	0	3
1,455	7	326	15	2,028	0	384	23	676	0	53	4

	Qas	seem			Eas	tern		Aseer			
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females
27	428	12	196	304	605	207	292	188	543	6	200
326	0	318	514	473	8	1,282	277	523	11	817	474
2	0	0	0	4	0	5	0	7	0	0	1
729	0	53	37	1,209	1	241	11	604	0	112	37

	Tal	oouk			Н	a'il		Northern				
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	
8	128	3	64	2	198	1	77	1	144	0	43	
274	1	278	39	332	0	290	138	149	2	184	49	
0	1	0	0	1	0	0	0	0	0	2	1	
222	0	25	1	277	0	11	17	124	0	16	6	

	Jaz			Naj	ran		Al-Bahah				Al-Ajouf					
Saudi Males	Non- Saudi Males	Saudi Fe- males	Non- Saudi Fe-													
50	317	1	119	3	159	0	59	8	243	1	84	5	172	0	59	
318	4	487	215	187	0	100	190	314	6	112	343	261	0	265	25	
2	8	0	0	1	0	0	1	0	4	0	1	0	1	0	0	
547	0	33	5	253	0	4	32	266	1	28	24	208	1	3	4	
	# Pł	nysicians i	nclude de	ntists											49	





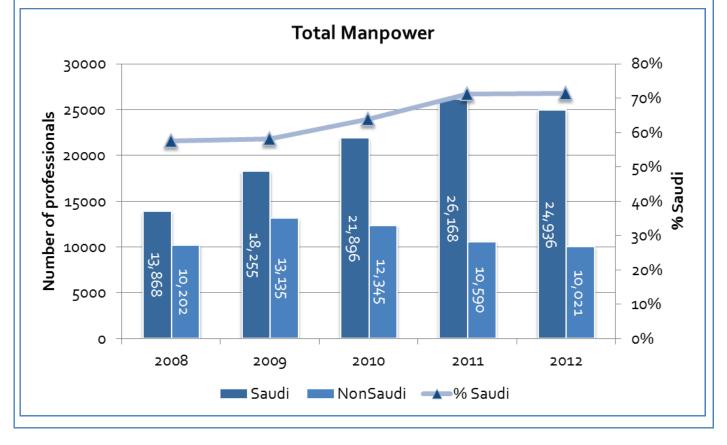


Figure 3.7: Total manpower in MOH health centers by nationality, 2008-2012 # Includes dentists

Category		Saudi	Non-Saudi	Total
	Male	384	1,449	1,833
General Physician	Female	278	598	876
	Total	662	2,047	2,709
	Male	462	500	962
Dentistry	Female	224	164	388
	Total	686	664	1,350
	Male	4	60	64
OBS/GYN	Female	20	133	153
	Total	24	193	217
	Male	15	141	156
Pediatrics	Female	12	53	65
	Total	27	194	221
	Male	275	920	1,195
Family Medicine	Female	195	644	839
	Total	470	1,564	2,034
	Male	153	1,234	1,387
Others	Female	79	393	472
	Total	232	1,627	1,859
	Male	1,293	4,304	5,597
Total	Female	808	1,985	2,793
	Total	2,101	6,289	8,390

Table 3.2: Dentists and physicians in MOH health centers by main specialty, gender and nationality, 2012

Table 3.3: Physicians and dentists in MOH health centers by specialty and nationality, 2008-2012

Specialty	Nationality			Year		
Specially	INduolidiity	2008	2009	2010	2011	2012
	Saudi	382	338	676	557	662
General Physician	Non-Saudi	3,666	1,463	2,479	1,727	2,047
	Total	4,048	1,801	3,155	2,284	2,709
	Saudi	222	434	525	561	686
Dentistry	Non-Saudi	850	788	653	834	664
	Total	1,072	1,222	1,178	1,395	1,350
	Saudi	11	42	43	28	24
OBS/GYN	Non-Saudi	23	317	177	195	193
	Total	34	359	220	223	217
	Saudi	8	59	46	35	27
Pediatrics	Non-Saudi	54	306	202	214	194
	Total	62	365	248	249	221
	Saudi			382	423	470
Family Medicine	Non-Saudi			1,347	1,471	1,564
	Total			1,729	1,894	2,034
	Saudi	86	568	298	377	232
Others	Non-Saudi	464	2,538	1,528	1,981	1,627
	Total	550	3,106	1,826	2,358	1,859
	Saudi	709	1,441	1,970	1,981	2,101
Total	Non-Saudi	5,°57	5,412	6,386	6,422	6,289
	Total	5,766	6,853	8,356	8,403	8,390

... Data not available



HEALTH RESOURCES

Chapter 4: Hospitals and beds at the MOH

# HOSPITALS AND BEDS AT THE MOH

# Hospital and Beds at the MOH Facilities

4.

The total number of MOH hospitals operating in year 2012 is 259, with a total number of 35,828 beds. Figure 4.1 shows the distribution of MOH hospitals and beds and the ratios for hospitals per a 100,000 population and for hospital beds per 10,000 population by region in the Kingdom.

Table 4.1 displays the distribution of MOH hospitals by both region and specialty. The majority of hospitals (77.6%) are "General". More specifically, Riyadh contains the largest proportion of hospitals (17.8%), followed by Makkah (14.3%), then Eastern province (12.4%). As shown in Table 4.2, which displays the distribution of MOH beds by region and specialty, the majority of beds are within the pediatrics (13.6%) and internal medicine (13.0%) departments. Figure 4.2 further demonstrates the distribution of MOH hospitals and beds by specialty in 2012.

The total number of MOH hospitals and beds increased over the last five years (2008-2012), as demonstrated in Figure 4.3. Figure 4.4 details the trend observed for the change in number of MOH hospitals and beds by region during the time period of 2008-2012.

## Health Manpower at MOH Hospitals

The total reported health manpower at the MOH hospitals encompasses physicians (including dentists), nurses, pharmacists and allied health professionals. Figure 4.5 displays the distribution of health manpower and their ratios per 10,000 population by region for the year 2012. For physicians, the highest ratio is present in Northern borders (20.03 physicians per 10,000 population). For nurses, the highest ratio is present in Al-Jouf (51.43 nurses per 10,000 population). For pharmacists, the highest ratio is present in Najran (1.09 pharmacists per 10,000 population). For allied health professionals, the highest ratio is present in Northern borders (22.48 professionals per 10,000 population).

### **KEY ACHIEVEMENTS** ...

The proportion of Saudis within the total health manpower employed at MOH hospitals increased from 42.4% in 2008 to 53.5% in 2012.

More specifically, between the years 2008 and 2012, the proportion of Saudis among the four categories increased as follows: physicians (20.0% to 24.8%), nurses (36.0% to 48.1%), pharmacists (63.7% to 81.8%), and allied health Figure 4.6 describes the proportions of health manpower in the MOH hospitals according to the nationality and gender. Out of the total number of physicians working in MOH hospitals in 2012 (26,266), 24.8% are Saudi. Out of the total number of nurses working in MOH hospitals in 2012 (64,408), 48.1% are Saudi. In contrast, the proportion of pharmacists and allied health professionals working at MOH hospitals who are Saudi nationals is 81.8% and 86.5%, respectively. Moreover, the male gender is dominating in most categories of health manpower (75.0% of physicians, 60.7% of pharmacists, and 73.3% of allied health professionals), except for nursing (20.6%).

The distribution of health manpower at MOH hospitals by region, category, gender and nationality is demonstrated in Table 4.3. The proportion of health manpower by nationality has been changing, among the different categories, during the time period of 2008-2012. This variation is displayed in Figure 4.7.

Selected indicators of resources available at MOH hospitals by region of the Kingdom are represented in Figure 4.8. The average rate of physicians per 100 beds is 73.3. The average rate of nurses per 100 physicians is 245, while there are 1.80 nurses for each bed. The highest rate of physicians per 100 beds (83.8 physicians) is recorded in Medinah, while the lowest rate (61.5 physicians per 100 beds) is recorded in Aseer.

Table 4.4 represents the distribution of physicians and dentists at MOH hospitals by specialty and grade, in 2012.

### HOW DOES KSA COMPARE?

In 2012, there are 2.5 nurses for every physician employed at MOH hospitals in the KSA, in comparison to 1.3 nurses for every physician in the Eastern Mediterranean Region (EMR) and 1.8 nurses for every physician globally.

Source: World Health Statistics Report (2013), World Health Organization

### TREND OVER TIME...

Between the years 2008 and 2012, the number of MOH hospitals and beds increased by 12.1% and 13.0%, respectively.

### Health Statistics Annual Book 1433

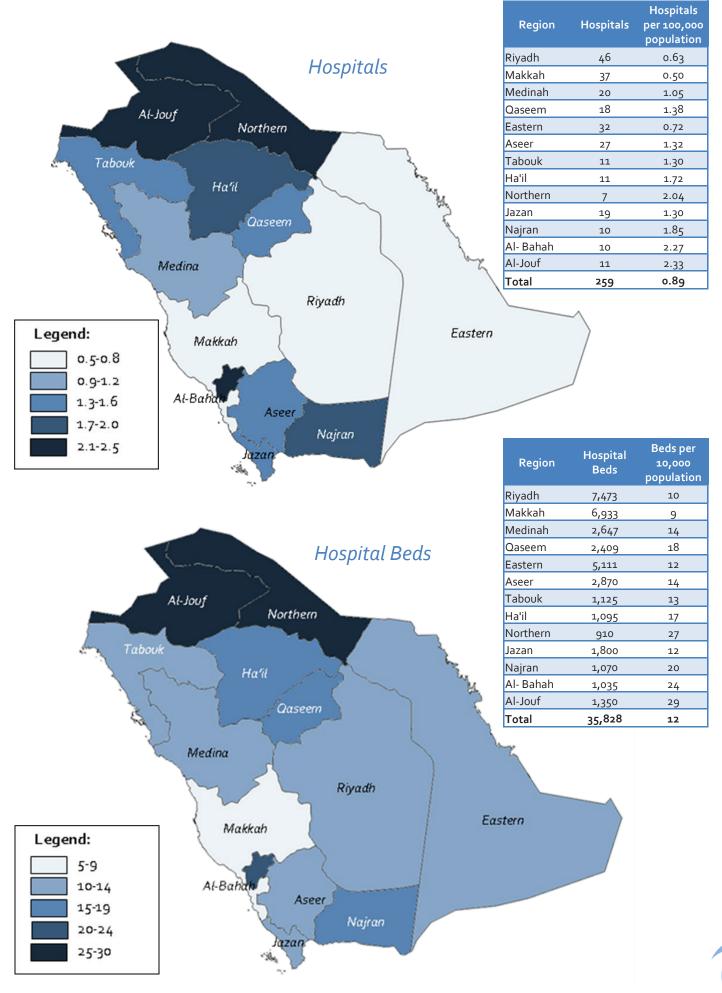


Figure 4.1: The ratio of MOH hospitals per 100,000 population and hospital beds per 10,000 population by region, 2012

Region	General	OBS & Pediatric	Eyes/ENT	Chest & Fever	Psychiatric/ convalescence	Leprosy /Rehab	Total
Riyadh	36	5	1	1	2	1	46
Makkah	26	4	1	2	3	1	37
Medinah	16	1	0	1	1	1	20
Qaseem	15	1	0	0	2	0	18
Eastern	22	2	2	0	6	0	32
Aseer	23	2	0	0	2	0	27
Tabouk	9	1	0	0	1	0	11
Ha'il	9	1	0	0	1	0	11
Northern	6	0	0	0	1	0	7
Jazan	17	0	0	1	1	0	19
Najran	8	1	0	0	1	0	10
Al- Bahah	6	2	0	0	2	0	10
Al - Jouf	8	1	0	0	2	0	11
Total	201	21	4	5	25	3	259

### Table 4.1: MOH hospitals by specialty and region, 2012

### Table 4.2: Hospital beds at MOH by specialty and region, 2012

Region	Internal Med.	Surgery	Orthopedics	Urology	Faciodental	OBS/GYN	Pediatrics	Ē	E.N.T	Ophthalmology	Chest &fevers	Skin & venereal	Burns & Plastic S.	Psychiatry & neurolo- gy	Isolation	Others	Total
Riyadh	1,008	717	281	78	16	889	1,141	881	101	289	130	41	47	626	198	1,030	7,473
Makkah	814	667	295	70	21	661	660	611	117	128	298	9	26	1,086	243	1,227	6,933
Medinah	447	266	133	57	3	372	409	202	44	35	77	0	18	107	74	403	2,647
Qaseem	309	221	86	37	33	277	197	225	51	49	49	10	42	200	30	593	2,409
Eastern	639	392	200	62	23	590	661	359	103	147	23	18	66	533	158	1,137	5,111
Aseer	341	379	130	68	14	346	438	238	39	33	49	13	32	232	36	482	2,870
Tabouk	152	92	54	15	9	133	187	122	19	13	26	9	4	57	37	196	1,125
Ha`il	212	115	16	7	0	204	190	43	11	0	0	0	0	85	35	177	1,095
Northern	76	63	35	9	0	108	140	97	18	12	28	14	9	114	44	143	910
Jazan	217	190	140	33	1	208	331	92	48	38	56	3	14	75	55	299	1,800
Najran	82	75	36	31	10	129	158	90	24	15	50	17	22	59	41	231	1,070
Al-Bahah	259	222	0	0	0	150	180	46	0	0	0	0	0	100	25	53	1,035
Al-Jouf	96	66	46	16	9	128	182	176	15	11	16	6	8	134	27	414	1,350
Total	4,652	3,465	1,452	483	139	4,195	4,874	3,182	590	770	802	140	288	3,408	1,003	6,385	35,828

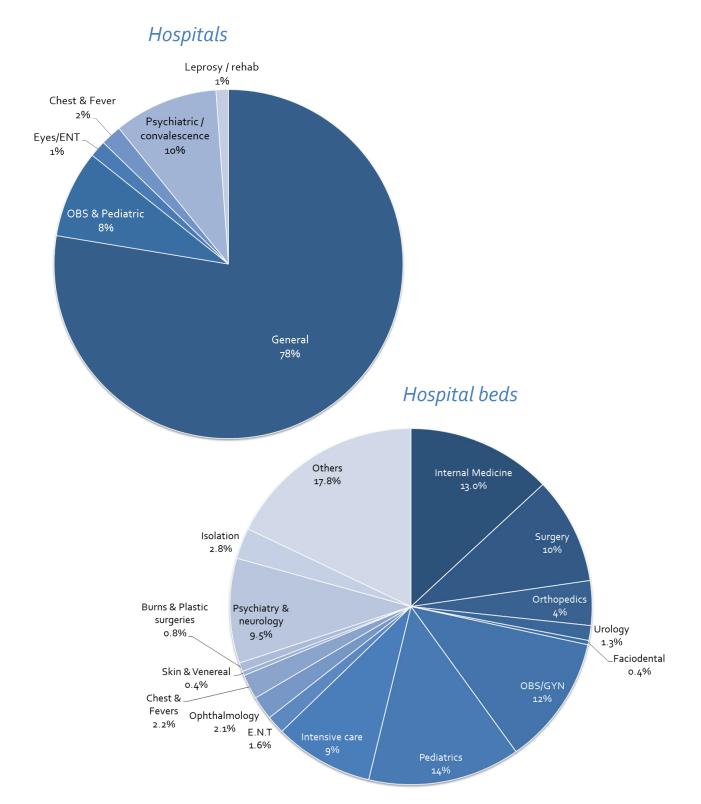


Figure 4.2: Distribution of MOH hospitals and beds by specialty, 2012

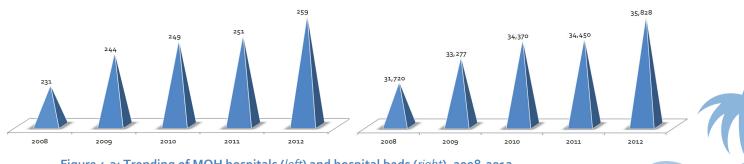
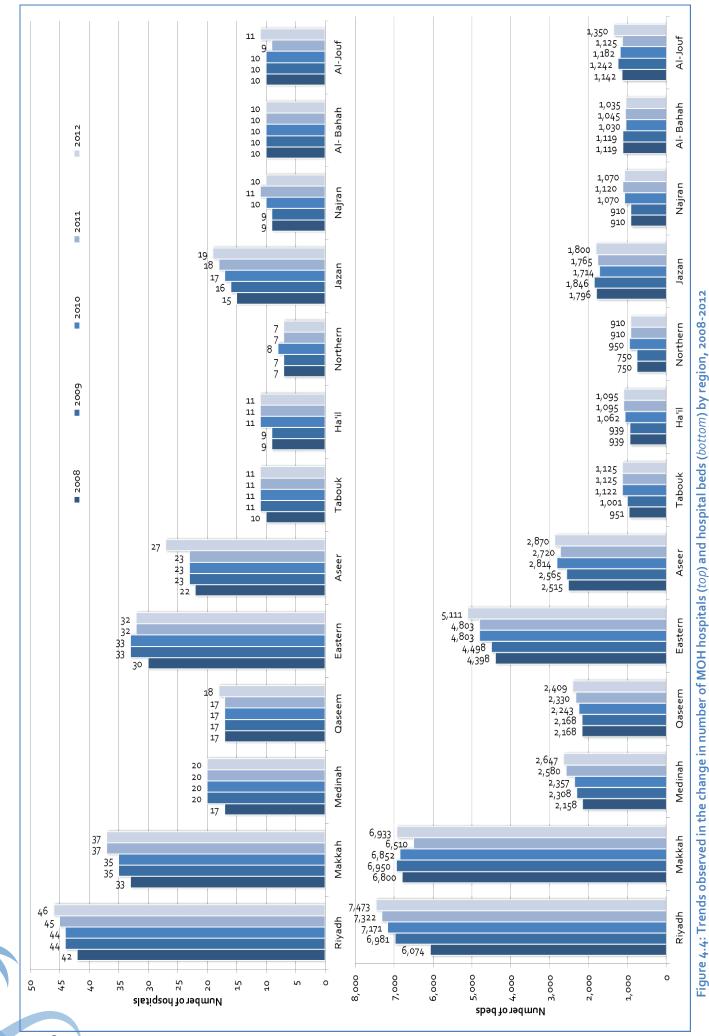


Figure 4.3: Trending of MOH hospitals (*left*) and hospital beds (*right*), 2008-2012



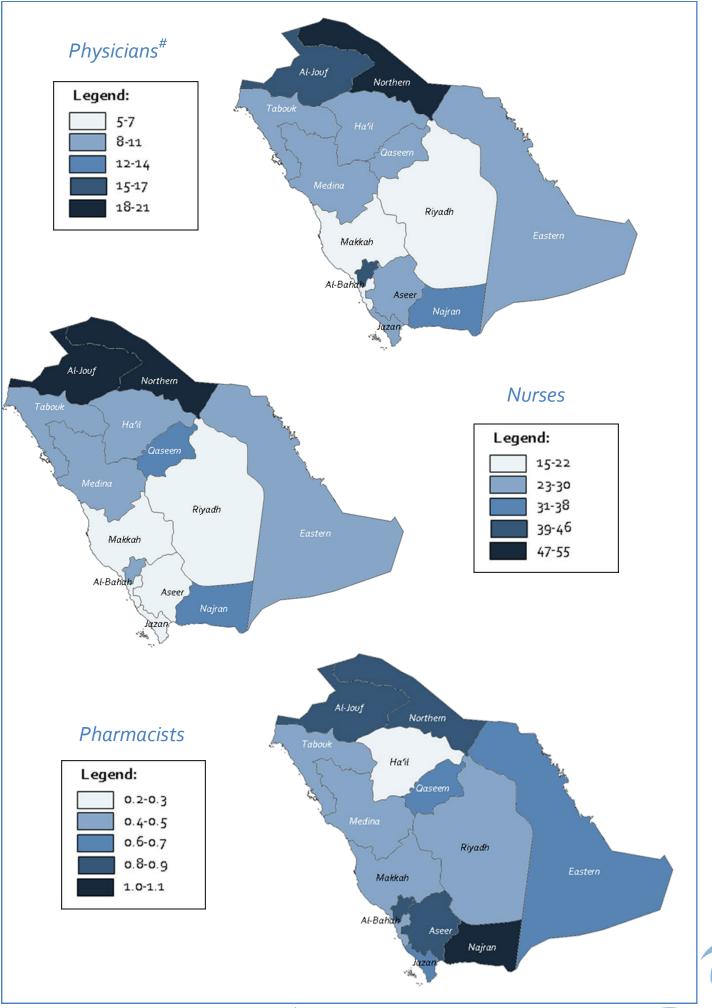


Figure 4.5: Ratio of health manpower<sup>\*</sup> in MOH hospitals per 10,000 population by region, 2012 # Includes dentists

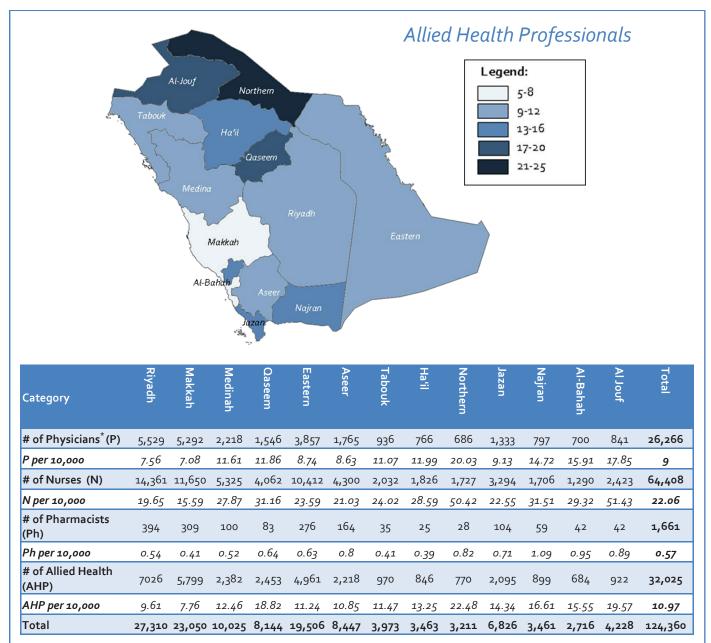


Figure 4.5 (continued): Ratio of health manpower<sup>\*</sup> in MOH hospitals per 10,000 population by region, 2012

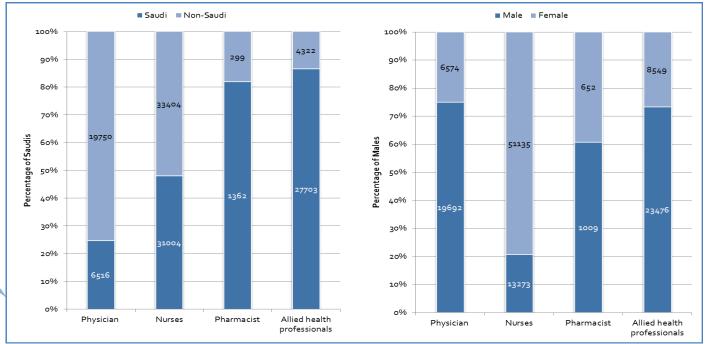


Figure 4.6: Proportions of manpower in MOH hospitals by nationality (left) and gender (right), 2012 60

\* Includes manpower of operation companies

### Table 4.3: Manpower in MOH hospitals by region, category, gender and nationality, 2012

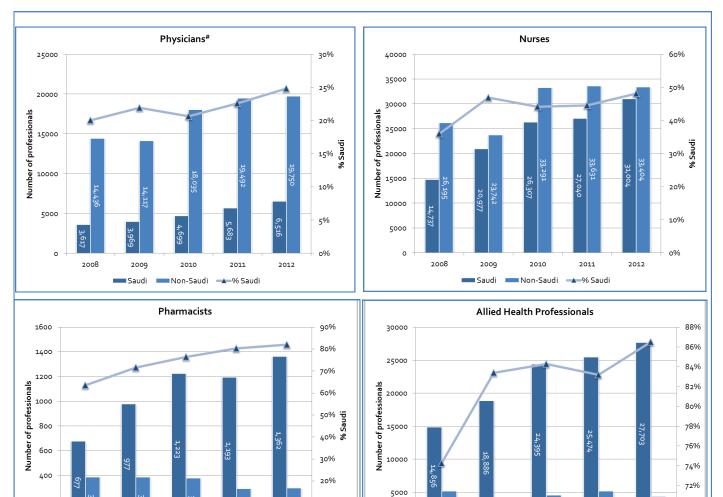
Cotocory		Tot	al	
Category	Saudi Males	Non-Saudi Males	Saudi Females	Non-Saudi Females
Physicians <sup>#</sup>	4,331	15,361	2,185	4,389
Nurses	11,906	1,367	19,098	32,037
Pharmacists	870	139	492	160
Allied Health Professionals	22,165	1,311	5,538	3,011

	Riy	vadh			Ma	kkah		Medinah				
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	
1,127	3,007	424	971	1,196	2,457	862	777	400	1,264	185	369	
2,408	548	2,784	8,621	2,219	330	3,278	5,823	1,179	16	1,836	2,294	
145	14	213	22	134	54	83	38	66	6	19	9	
4,812	369	1,151	694	3,511	339	1,429	520	1,797	47	431	107	

	Qas	seem			Eas	stern		Aseer				
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	
134	1,056	39	317	838	1,852	591	576	247	1,191	37	290	
836	44	744	2,438	1,416	315	4,693	3,988	782	27	980	2,511	
52	9	8	14	125	16	115	20	132	6	13	13	
1,882	63	160	348	2,909	247	1,518	287	1,654	70	198	296	

	Tal	oouk			Н	a'il		Northern				
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	
25	702	13	196	25	581	4	156	6	558	3	119	
562	18	766	686	311	16	599	900	405	5	819	498	
18	4	11	2	21	2	1	1	14	3	7	4	
756	33	117	64	562	33	81	170	533	11	100	126	

	Jazan			Najran				Al-Bahah				Al-Ajouf				
Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Females	Saudi Males	Non- Saudi Males	Saudi Females	Non- Saudi Fe- males	
214	893	13	213	34	616	4	143	51	536	4	109	34	648	6	153	
687	11	1,277	1,319	258	15	191	1,242	179	22	66	1,023	664	0	1,065	694	
81	12	6	5	45	4	5	5	18	6	0	18	19	3	11	9	
1,874	19	122	80	705	16	66	112	497	40	45	102	673	24	120	105	
	# Ir	ncludes de	ntists													
															61	



10%

o%

2012

0

2008

2009

2010

💻 Saudi 🛛 💶 Non-Saudi 🛶 % Saudi

2011

70%

68%

4,322

2012

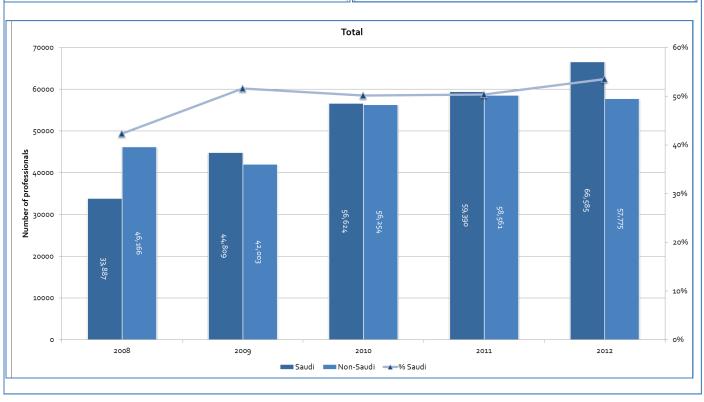


Figure 4.7: Manpower in MOH hospitals by nationality, 2008-2012 # Includes dentists

200

0

2008

2009

Saudi 📃

2010

💻 Non-Saudi 🛛 📥 🖌 Saudi

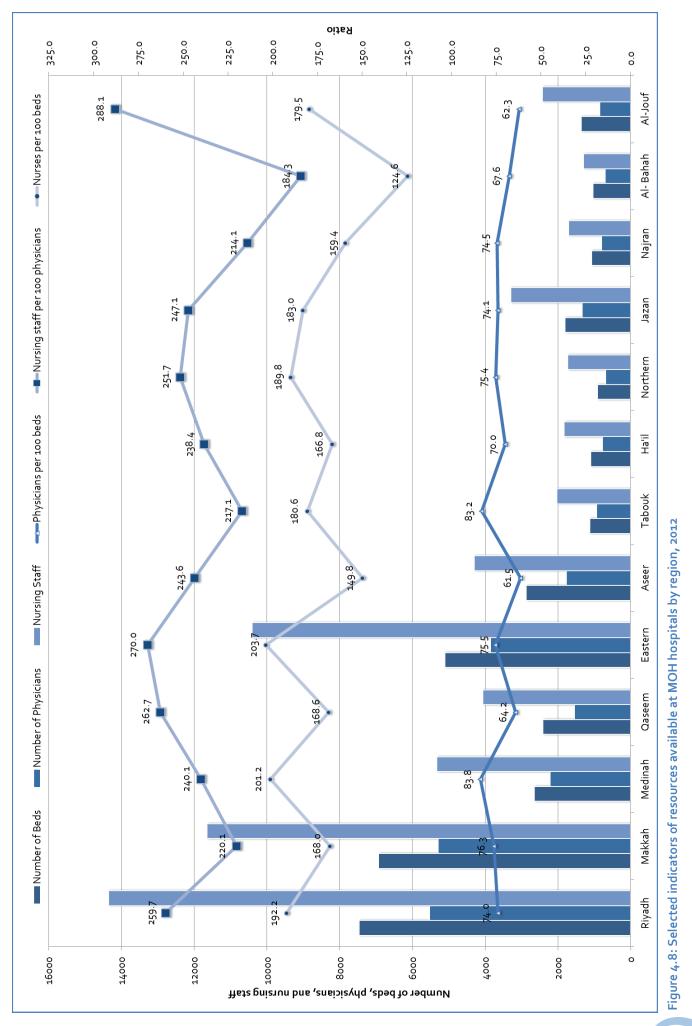


Table 4.4: Physicians and dentists in MOH hospitals by specialty and grade, 2012

Specialty	Resident	Registrar	Consultant	Total
General Practitioners	3,188	2	11	3,201
Dentistry	982	414	156	1,552
Internal medicine	1,111	687	281	2,079
Surgery	1,340	789	337	2,466
Orthopedics	257	433	127	817
Urology	84	232	83	399
Cardiothoracic surgery	5	44	61	110
Neurosurgery	67	83	75	225
Plastic surgery	32	60	48	140
E.N.T.	98	272	109	479
Ophthalmology	217	274	179	670
OBS/GYN	705	824	266	1,795
Cardiology	123	212	168	503
Chest diseases	38	141	38	217
Skin & venereology	40	202	71	313
Neurology	44	37	47	128
Public Health	8	38	-	46
Tropical Medicine	2	29	33	64
Radiology	102	362	179	643
Laboratory	26	489	138	653
Anesthesia	232	617	234	1,083
Physical medicine	51	106	40	197
Pediatrics	1,098	982	386	2,466
Psychiatry	216	273	86	575
Forensic M.	-	67	8	75
Family medicine	645	85	36	766
Emergency	1,651	188	75	1,914
Intensive care	484	188	139	811
Nephrology	269	189	85	543
Pediatric surgery	35	81	51	167
Blood diseases	6	8	38	52
Gastroenterology	5	32	40	77
Endocrinology	44	45	71	160
Oncology	23	72	84	179
Vascular surgery	9	34	25	68
Others	269	221	143	633
Total	13,506	8,812	3,948	26,266



Chapter 5: Health resources in other governmental sectors

# 5. HEALTH RESOURCES IN OTHER GOVERNMENTAL SECTORS

# Health Facilities in other Governmental Sectors

Facilities in other governmental sectors include the following:

University hospitals and medical centers in the Kingdom; Armed Forces Hospitals; National Guards Medical Services; Ministry of Interior Medical Services; King Faisal Specialist Hospital & Research Center, Riyadh; King Faisal Specialist Hospital & Research Center, Jeddah; Royal Commission Hospitals; ARAMCO Hospitals; School Health Units, Ministry of Education; Youth Welfare; Saudi Red Crescent Society; Saline Water Conversion Corporation; and Institute of Public Administration, Riyadh.

The total number of hospital beds in facilities of other governmental sectors is 11,043 in 2012. They are distributed across various specialties, as seen in Figure 5.1 and Table 5.1. The highest number of beds was recorded in the departments of internal medicine (18.3%), followed by surgery (16.8%).

## Health Manpower in other Governmental Sectors

The distribution of total health manpower employed in facilities of other governmental sectors is displayed, by category, as well as by gender and nationality, in Figure 5.2. The total number of physicians (including dentists) is 13,198, of which 6,588 are Saudi (49.9% of the total). The total number of dentists is 1,089, of which 904 are Saudi (68.8% of the total). The total number of nurses is 28,380, of which 3,820 are Saudi (13.5% of the total). Pharmacists constitute around 3% of total health manpower (1,853 pharmacists), with 1,114 being Saudi (60.1% of the total). The total number of allied health professionals is 20,897, of which 12,559 are Saudi (60.1% of the total).

Figure 5.3 further describes the characteristics (nationality and gender) of health manpower, among the four categories, who are employed in facilities of the other governmental sectors . In Table 5.2, there is a detailed description of the characteristics (nationality and gender) of the health manpower working among various facilities of the other governmental sectors, by category of employment for year 2012. The distribution of physicians and dentists by specialty and nationality is displayed in Figure 5.4.

### **KEY ACHIEVEMENTS** ...

The proportion of Saudis within the total health manpower employed at facilities of other governmental sectors increased from 34.5% in 2008 to 37.5% in 2012.



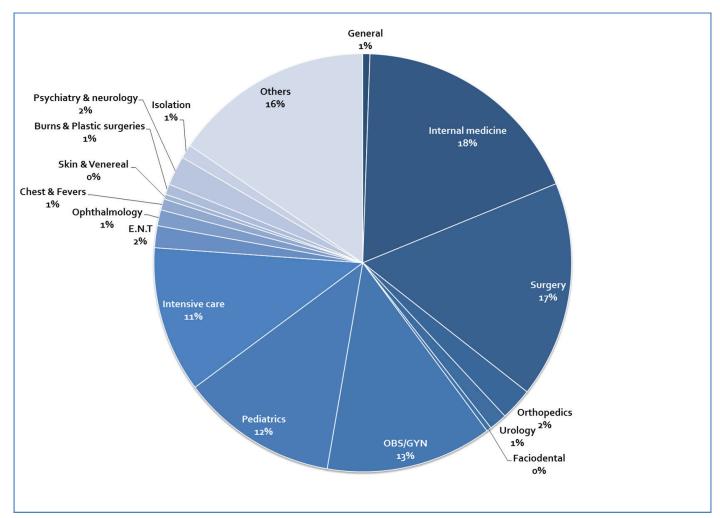


Figure 5.1: Distribution of total hospital beds in other governmental sectors by specialty, 2012

### Table 5.1: Hospital beds in institutions within other governmental sectors by specialty, 2012

Institution <sup>@</sup>	General	Internal medicine	Surgery	Orthopedics	Urology	Faciodental	OBS/GYN	Pediatrics	Intensive care	E.N.T	Ophthalmology	Chest & Fevers	Skin & Venereal	Burns & Plastic surgeries	Psychiatry & neurology	Isolation <sup>#</sup>	Others	Total
K.A.U.H.,R	-	-	-	-	-	-	-	-	-	49	43	-	-	-	-	-	4	96
K.K.U.H.,R	-	164	146	53	32	6	114	104	39	-	-	20	4	20	23	8	26	759
K.K.U.H.,J <sup>*</sup>	-	104	116	-	-	-	72	147	46	-	-	-	-	-	-	16	67	568
K.F.U.H.,K	-	63	107	25	-	-	47	66	46	25	-	-	-	12	36	-	-	427
A.F.Hs. <sup>*</sup>	-	702	743	126	85	29	697	503	667	71	74	68	37	35	110	85	1183	5215
N.G.Hs.	-	608	428	-	-	-	234	243	138	-	-	-	-	2	-	-	106	1759
S.F.H.**	-	79	45	32	12	3	60	56	26	14	10	-	-	12	-	-	-	349
K.F.S.H.,R	46	50	51	26	21	2	51	33	140	22	3	7	1	8	50	-	247	758
K.F.S.H.,J	15	60	41	-	-	-	21	51	56	-	-	-	-	-	18	-	67	329
R.C.Hs.	-	102	88	14	4	2	105	74	25	6	6	-	-	-	-	9	14	449
ARAMCO Hs.	-	86	86	-	-	-	20	61	66	-	-	-	-	-	15	-	-	334
Total	61	2018	1851	276	154	42	1421	1338	1249	187	136	95	42	89	252	118	1714	11043

K.A.U.H.,R: King Abdulaziz University Hospital, Riyadh; K.K.U.H.,R: King Khaled University Hospital, Riyadh; K.A.U.H.,J: King Abdulaziz University Hospital, Jeddah; K.F.U.H.,K: King Fahed University Hospital, Khobar; A.F.Hs: Armed Forces Hospitals; N.G.Hs: National Guards Hospitals; S.F.H: Security Forces Hospital; K.F.S.H.,R: King Faisal Specialist Hospital & Research Centre, Riyadh; K.F.S.H.,J: King Faisal Specialist Hospital & Research Centre, Riyadh; K.F.S.H.,J: King Faisal Specialist Hospital & Research Centre, Jeddah; R.C.Hs: Royal Commission Hospitals; ARAMCO Hs: ARAMCO hospitals.

\* Data for 2011 is used for these categories due to missing data from year 2012

\*\* Data for 2010 is used for these categories due to missing data from year 2011 and 2012

# Number of isolation rooms in (Riyadh and Jeddah) and R.C.Hs are included with inpatients room

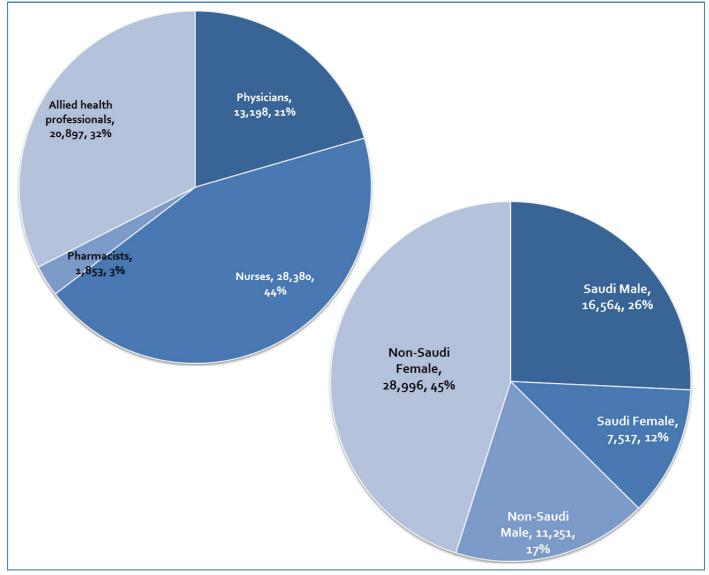


Figure 5.2: Distribution of total health manpower in other governmental sectors by category (*left*) and gender and nationality (*right*), 2012

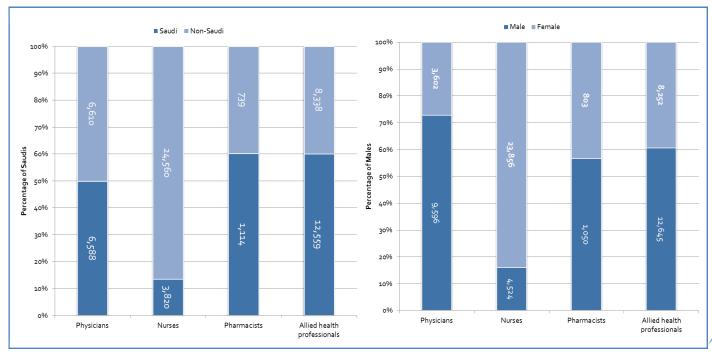


Figure 5.3: Total health manpower in other governmental sectors by category and nationality (*left*) and gender (*right*), 2012

 $\textbf{Note:} \ \textbf{Physicians include dentists}$ 

					_							
Cotocom	Ki	ng Abdula: Hospita	ziz Univers I, Riyadh	sity	k	(ing Khale) Hospita	d Universi <sup>:</sup> I, Riyadh	ty	King Abdulaziz University Hospital, Jeddah <sup>*</sup>			
Category	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females
Physicians <sup>#</sup>	65	23	75	26	345	142	270	80	397	268	165	48
Nurses	26	4	18	312	35	27	116	1,817	18	77	72	912
Pharmacists	7	18	5	1	80	61	33	18	15	8	7	10
Allied health professionals	172	112	83	56	581	356	231	262	146	135	110	115
Total	270	157	181	395	1,041	586	650	2,177	576	488	354	1,085

Category		King Faheo Hospita	l University I, Khobar	y	А	rmed Forc	es Hospita		National Guards Medical Services**			
Category	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females
Physicians <sup>#</sup>	245	163	134	32	1,498	708	2,122	602	1,029	561	999	239
Nurses	31	115	49	473	1,302	828	983	8,618	90	377	514	4,893
Pharmacists	17	16	2	1	226	106	129	114	174	116	47	54
Allied health professionals	171	166	103	124	2,895	916	886	2,105	913	487	716	1,479
Total	464	460	288	630	5,921	2,558	4,120	11,439	2,206	1,541	2,276	6,665

Category			of Interior Services**		•	aisal Specia search Cen			King Faisal Specialist Hospital & Re- search Centre, Jeddah			
	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non- Saudi Females
Physicians <sup>#</sup>	204	51	144	56	251	45	262	36	109	54	27	166
Nurses	92	636	100	645	108	189	282	1,904	3	99	111	780
Pharmacists	35	17	3	3	32	45	49	91	4	15	26	36
Allied health professionals	103	64	80	168	327	297	293	301	71	61	125	125
Total	434	768	327	872	718	576	886	2,332	187	229	289	1,107

<b>.</b> .	Roy	yal Commis	sion Hospi	itals		ARA	мсо		Others <sup>***</sup>				
Category	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	
Physicians <sup>#</sup>	22	24	180	95	144	68	214	25	85	87	471	142	
Nurses	10	9	65	579	7	128	151	951	287	33	146	86	
Pharmacists	10	6	7	11	13	8	53	12	58	27	18	9	
Allied health professionals	65	29	65	142	374	252	262	330	3,756	110	117	60	
Total	107	68	317	827	538	456	680	1,318	4,186	257	752	297	

# Include dentists

# Include dentists \* Represent data from year 2011 due to the absence of data for the year 2012 \*\* Represent data from year 2010 due to the absence of data for the year 2011 and 2012 \*\*\* **Others** include sum of manpower from the following institutions: School health units (MOE), Youth Welfare (YWH), Saudi Red Crescent Society (SRCS), Saline Water Conver-sion Corporation (SWCCMU), King Fahd University of Petroleum & Minerals (KFUPMMU), Medinah Islamic university (MISUMCI)<sup>^</sup>, Imam Muhammad bin Saud Islamic University (IMUMU), King Khaled University (MKSU, Abha),Omm Algurra U, and Institute of Public Administration in Riyadh (IPAMCI)

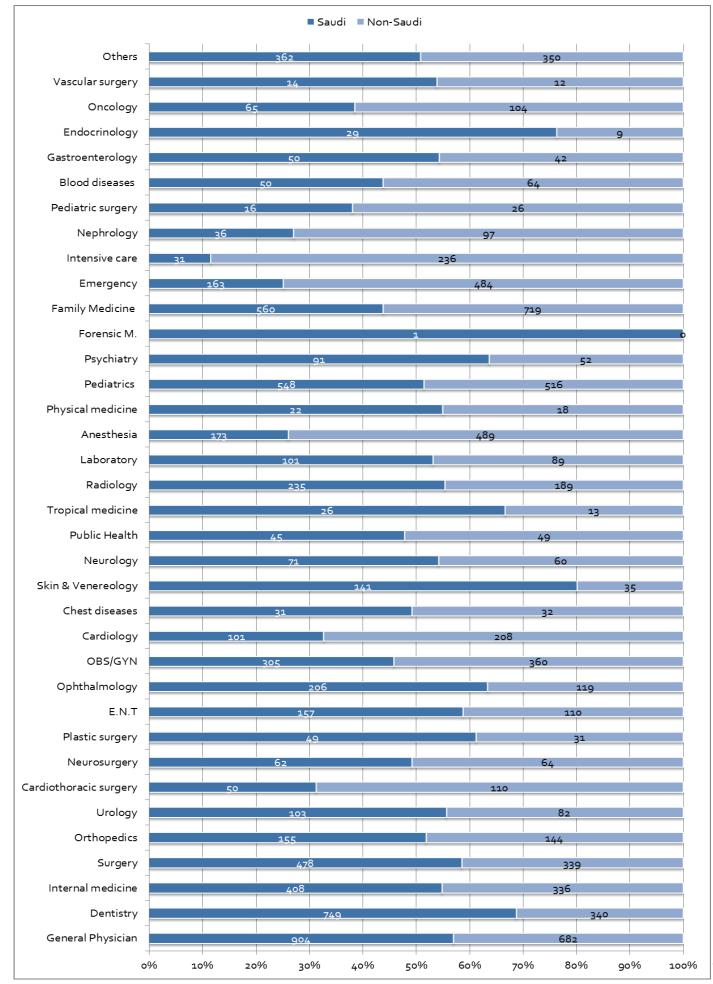


Figure 5.4: Distribution of physicians and dentists in other governmental sector by specialty and nationality, 2012



HEALTH RESOURCES

Chapter 6: Health resources in the private sector

### 6. HEALTH RESOURCES IN THE PRIVATE SECTOR

### Health Facilities in the Private Sector

The private health sector within the Kingdom encompasses different types of health facilities, which are summarized by region in Table 6.1. In 2012, the highest percentage of private hospitals (32.1%) are present in Makkah, followed by Riyadh (23.3%). The highest number of hospital beds are present in Riyadh (4,109 beds comprising 29.0% of the total number of hospital beds private sector), followed by Makkah (27.7%). Figure 6.1 further displays the ratios of hospital beds in the private sector per 10,000 population by region of the Kingdom. The highest ratio is present in the Eastern province 8.05 beds per 10,000.

The total number of private dispensaries is 2,168, with 749 dispensaries (34.5%) present in Riyadh and 573 dispensaries (26.4%) present in Makkah. The total number of private pharmacies is 6,947, representing a rate of one pharmacy per 4,203 individual.

Table 6.2 details the distribution of hospital beds in the private sector by region and specialty. The total number of private sector hospitals, beds and dispensaries has increased during the time period of 2008-2012. Figure 6.2 displays this increasing trend for each of the variables. The change in the number of the private sector hospitals, beds and dispensaries by region of the Kingdom over the time period 2008-2012 is shown in Figure 6.3.

Table 6.3 represents the distribution of private clinics (198 in total) by region and specialty for year 2012. There are 117 clinics (59.1%) present in Makkah and 47 (23.7%) are present in Riyadh. This means that about 83% of the private clinics in the Kingdom are present in Makkah and Riyadh, together.



### HOW DOES KSA COMPARE?

In 2012, there are 1.3 nurses for every physician employed at a health facility in the private sector in the KSA, in comparison to 1.3 nurses for every physician in the Eastern Mediterranean Region (EMR) and 1.8 nurses for every physician globally.

Source: World Health Statistics Report (2013), World Health Organization

### Health Manpower in the Private Sector

Health manpower in the private sector includes physicians, nurses, pharmacists and allied health professionals. The total number of physicians working in the private hospitals and polyclinics is 22,146; the number of physicians (including dentists) is 22,479. There are 28,373 nurses in the private sector. The total number of pharmacists working in the private polyclinics and hospitals is 981 while 10,602 pharmacists are working in the private pharmacies, therefore the total number of pharmacists in the private sector is 11,583. 10,174 allied health professionals work in the private sector. Their distribution and ratios per 10,000 population by region for year 2011 are displayed in Figure 6.4. The Eastern Province has the highest ratios for all categories of manpower: physicians (11.25 per 10,000 population), nurses (20.34 per 10,000 population), pharmacists (0.93 per 10,000 population), and Allied Health Professionals (7.28 per 10,000 population).

#### **TREND OVER TIME...**

Between 2008 and 2012, there was an 11.4% increase in the number of private hospitals, from 123 to 137 hospitals. Simultaneously, there was an addition of 2,803 beds (representing a 24.7% increase in the number of private hospital beds).

The proportion of Saudis employed in health facilities of the private sector has increased from 5.3% in 2007 to 6.3% in 2011.

The proportions of health manpower employed in the private sector by nationality and gender for year 2011 are displayed in Figure 6.5. The proportions are further detailed by region of the Kingdom in Table 6.4. The change in the proportion of the four categories of health manpower by nationality, during the time period of 2007-2011, is shown in Figure 6.6. The distribution of physicians in hospitals and dispensaries of the private sector by specialty and grade is displayed in Table 6.5.

#### **KEY ACHIEVEMENTS ...**

Between 2008 and 2012, 297 private health dispensaries were established, representing a 16% increase in total number of dispensaries in the private sector.

Table 6.1: Private sector hospitals, beds, dispensaries, and other medical facilities by region, 2012

Region	Hospitals	Beds	Dispensaries*	Private Clinics	Laboratories	Physiotherapy Center	Opticals	Dental Prosth	Pharmacies
Riyadh	32	4,109	749	47	32	26	701	18	1,973
Makkah	44	3,917	573	117	35	22	382	42	1,179
Medinah	12	1,035	100	11	5	2	125	8	349
Qaseem	5	393	83	3	1	1	77	6	315
Eastern	28	3,555	272	7	7	6	310	0	853
Aseer	11	780	158	2	5	4	103	1	574
Tabouk	1	86	45	7	3	1	44	2	171
Ha'il	1	60	33	2	8	15	52	1	230
Northern	0	0	17	0	1	0	5	0	64
Jazan	1	30	44	1	1	0	50	0	344
Najran	1	100	37	0	0	3	21	0	93
Al- Baha	1	100	27	0	0	0	32	0	92
Al-Jouf	0	0	30	1	0	0	11	0	110
Total	137	14,165	2,168	198	98	80	1,913	78	6,947

\* Include dispensaries and polyclinics, specialized and general clinics

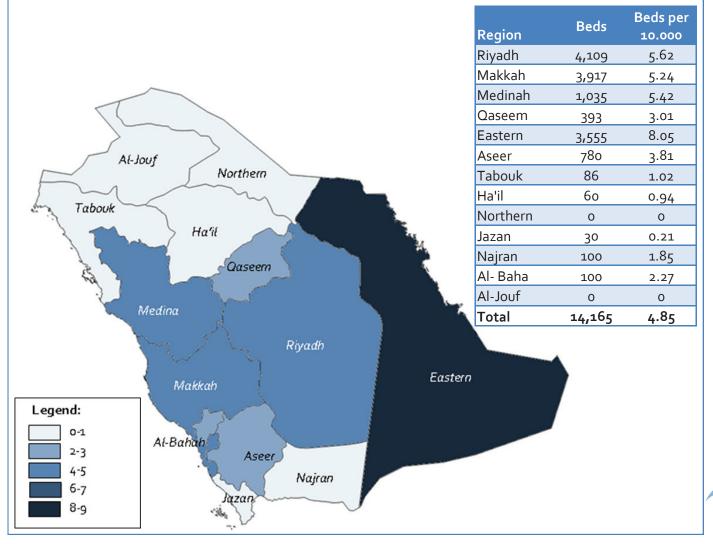
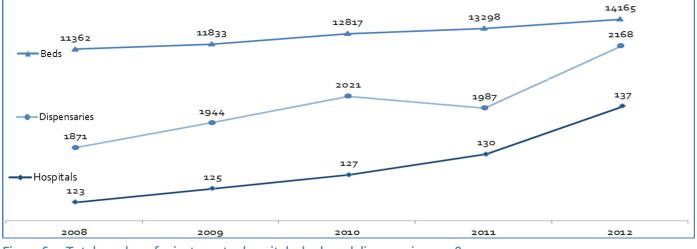


Figure 6.1: Ratio of hospital beds in the private sector per 10,000 population by region, 2012

Total	4,109	3, 917	1, o35	393	3,555	780	86	60	30	100	100	14,165
Others	243	121	189	0	37	0	ο	ο	0	5	ο	595 1
Isolation	10	82	10	о	10	о	о	o	ο	ο	о	112
Psychiatry & Neurolo- gy	18	151	7	0	28	0	o	0	0	7	0	206
Burns & Plastic Sur- geries	30	7	ο	0	4	0	0	ο	ο	ο	0	36
Skin & venereal	12	13	0	2	р	0	0	o	0	7	ο	31
Chest & fevers	7	m	7	2	7	0	ο	0	0	0	0	16
Ophthalmology	84	53	13	2	48	24	ο	ο	0	5	ο	229
ENT	84	48	9	14	58	21	0	ο	ο	œ	0	239
Intensive care	188	305	63	29	199	30	ο	0	0	4	0	818
Pediatrics	487	592	153	65	682	0	0	o	0	10	ο	1,989
OBS/GYN	730	423	121	130	544	98	0	0	0	20	ο	2,066
Faciodental	32	ο	Ч	0	30	0	0	ο	0	o	ο	63
Urology	31	95	14	0	11	0	ο	0	0	ω	0	159
Orthopedics	54	39	œ	10	54	0	ο	0	0	œ	0	173
Surgery	685	581	133	53	837	63	ο	0	0	ω	ο	2,360
Internal Medicine	599	656	97	62	888	100	0	0	0	15	0	2,417
General	820	753	218	24	116	444	86	60	30	5	100	2,656
Region	Riyadh	Makkah	Medinah	Qaseem	Eastern	Aseer	Tabouk	Ha'il	Jazan	Najran	Al- Bahah	Total

Table 6.2: Hospital beds in the private sector by region and specialty, 2012

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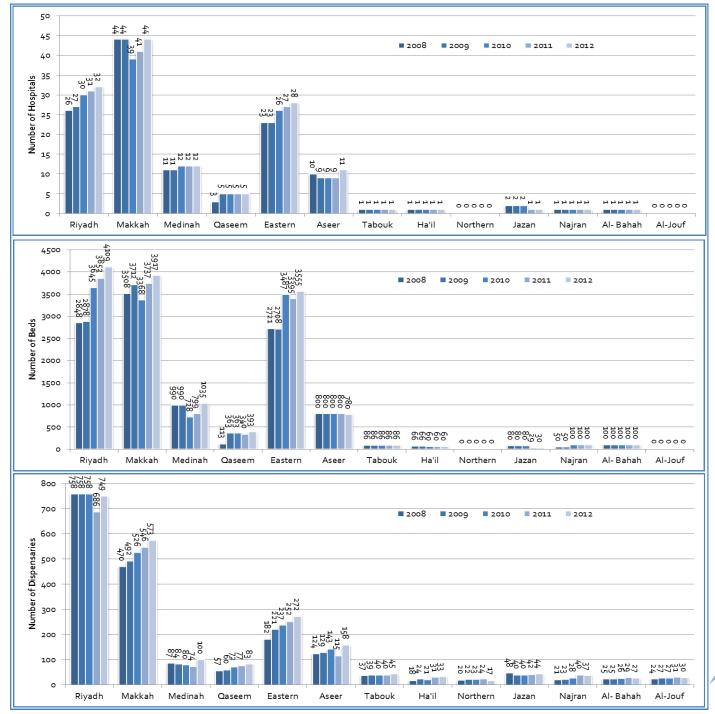
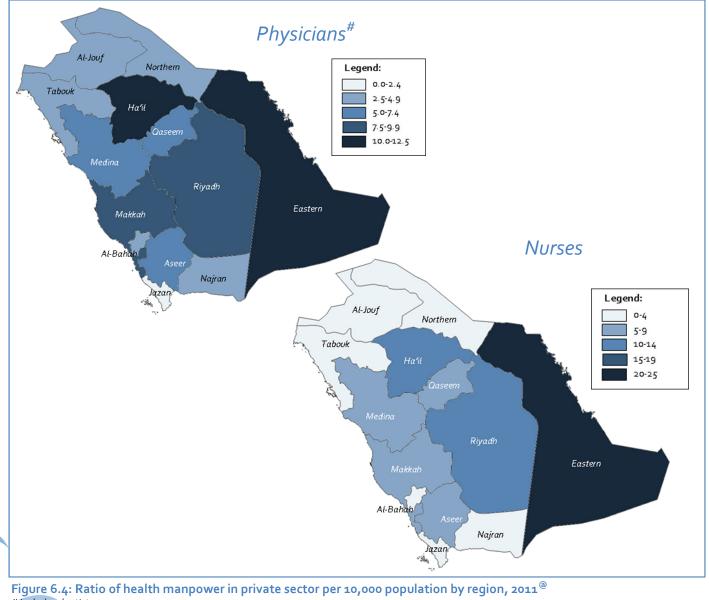


Figure 6.3: Private sector hospitals, beds and dispensaries by region, 2008 –2012

Table 6.3: 0	Clinics in	private	sector	by region	and	specialty, 2012
				~ / · · · · · · ·		

Region	General Medicine	Dentistry	Internal Medicine	General surgery	OBS/GYN	Pediatrics	Ophthalmology	Orthopedics	Psychiatry & Neu- rology	Heart & Chest	ENT	Skin & venereal	Urology	Others	Total
Riyadh	9	12	4	0	4	4	2	0	0	2	6	2	2	0	47
Makkah	16	18	7	6	15	18	8	3	4	4	6	7	1	4	117
Medinah	2	7	0	0	0	1	1	0	0	0	0	0	0	0	11
Qaseem	0	2	0	0	0	0	1	0	0	0	0	0	0	0	3
Eastern	2	2	0	0	1	1	0	0	0	0	1	0	0	0	7
Aseer	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
Tabouk	3	2	1	0	0	0	0	0	0	0	0	1	0	0	7
Ha'il	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
Northern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jazan	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Najran	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al- Baha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Al-Jouf	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	32	45	13	6	21	24	12	3	4	6	13	11	3	5	198



# Includes dentists
 <sup>®</sup> Data for 2011 is used due to missing data from year 2012. The numbers exclude physicians in private and company clinics; as well as pharma-78 cists in the private pharmacies.

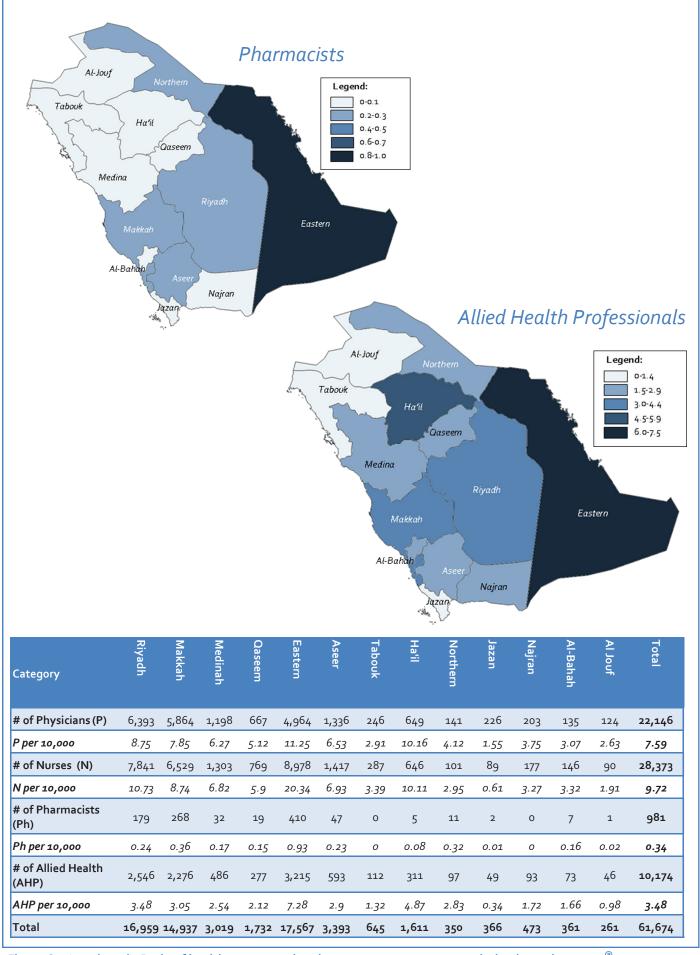
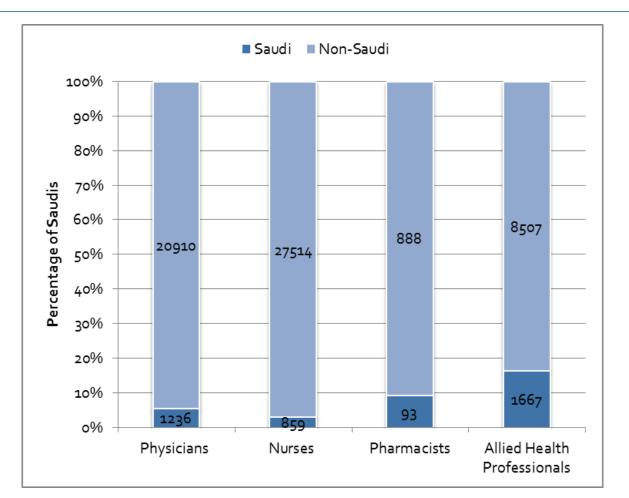


Figure 6.4 (continued): Ratio of health manpower in private sector per 10,000 population by region, 2011<sup>®</sup> <sup>®</sup> Data for 2011 is used due to missing data from year 2012. The numbers exclude physicians in private and company clinics; as well as pharmacists in the private pharmacies.



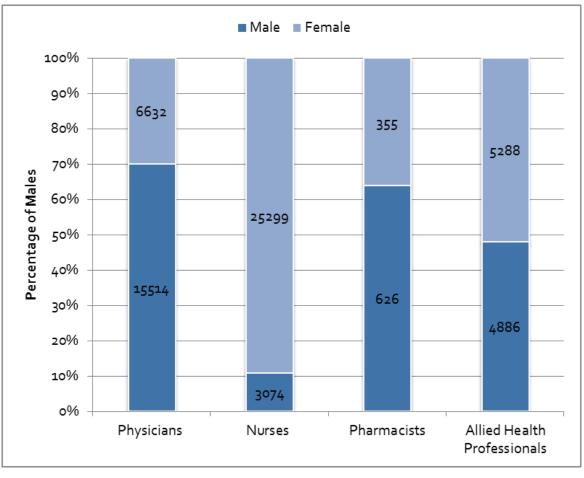


Figure 6.5: Proportions of manpower in private sector by nationality (top) and gender (bottom), 2011<sup>@</sup> Data for 2011 is used due to missing data from year 2012

### Table 6.4: Manpower in private sector by category, gender, nationality and region, 2011<sup>@</sup>

Catagory		Τα	otal	
Category	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females
Physicians <sup>#</sup>	957	279	14,557	6,353
Nurses	461	398	2,613	24,901
Pharmacists	55	38	571	317
Allied Health Professionals	1,040	627	3,846	4,661

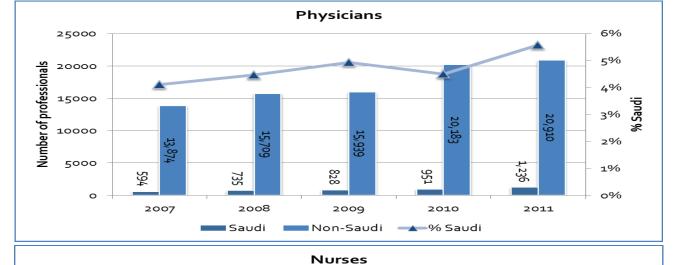
	Riy	vadh			Ma	kkah			Mec	linah	
Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females
357	94	3,966	1,976	204	66	4,086	1,508	33	5	838	322
83	3	529	7,226	130	69	515	5,815	109	30	87	1,077
12	12	90	65	7	4	138	119	3	0	23	6
167	58	898	1,423	280	153	904	939	94	42	200	150

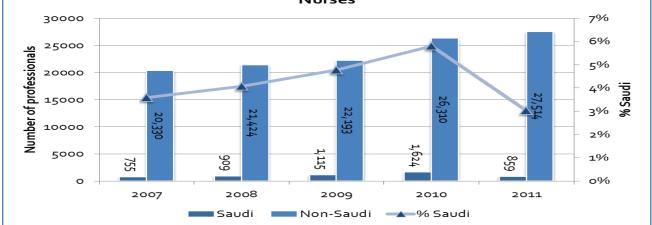
	Qas	seem			Eas	stern			As	eer	
Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saud Males	i Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	i Non-Saudi Females
12	2	410	243	305	109	3,241	1,309	30	2	827	477
6	0	57	706	54	253	1,200	7,471	32	3	80	1,302
0	0	10	9	31	21	268	90	2	1	22	22
22	0	112	143	345	371	1,077	1,422	58	1	271	263

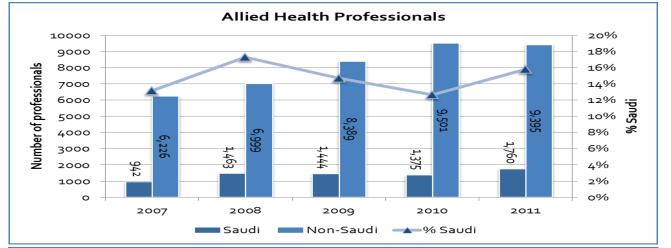
	Tal	bouk			н	a'il			Nor	thern	
Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Saudi Males	Saudi Females	Non-Saudi Males	i Non-Saudi Females
3	0	176	67	1	0	454	194	0	0	101	40
12	17	24	234	4	1	44	597	10	21	20	50
0	0	0	0	0	0	2	3	0	0	11	0
9	2	58	43	14	0	125	172	0	0	70	27

	Jaz	an			Naj	ran			Al-Ba	ahah			Al-A	jouf	
Saudi Males	Saudi Females	Non- Saudi Males	Non- Saudi Females												
5	0	147	74	2	0	135	66	1	0	86	48	4	1	90	29
2	0	8	79	5	1	10	161	5	0	7	134	9	0	32	49
0	0	2	0	0	0	0	0	0	0	4	3	0	0	1	0
3	0	27	19	30	0	36	27	12	0	29	32	6	0	39	1

<sup>@</sup> Data for 2011 is used due to missing data from year 2012 # Includes dentists







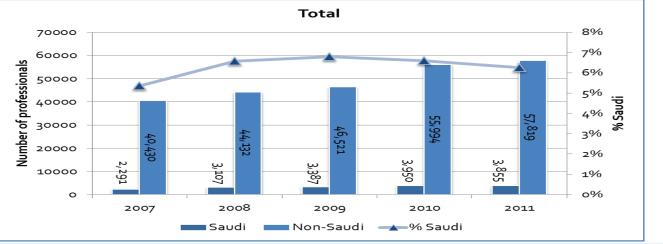


Figure 6.6: Physicians<sup>#</sup>, nurses and allied health professionals<sup>\*</sup> working in the private sector by nationality, 2007-2011<sup>@</sup>

# Physicians include dentists

\* Allied health professionals include pharmacists excluding those in private pharmacies (a) Data for 2011 is used due to missing data from year 2012

Table 6.5: Physicians in hospitals and	dispensaries of the	private sector by sp	ecialty and grade, 2011 <sup>@</sup>

		Grade		
Specialty	Resident	Specialist	Consultant	Total
General Physician	2950	13	-	2963
Dentistry	4664	1048	161	5873
Internal medicine	191	1145	214	1550
Surgery	86	626	212	924
Orthopedics	69	459	147	675
Urology	21	234	97	352
Cardiothoracic surgery	-	13	20	33
Neurosurgery	8	26	37	71
Plastic Surgery	3	36	49	88
E.N.T	34	577	131	742
Ophthalmology	58	468	134	660
OBS/GYN	257	1417	308	1982
Cardiology	42	190	114	346
Chest diseases	6	118	54	178
Skin & Venereology	76	624	108	808
Neurology	9	33	41	83
Public Health	-	11	8	19
Tropical Medicine	1	33	16	50
Radiology	85	613	97	795
Laboratory	31	639	103	773
Anesthesia	73	353	164	590
Physical medicine	6	77	36	119
Pediatrics	222	1331	299	1852
Psychiatry	17	70	56	143
Forensic M.	-	-	-	-
Family medicine	6	57	32	95
Emergency	25	44	10	79
Intensive care	16	14	7	37
Nephrology	7	18	22	47
Pediatric surgery	-	1	15	16
Blood diseases	-	1	9	10
Gastroenterology	1	26	50	77
Endocrinology	-	9	30	39
Oncology	-	3	20	23
Vascular surgery	1	2	13	16
Others	-	26	12	38
Total	8965	10355	2826	22146

(a) Data for 2011 is used due to missing data from year 2012



Chapter 7: Total health resources in all health sectors in the Kingdom

## 7.

### TOTAL HEALTH RESOURCES IN ALL HEALTH SECTORS IN THE KINGDOM

### **Health Facilities**

In 2012, the total number of hospitals in the Kingdom is 435. Figure 7.1 displays the distribution of hospitals across the different health sectors. The total number of beds in all hospitals in the Kingdom is 61,036. It is significant to note that there are 35,828 beds under the management of the MOH, corresponding to 58.7% of the total beds in the Kingdom (Figure 7.2). Figure 7.3 displays the increasing trend in the number of hospitals and hospital beds in the Kingdom for the years 2008 to 2012. Between the years 2011 and 2012, the Kingdom witnessed an increase of 15 hospitals (a 3.6% increase). Figure 7.4 further details this increasing pattern in the number of hospitals and hospital beds per health sector, i.e. MOH, other governmental and private, during the period 2008-2012.

### **Health Manpower**

The total number of health manpower for the categories of physicians, nurses, pharmacists and allied health professionals in 2012 is shown in Figure 7.5, along with the change in the numbers during the period of 2008-2012. In year 2012, total health manpower working in the Kingdom were distributed as follows: 71,518 physicians (including 10,002 dentists), 139,701 nurses, 15,590 pharmacists, and 76,769 allied health professionals. The change in the numbers of the four categories of health manpower during the time period of 2008-2012 is further detailed per health sector of employment in Figure 7.6.

In year 2012, the proportion of health manpower working in the Kingdom who are Saudis is as follows: physicians (23.8%), nurses (36.2%), pharmacists (19.4%), and allied health professionals (72.0%). Figure 7.7 reveals the change in the proportions of Saudis among the total number of physicians, nurses and allied health professionals working in the Kingdom for the time period of 2008-2012. This change in proportions is further detailed per health sector of employment in Figure 7.8.



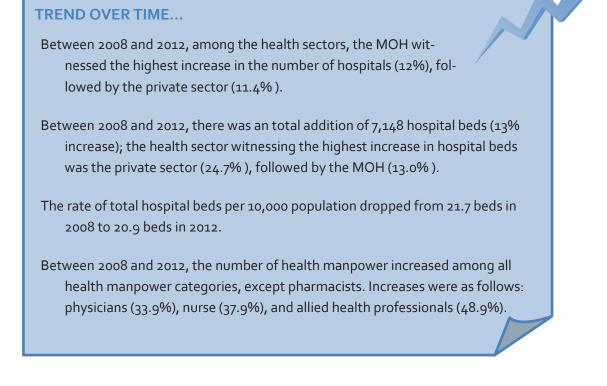


Table 7.1 shows the distribution of physicians and dentists working in all health sectors of the Kingdom, by specialty, gender, nationality, and region.

Figure 7.9 displays the 2012 distribution of physicians and dentists working in all health sectors by specialty and exhibits the proportion of Saudis working in each specialty. The specialty with the highest proportion of Saudis is Endocrinology (47.2%), while the specialty with the least proportion of Saudi di is Anesthesia (10.8%).

### **KEY ACHIEVEMENTS** ...

Between 2008 and 2012, 42 new hospitals were built in KSA, resulting in an increase of 10.7% in the number of hospitals and an addition of 7,148 beds to the Kingdom's hospital bed capacity.

The proportion of Saudis among total health manpower increased from 2008 to 2012 by: 14.4% among physicians (20.8% to 23.8%), 24.4% among nurses (29.1% to 36.2%), 49.2% among pharmacists (13.0% to 19.4%), and 18.0% among allied health professionals (61.2% to 72.2%).

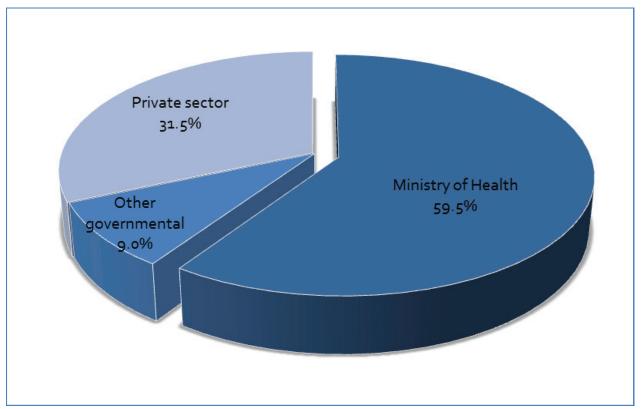


Figure 7.1: Hospitals in various health sectors, KSA, 2012

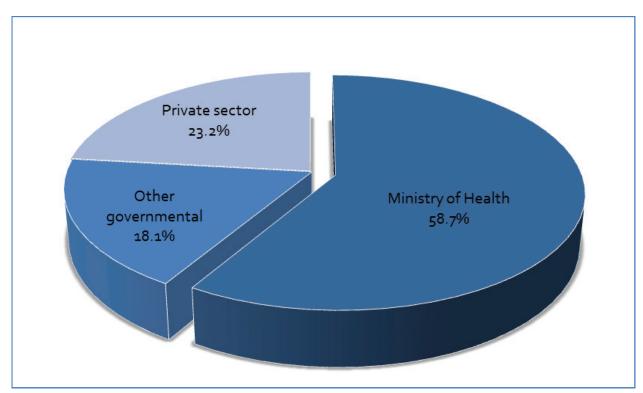
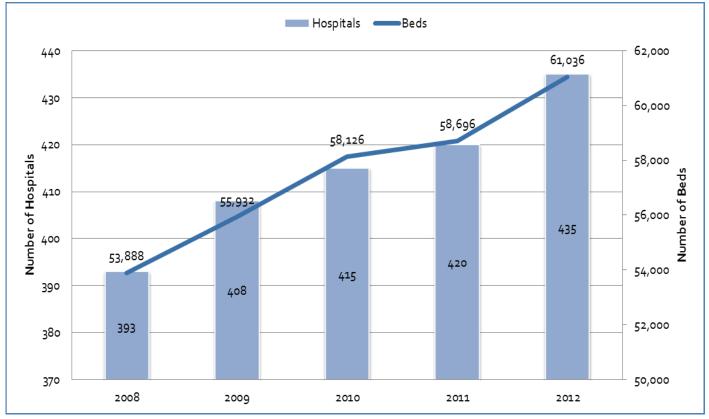


Figure 7.2: Hospital beds in various health sectors, KSA, 2012





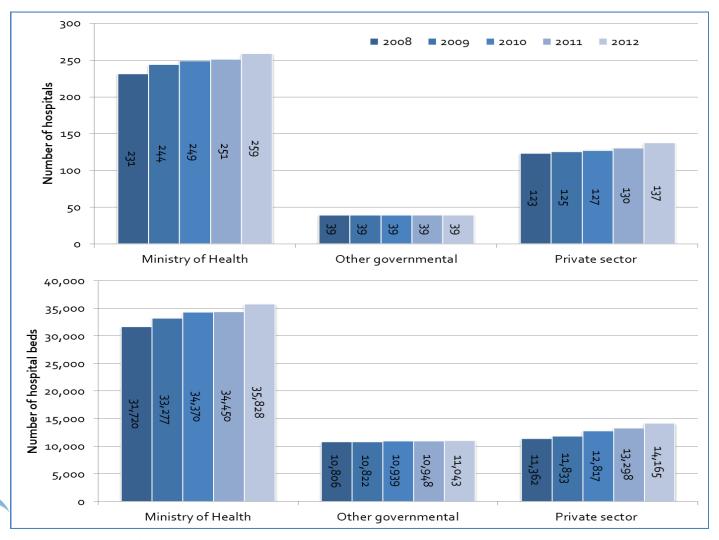


Figure 7.4: Number of hospitals and beds in MOH, other governmental sectors and private sector, 2008-2012

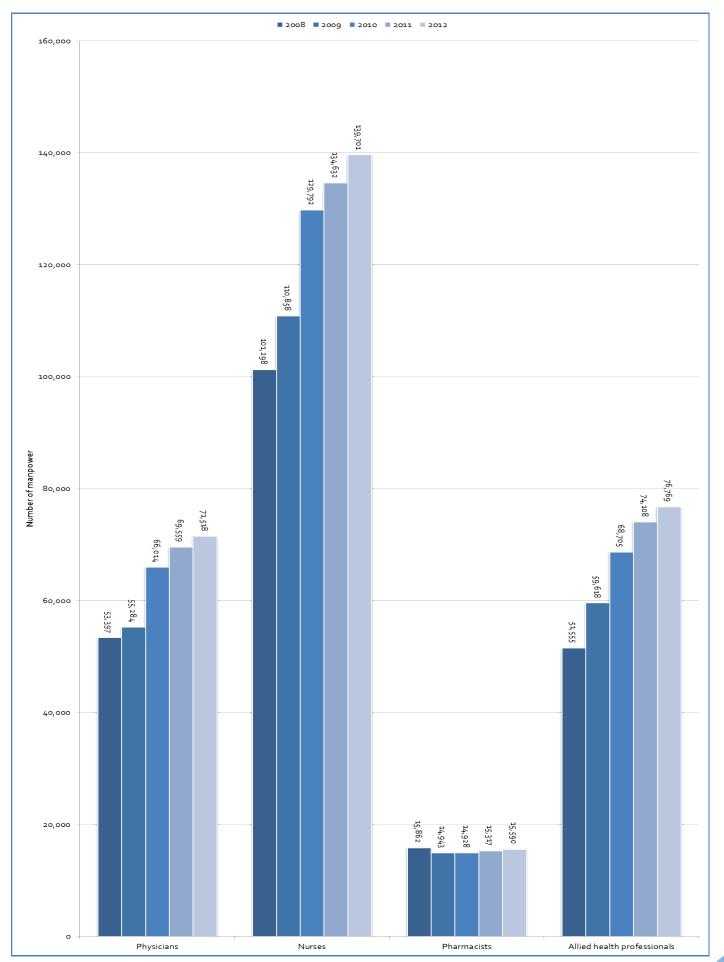


Figure 7.5: Total number of physicians<sup>#</sup>, nurses, pharmacists and allied health professionals in KSA, 2008-2012\*\* # Physicians include dentists \*\* The numbers include physicians in the private and company clinics; as well as pharmacists in the private pharmacies.

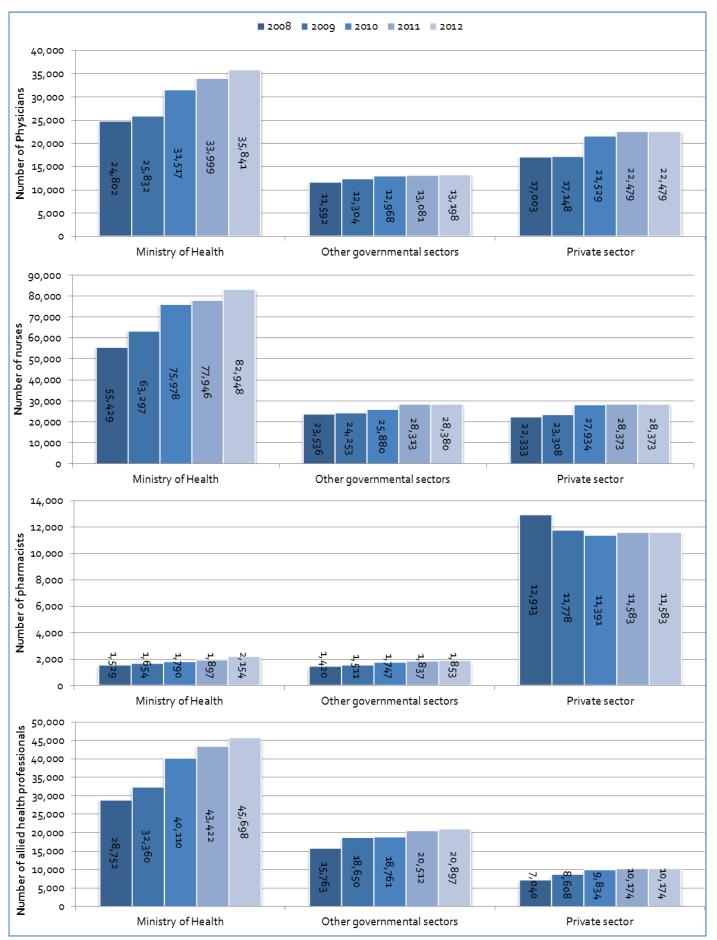


Figure 7.6: Number of physicians<sup>#</sup>, nurses, pharmacists and allied health professionals in MOH, other governmental sectors and private sector, 2008-2012 # Physicians include dentists

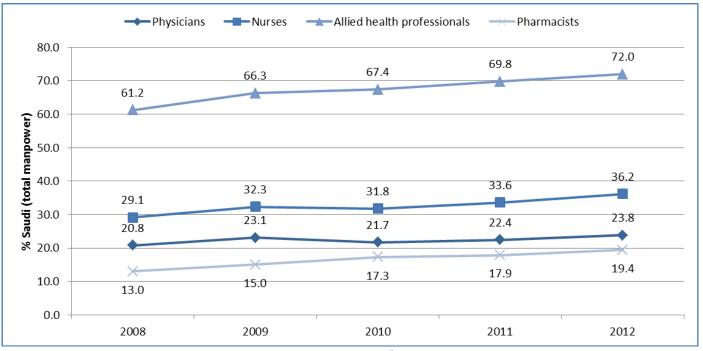


Figure 7.7: Proportion of Saudis among total number of physicians<sup>#</sup>, nurses, pharmacists and allied health professionals in the Kingdom, 2008-2012



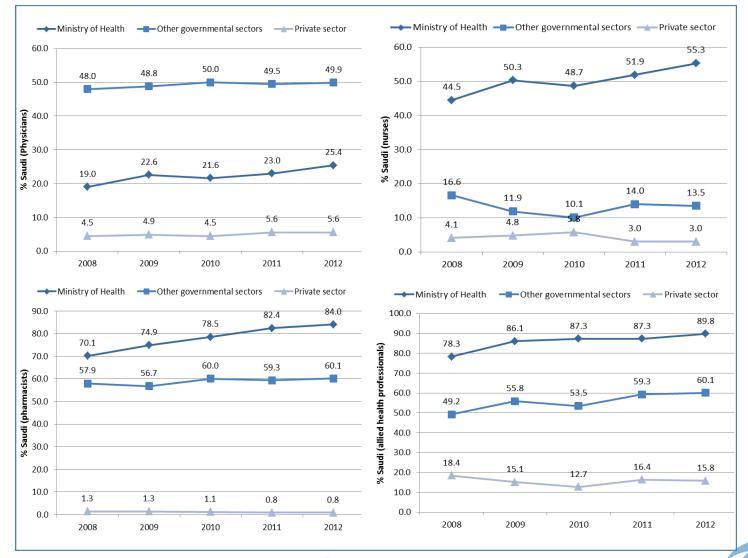
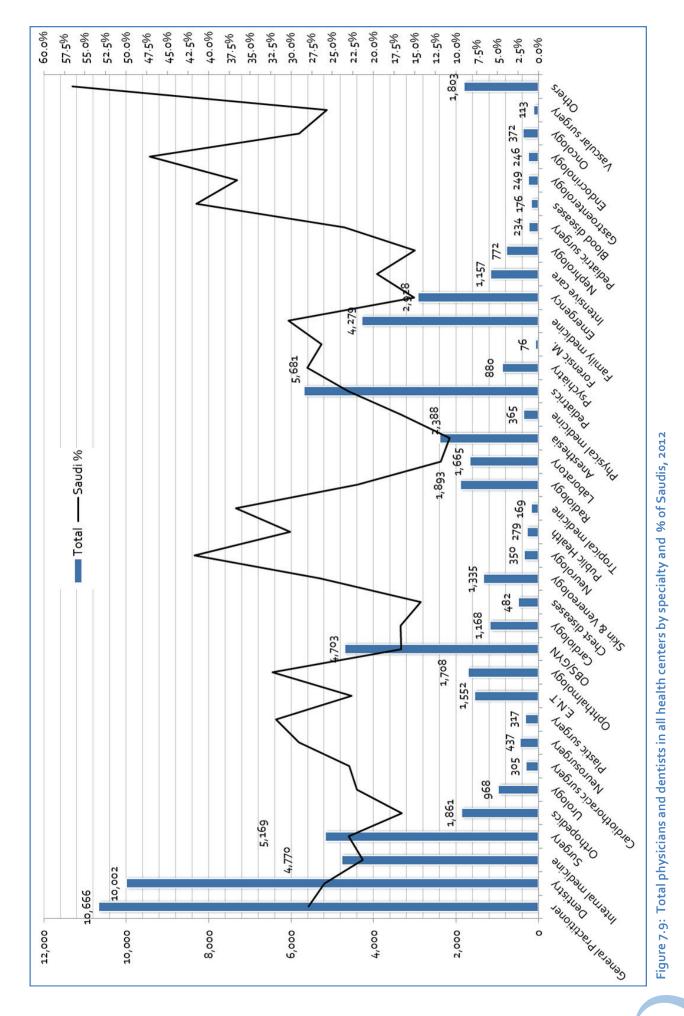


Figure 7.8: Proportion of Saudis among physicians<sup>#</sup> (top left), nurses (top right), pharmacists (lower left) and allied health professionals (lower right) in MOH, other governmental sectors and private sector, 2008-2012 # Includes dentists

		2	МОН				Other	r Governr	nental Se	ector			4	Private Sec	Sector <sup>®</sup>				Tc	Total KSA		
Specialty	Saudi Males	Males Saudi Females	Non-Saudi Females Non-Saudi	Total	%Saudi	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Total	%Saudi	Saudi Males	Saudi Females	Non-Saudi Males	Non-Saudi Females	Total	%Saudi	Saudi Males	Males Saudi Females	Females Non-Saudi	Non-Saudi	%Saudi Total
General Practitioner	00	792 2941	41 1202	2 6083	3 32	546	358	507	175	1586	57	101	32	2123	741	2997	4	5	1182 5	5571 2	2118 1	10666 28
Dentistry	966	530 1152	52 336	2984	4 50	416	333	243	97	1089		254	98	3363	2214	5929		1636	961 4	4758 2	2647 1	10002 26
Internal medicine	4 03	145 1527	27 385	2460	0 22	285	123	270	66	744	55	56	9	1261	243	1566	4	744	274 3	3058 6	694 /	4770 21
Surgery	497	163 2365	55 398	3423	3 19	397	81	312	27	817	59	52	1	855	21	929			m	532	446	5169 23
Orthopedics	111	2 750	0 16	879	13	148	7	141	m	299	52	40		638	5	683	9	299	н 6	529		1861 17
Urology	80	1 328	8 15	424	19	97	9	80	2	185	56	29		324	9	359	8	206	7 7	732	23	968 22
Cardiothoracic surgery	15	- 93		111		47	Э	105	5	160	31	5		29		34	15	67			8	305 23
Neurosurgery	43	7 177		235	21	58	4	59	5	126	49	15		59	2	76	20	116		295	15	2
Plastic surgery	19	7 106	6 12	144	18	45	4	27	4	80	61	24	7	65	7	93	28	88	13	198	18	317 32
E.N.T.	105	27 365		528	25	129	28	105	S	267	59	64	14	646	48	757	∞	283				
Ophthalmology	182	64 375	5 90	711	. 35	141	65	101	18	325	63	89	10	471	102	672	15	412	139 5	947 3	210	1708 32
OBS/GYN	11		0,	2036		105	200	108	252	665	46	74	58	324	1546	2002	7	256			2710 /	47o3 17
Cardiology	54	12 390	o 54	510	13	90	11	194	14	309		25	m	295	26	349	∞				. 46	1168 17
Chest diseases	11	7 202	2 18	238	∞	29	7	31	Ч	63	49	20	a.	153	œ	181	11	60				482 14
Skin & venereology	93	52 149	9 47	341	. 43	87	54	22	13	176	80	56	11	436	315	818	∞	236	2			1335 26
Neurology	41	22 62	2 7	132	48	46	25	51	6	131	54	11	1	69	9	87	14	98	48 1	182	22	350 42
Public Health	25	7 117	7 17	166	19	15	30	35	14	94	48	7		6	9	19	37	47		158	37	279 30
Tropical Medicine	18	10 44	∞	80	35	19	7	11	2	39	67	œ		36	9	50	16	45		91		169 37
Radiology	115	47 432	2 80	674	24	152	83	168	21	424	55	12	9	609	168	795	2	279	136 1	1209 2	269	1893 22
Laboratory	32	49 373	3 248	702	12	46	55	71	18	190	53	6	7	493	264	773	2	87	111 9	937 5	530 :	1665 12
Anesthesia	50	20 898	8 168	1136	9 9	133	40	453	36	662	26	12	2	496	80	590	5	195	62 1	~	284 :	2388 11
Physical medicine	28	8 134	4 36	206	17	16	9	10	∞	40	55	m		69	47	119	m	47	14 2	213	91	365 17
Pediatrics	419	252 1478	78 591	2740	o 24	339	209	369	147	1064	52	75	14	1349	439	1877	5	833		3196 1	1177	5681 23
Psychiatry	105	22 383	3 84	594	, 21	61	30	40	12	143	64	19	10	90	24	143	20	185		513 1	120	880 28
Forensic M.	18	1 55	1	75	25	г	1	•	•	1	100						:	19	г	55	н	76 26
Family medicine	419	264 1347	47 875	7	5 24	340	220	470	249	1279	44	43	11	29	12	95	57	802	5	1846 1	1136 /	4279 30
Emergency	224	47 1479	79 452	2202	2 12	139	24	444	40	647	25	7		69	m	79	6	370	71 1(	1992 /	495	2928 15
Intensive care	153	41 548	8 111	853	23	27	4	217	19	267	12	7	÷	34	Ч	37	5	182	45 7	199	131 :	1157 20
Nephrology	54	14 434	4 90	592	11	28	∞	88	б	133	27	11	Ч	34	Ч	47	26	93		556 2	100	772 15
Pediatric surgery	24	8 131	1 13	176	18	13	m	24	7	42	38	7	a.	6	a.	16	44	44	11 1	164	15	234 24
Blood diseases	15	4 20	0 13	52	37	33	17	51	13	114	44	m	1	4	2	10	40	51	22	75	28	176 41
Gastroenterology	16	3 56	5 5	80	24	47	С	39	C	92	54	22		53	2	77	29	85	6 1	148	10	249 37
Endocrinology	54	26 64	t 25	169	47	20	6	4	5	38	76	7		25	7	39	18	81	35	93	37	246 47
Oncology	25	8 119	9 28	180	18	54	11	86	18	169	38	6	1	12	1	23	43	88	20 2	217	47	372 29
Vascular surgery	9	1 63	1	71	10	13	Ч	12	a.	26	54	œ	÷	ω	÷	16	50	27	м	83	н	113 26
Others	406	135 330	о 78	949	9 57	232	130	254	96	712	51	101	15	21	5	142	82	739	280 6	6o5 <sup>1</sup>	179 :	1803 57
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### SECTION II.

HEALTH RESOURCES

**Chapter 8: Medical education** 

## 8. MEDICAL EDUCATION

Under the umbrella of the general governmental policy, the Ministry of Health aims at enhancing the skills and expertise of the human resources. There is a plan to update the scientific skills of the national personnel and to encourage them to specialize in the different health and medical fields. The health institutes are being invested in and some of them have been changed to colleges of health science. The intermediate health institutes were constructed to give a chance to the graduates of the general secondary schools and the secondary health institutes to get a distinguished level of education. There is a continuous updating of the curriculum, training methods, as well as field and practical work. Moreover, the MOH has laid the foundation and basic guidelines for local and overseas training.

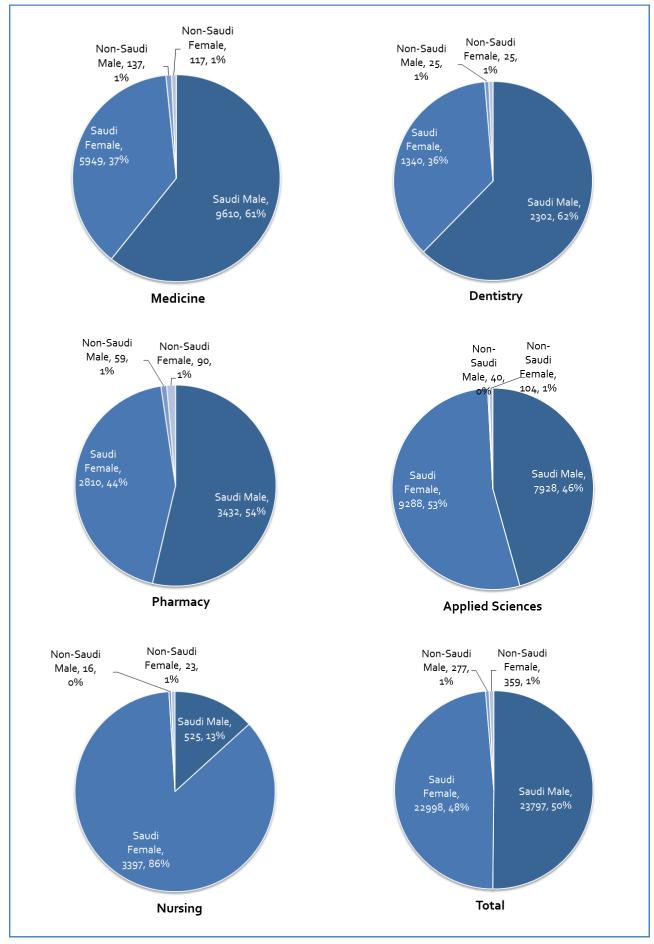
Figure 8.1 represents the distribution of students of medicine and other health majors in various universities, by gender and nationality. They were distributed as follows: medicine (15,813), dentistry (3,692), pharmacy (6,391), applied sciences (17,360), nursing (3,961) and physiotherapy (214). The female students represented 49.2% of all students. In terms of nationality, almost 99% were of Saudi nationality.

Figure 8.2 represents the distribution of graduates of medicine and other health majors in various universities, by gender and by nationality. They were distributed as follows: medicine (1,772), dentistry (369), pharmacy (668), applied health sciences (1,771), and nursing (454). The female graduates represented 47.0% of all graduates. Around 97% were of Saudi nationality.

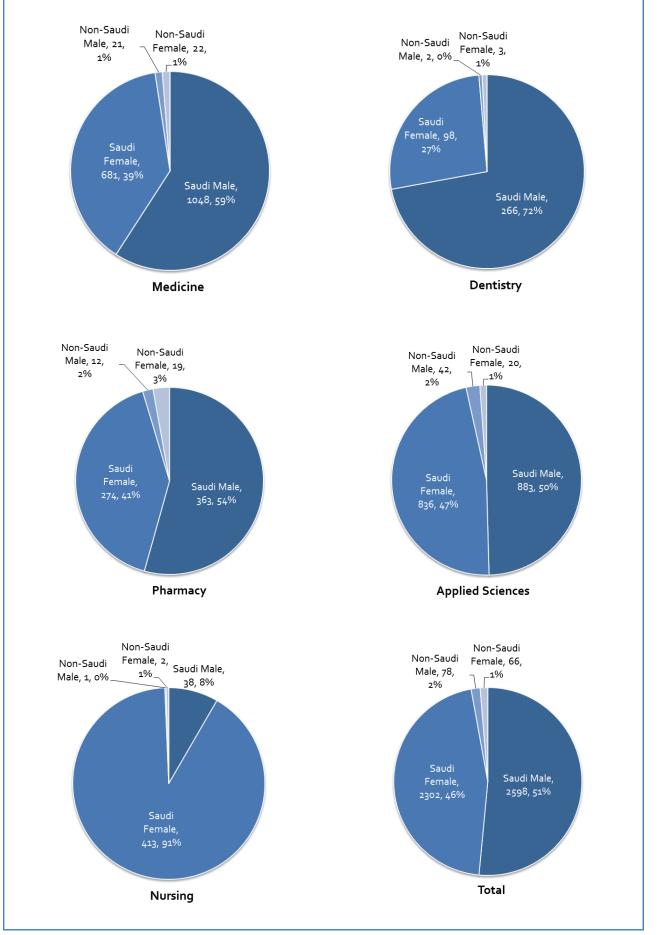
Figure 8.3 displays the trends of graduates of medicine and other health majors in the Kingdom by gender and nationality.



During the time period of 2008-2012, the total number of graduates of medicine and other health majors increased by 100%.

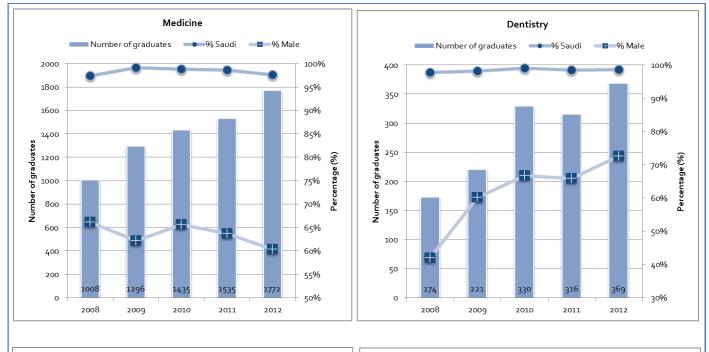


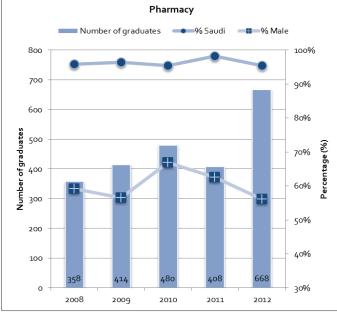


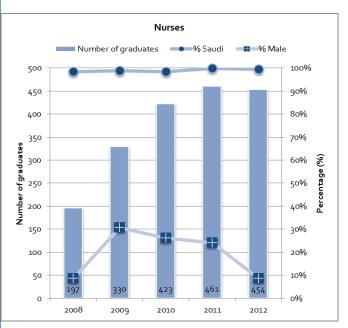


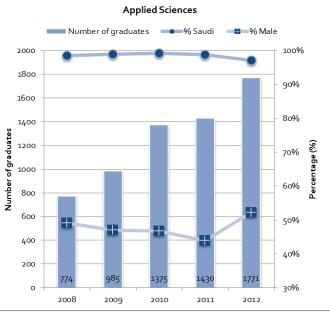


#### 2012 Health Statistics Annual Book









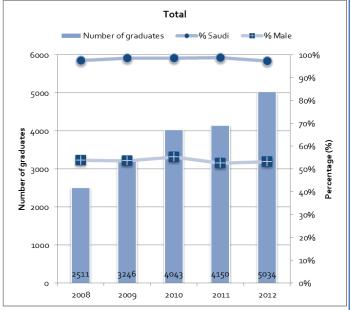


Figure 8.3: Trends of graduates of medicine and health majors in the Kingdom by gender and nationality,

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### SECTION II.

HEALTH RESOURCES

Chapter 9: Training

## 9. TRAINING



The Ministry of Health continues to provide opportunities for manpower working in different specialties in the health sector to receive training locally and even abroad. Its aim is to improve their levels of performance and enhance their competencies, as well as introduce them to the most up-to-date technical developments and the modern healthcare methods and systems. Additionally, the MOH strives to train graduates of the university colleges of medicine and health in the specialties deemed needed by the MOH.

Table 9.1 displays the distribution of manpower from the MOH in various fellowship programs and postgraduate studies, by specialty. Programs with the highest number of students included: Internal Medicine (90), Pediatrics (87), Family Medicine (67), Dentistry (65), General Surgery (54), and Radiology (38). As shown in Figure 9.1 as well, students studying locally in the Kingdom constituted around 81% of total number of students. The majority of enrolled students were males (72%).

Figure 9.2 displays three variables related to quality assurance workshops given at health centers: the number of training courses provided, the number of trainees, and the percentage of the targeted number of trainees that were actually trained. This data is shown by region of the Kingdom. Displayed in Figure 9.3 is the change in the number of trainees in maternal and child care at health centers by region over the time period of 2008-2012. The trend from 2008 to 2012 is summarized in Figure 9.4 for the Kingdom as a whole. Table 9.2 shows the number of trainees who have completed training courses in technical skills development centers during the year 2012. A total of 35,182 trainees attended to these centers in 2012. Table 9.3 displays the distribution of Central Board for Accreditation of Healthcare Institutions (CBAHI) accredited private hospitals across the Kingdom.

### TREND OVER TIME...

Between 2008 and 2012, the total number of trainees attending maternal & child care workshops at health centers of the Kingdom increased by 22.7% (2,525 to 3,099 trainees).

### **KEY ACHIEVEMENTS** ...

In 2012, several regions of the Kingdom, including Medinah, Qaseem, Aseer, Jazan, and Al-Bahah, succeeded in achieving more than 60% of the targeted number of trainees in quality assurance workshops.

Constalta	Locally		Abroad		<b>T</b>
Specialty	Male	Female	Male	Female	Total
Internal Medicine	54	24	11	1	90
Pediatrics	47	35	4	1	87
Psychiatry	3	2	4	0	9
Dermatology & Venereology	2	0	9	1	12
Family medicine	44	23	0	0	67
Community medicine	17	1	1	0	19
Family & Community medicine	0	0	0	0	ο
Neurology	1	0	2	0	3
Pathology	1	4	0	0	5
Epidemiology	2	0	4	1	7
General surgery	29	5	18	2	54
OBS/GYN	11	12	1	0	24
Ophthalmology	3	3	3	2	11
ENT	8	1	4	0	13
Anesthesia	12	6	4	4	26
Radiology	19	12	6	1	38
Orthopedics	12	1	7	0	20
Urology	4	0	3	0	7
Emergency Medicine	9	1	2	0	12
Forensic Medicine	10	3	0	0	13
Anatomy	0	0	0	0	ο
Medical Diploma	0	0	4	0	4
Plastic Surgery	1	0	1	0	2
Occupational Medicine	2	2	0	1	5
Rehabilitative Medicine	0	0	11	4	15
Dentistry	43	21	1	0	65
Other specialist fellowship	14	2	1	1	18
Total	348	158	101	19	626

Table 9.1: Manpower from MOH enrolled in fellowship programs & postgraduate studies by specialty, 2012

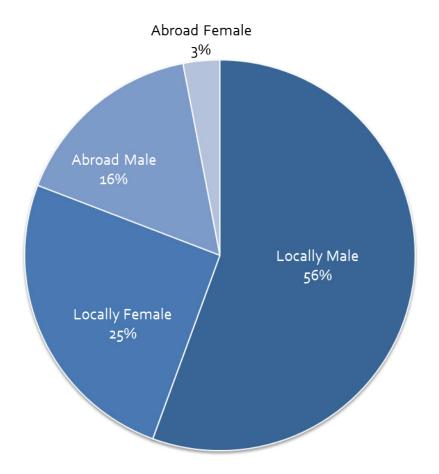
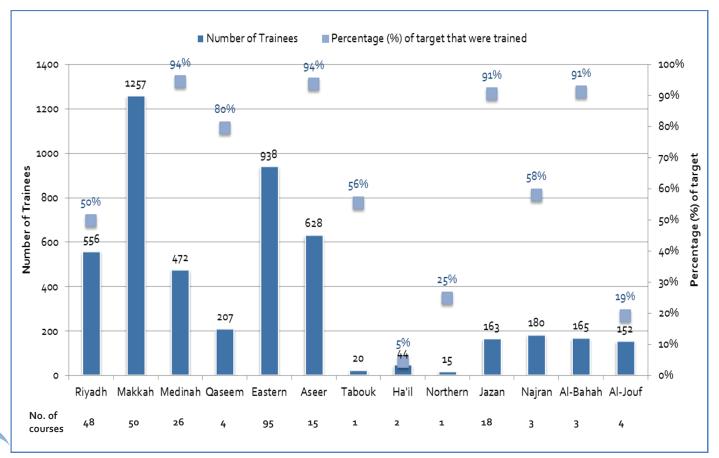
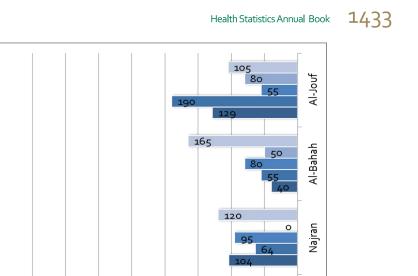


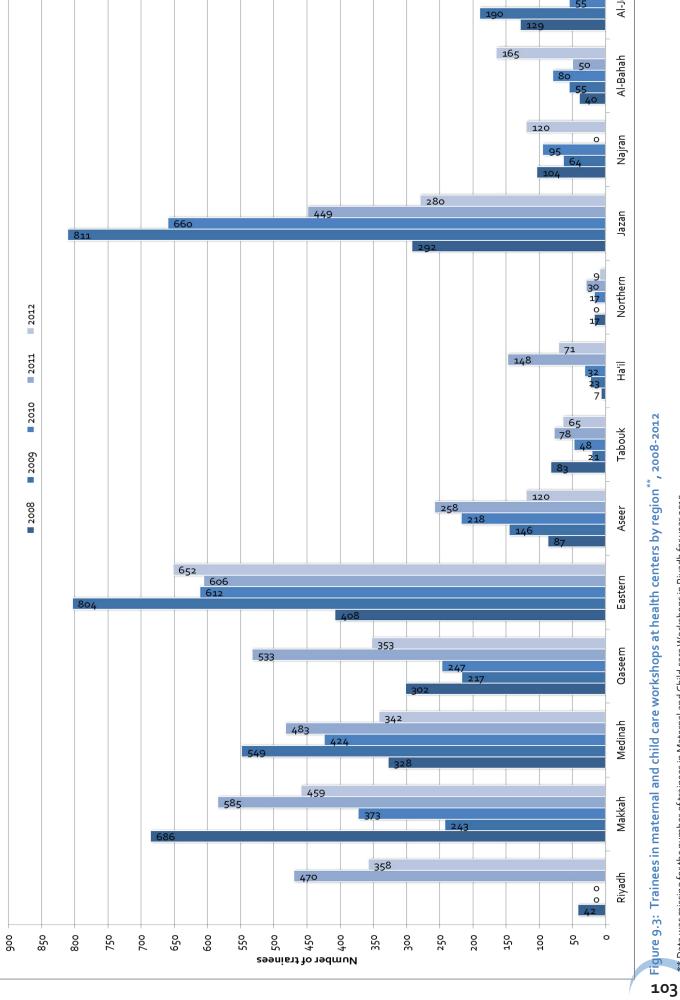
Figure 9.1: Total manpower from MOH enrolled in fellowship programs & post-graduate studies by gender and place of study, 2012



#### Figure 9.2: Quality assurance workshops at health centers by region<sup>\*</sup>, 2012

\* Data for the Eastern region represent that of 2011 because 2012 is not released yet; Data was missing for the number of target trainees in workshops for Eastern and Qunfudah (a region of Makkah)





\*\* Data was missing for the number of trainees in Maternal and Child care Workshops in Riyadh for year 2010

Course	No. of Trainees
Pediatric Fundamentals of Critical Care Support (PFCCS)	169
Basic Cardiovascular Life Support (BCLS)	28882
Advanced Cardiovascular Life Support (ACLS)	3347
Advanced Trauma Life Support (ATLS)	171
Neonatal Resuscitation Program (NRP)	135
Pediatric Advanced Life Support (PALS)	99
Advanced Pediatric Life Support (APLS)	215
Fundamental Critical Care Support (FCCS)	425
Advanced Trauma Care for Nurses (ATCN)	50
TRIAGE	101
Critical Care Nursing (CCN)	311
Adult Mechanical Ventilation (AMV)	453
Pediatric Mechanical Ventilation (PMV)	50
Registered Respiratory Therapist (RRT)	202
Basic Life Support in Obstetrics (BLSO)	94
Advanced Life Support in Obstetrics (ALSO)	82
Fundamental Disaster Management (FDM)	135
Electrocardiography (ECG)	137
ΤΟΧΙΟ	66
AIR WAY	58
Total	35182

### Table 9.2: Number of trainees in technical skills' development centers, 2012

### Table 9.3: CBAHI Accredited Private Hospitals at the end of 2012

Region		Hospital Name	Date of Accreditation
	1	National Hospital	2011
	2	Kingdom Hospital	2011
Divadh	3	Al Hamadi Hospital	2011
Riyadh	4	Dr Abdulrahman Al Mashary Hospital	2012
	5	Care Hospital	2012
	6	Najd Consultation Hospital	2012
	7	Magrabi Hospital	2011
	8	Hai Al-Jamea Hospital	2011
	9	Abdullateef Jameel Rehabilitation Hospital	2011
La dala h	10	Dr Khalid Idrees Hospital	2012
Jeddah	11	De Abdulrahman Taha Bakhsh Hospital	2012
	12	Al Hayat Hospital	2012
	13	Bugshan Hospital	2012
	14	Erfan & Bagedo General Hospital	2012
Madinah	15	Mouwasat Hospital	2012
Eastern	16	Al Yousif Hospital - Al Khobar	2012
Edstern	17	Astoon Hospital	2012
	18	Abha Private Hospital	2011
Aseer	19	Al Hayat National Hospital	2011
	20	Magrabi Hospital	2012
Al-Baha	21	Ghodran General Hospital	2011

### Table 9.4: CBAHI Accredited MOH Hospitals at the end of 2012

Region		Hospital Name	Date of Accreditation
	1	King Fahad Medical City	2010
	2	Al-Yamama Hospital	2010
	3	Al-Eman General Hospital	2010
	4	Prince Salman Hospital	2010
Piyadh	5	King Saud Medical City	2010
Riyadh	6	King Khalid Hospital- Al Kharj	2012
	7	Al Aflaj General Hospital	2012
	8	Wadi Al Dawasir General Hospital	2012
-	9	Al Dawadmi General Hospital	2012
	10	Herra General Hospital	2010
Makkah	11	King Abdulaziz Hospital	2010
	12	King Abdulaziz Hospital & Oncology Center	2010
	13	King Fahad Hospital	2010
Jeddah	14	Maternity & Children Hospital	2010
	15	Rabegh General Hospital	2012
Ta'if	16	King Abdulaziz Specialized Hospital	2010
	17	Maternity & Children Hospital	2011
	18	King Fahad Hospital	2011
Madinah	19	Ohoud General Hospital	2011
	20	Al Ansar General Hospital	2012
	21	Jubail General Hospital	2012
	22	King Fahad Specialized Hospital	2010
	23	King Saud Hospital	2010
Qaseem	24	Maternity & Children Hospital	2012
	25	Maternity & Children Hospital	2012
	26	Saud Al Babtain Cardiac Center	2010
	27	Jubail General Hospital	2010
Eastern	27	Qateef General Hospital	2011
Lastern		Dammam Medical Complex	2011
	29 30	Al Khafji General Hospital	2011
		King Fahad Hospital	2012
Al-Ahsa	31	Maternity & Children Hospital	
	32	Prince Saud Bin Jalawi Hospital	2011
Hafr Al-Baten	33	King Khalid Hospital	2012
Hall Al-Datell	34		2011
Aseer	35	Aseer Central Hospital	2010
	36	Khamis Mushayt General Hospital	2010
	37	Abha General Hospital	2012
	38	Billasmar General Hospital	2012
	39	Sarat Obaida General Hospital	2012
Dicksh	40	Al Namas General Hospital	2012
Bishah	41	King Abdullah Hospital	2012
Tabuk	42	King Khalid Hospital	2011
Ha'il	43	King Khalid Hospital	2010
Northern	44	Arar Central Hospital	2012
	45	Prince Abdulaziz Bin Musaad Hospital	2012
Jazan	46	King Fahad Hospital	2010
	47	King Khalid Hospital	2010
Najran	48	Maternity & Children Hospital	2012
	49	Sharourah General Hospital	2012
Al-Baha	50	King Fahad Hospital	2010





# PUBLIC HEALTH AND PREVENTIVE MEDICINE

Chapter 10: Infectious diseases Chapter 11: Chest disease Chapter 12: Bilharziasis Chapter 13: Leishmaniasis Chapter 14: Malaria Chapter 15: Environmental health and health education activities



## SECTION III.

## PUBLIC HEALTH AND PREVENTIVE MEDICINE



Chapter 10: Infectious diseases

# 10. INFECTIOUS DISEASES

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites and fungi. They can be spread, directly or indirectly, from one person to another. Additionally, zoonotic diseases are infectious diseases of animals that can cause disease when transmitted to humans.

The Ministry of Health in the Kingdom aims at eliminating infectious diseases through the continuous upgrade of the surveillance system, as well as the solid implementation of prevention and control programs. The continuous efforts during the previous years have resulted in the successful elimination of many infectious diseases. Moreover, the spread of epidemiological control units all over the Kingdom has helped control other infectious diseases; and this has been witnessed through reduced incidence rates.

The statistics of infectious diseases were processed according to the Gregorian calendar year of 2012 corresponding to the period from 7 Safar 1433 to 18 Safar 1434 Hijri.

### HOW DOES KSA COMPARE?

The incidence rate of Measles in KSA for year 2012 is 1.01 per 100,000 population. This rate is considered very low in comparison to the EMR incidence rate of 5.9 per 100,000 population and the global rate of 5.1 per 100,000 population.

Source: World Health Statistics Report (2013), World Health Organization

## A. Important Epidemiological Diseases

As shown in Table 10.1a, four cases of meningococcal meningitis have been discovered during the year 2012, representing an incidence rate of 0.01 per 100,000 population. One case was recorded in each of Riyadh, Makkah, Medina, and Jazan. Other types of cerebrospinal meningitis, including pneumococcal and hemophilus influenza, had an incidence rate of 0.01 per 100,000 population and 0.003 per 100,000 population, respectively.

The reporting of cases for all notifiable communicable diseases by province in the Kingdom (Table 10.1a) shows a geographical variation for 'Other Meningitis'. The highest percentage of 'Other Meningitis' cases is recorded in Riyadh (119 cases, 55.3% of all cases).

Figure 10.5a shows that the highest incidence rates of total meningitis in the year 2012 are present in Qaseem (3.22 cases per a 100,000 population) and Northern Borders (3.21 cases per 100,000 population).

#### **KEY ACHIEVEMENTS ...**

The expanded program of immunization (EPI) for vaccine-preventable diseases is undergoing continuous growth. As a result of the high immunization coverage (more than 90%) achieved during this decade, a reduction in the incidence of certain vaccination targeted diseases has been witnessed.

## **B. Vaccine-Preventable Diseases**

The incidence rate recorded for the vaccine-preventable diseases for the year 2012 is as follows: Whooping Cough (0.02 per 100,000 population), Neonatal Tetanus (0.02 per 1,000 live births), Measles (1.01 per 100,000 population), Mumps (0.22 per 100,000 population), Rubella (0.06 per 100,000 population), Hepatitis B (15.79 per 100,000 population) and Chickenpox (64.06 per 100,000 population). No cases of Diphtheria and Poliomyelitis are recorded this year.

Seasonal variation, displayed in Figure 10.1b, is observed with Measles cases, as infections increased in the period between January and June. Additionally, a surge is observed in Chickenpox cases during spring (May-June) 2012.

The immunization coverage of the complete three doses of DPT (Diphtheria, Pertussis- Whooping Cough, and Tetanus), HBV<sub>3</sub> (Hepatitis B) and OPV (Oral Poliomyelitis Vaccine) is 97.7%, while the immunization coverage for MMR (Measles, Mumps and Rubella) is 97.8% in year 2012.

As shown in Figure 10.3b, the distribution of infectious diseases according to nationality shows that the incidence of the vaccine-preventable diseases is more or less the same among Saudis and non-Saudis except for a few diseases, including Chickenpox and Hepatitis B. The rates among Saudis are higher than among non-Saudis; 78.04 and 19.65 per 100,000 population among Saudis and 34.41 and 7.59 per 100,000 population among Non-Saudis, for Chickenpox and Hepatitis B, respectively. The difference in Chickenpox rates may be due to the fact that most of the non-Saudis living in the Kingdom are adults.

The distribution of cases according to age groups (Figure 10.4b) demonstrates some characteristic features among vaccine-preventable diseases; more than half of the Chickenpox cases (55.2%) occurred among the age group 5-14 years. For Hepatitis B, 67.3% of cases occurred among the age group 15-44 years.

The geographical distribution of reported cases for all vaccine-preventable diseases is shown in Table 10.1b. Figure 10.5b provides insight on the incidence rates of Chickenpox and Hepatitis B for the year 2012 across the regions of the Kingdom.

### C. Environment-acquired Diseases

The incidence rate for the environment-acquired diseases for the year 2012 is as follows: Cholera (0.02 per 100,000 population), Amoebic Dysentery (7.44 per 100,000 population), Typhoid and Para-typhoid (1.01 per 100,000 population), Shigellosis (0.23 per 100,000 population), Salmonellosis (3.91 per 100,000 population), and Hepatitis A (1.06 per 100,000 population).

Salmonellosis displays a geographical variation (Table2.1c); the Eastern Province notifies the largest number of Salmonella cases (649 cases, 46.6%).

### D. Zoonotic Diseases (Animal-acquired Diseases)

The incidence rate of Brucellosis (Malta Fever) is 12.54 per 100,000 population in year 2012, in comparison with 13.89 per 100,000 population in year 2011. Successful control of this disease is attributed to the engagement of the Ministry of Health in the Brucellosis Control Program, which is implemented by the Ministry of Agriculture and Water and the Ministry of Municipal and Rural Affairs through the committee of zoonotic diseases. The incidence rates for Dengue Fever and Khurma Fever for year 2012 are 5.99 and 0.20 per 100,000 population, respectively. No case of Rabies and Rift Valley Fever is notified this year, which is similar to the situation in year 2011. Dengue fever and Brucellosis (Malta Fever) both display seasonal variation (Figure 10.1d), with infections following an increase from April to July.

Brucellosis (Malta Fever) and Dengue Fever display variation in distribution by nationality (Figure 10.3d). The incidence rate of Brucellosis among Saudis is 13.17 per 100,000 population while it is 11.21 per 100,000 population among the Non-Saudis. This difference is due to the fact that some of the Bedwain (who are mainly Saudis) drink raw milk and graze sheep. Dengue Fever displays the opposite pattern, as the incidence rate among the non-Saudis (8.87 per 100,000 population) is higher than among Saudis (4.64 per 100,000 population).

#### **KEY ACHIEVEMENTS** ...

The Kingdom is implementing a comprehensive program to eradicate Measles through immunizing the students in the intermediate and secondary school levels (above 14 years) by MMR. The incidence of the disease decreased due to implementation of the second stage of vaccination against Measles, Rubella and Mumps. Dengue fever also exhibits geographical variation, as shown in Table 10.1d; Makkah markedly contains the highest number of cases of Dengue fever (90.34% of cases). Age distribution, reported in Figure 10.4d, shows that for Brucellosis (Malta Fever), 59.16% of cases occur among the age group of 15-44 years (as many adults are in close contact with sheep during grazing), followed by the age group of above 45 years (22.97%). For Dengue Fever, a majority of cases (70.15%) are present among the age group of 15-44 years.

## E. Quarantinable Diseases

No case of any of the quarantinable diseases (yellow fever and plague) are reported in year 2012.

## F. Other Infectious Diseases

The incidence rates for Hepatitis C and Unspecified Hepatitis diseases for year 2012 are 8.01 and 0.37 per 100,000 population, respectively. In terms of seasonal variation (Figure 10.1e), Hepatitis C infections show a peak during the Spring (March—June) of year 2012.

### TREND OVER TIME...

This incidence rate of meningococcal meningitis for year 2012 (0.01 per 100,000 population) is half the rate recorded during the previous year.

Between years 2011 and 2012, there has been a decrease in the incidence rate of environment-acquired diseases: Salmonellosis (from 4.91 to 3.91 per 100,000 population) and Hepatitis A (from 1.13 to 1.06 per 100,000 population).

The incidence rate of Brucellosis (Malta Fever) decreased from 13.89 per 100,000 population in year 2011 to 12.53 per 100,000 population in 2012 (representing a 10.8% decrease).

Dengue fever witnessed a pronounced decrease in its incidence rate (324% decrease) from 2011 (11.64 per 100,000 population) to 2012 (5.99 per 100,000 population).

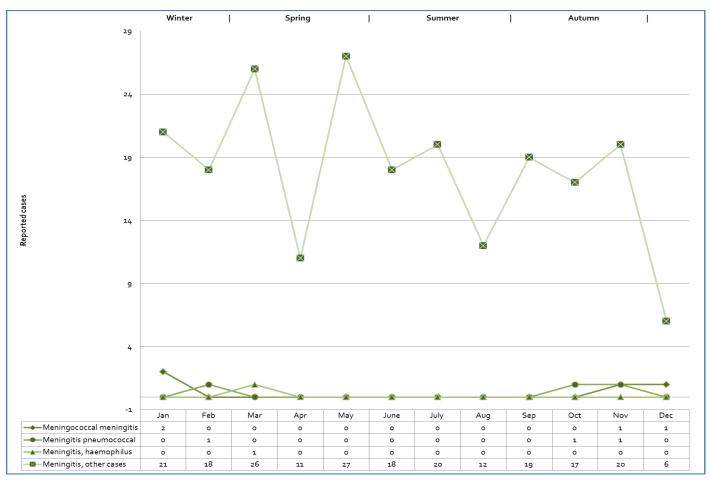


Figure 10.1a: Reported cases of meningitis by month and season, KSA, 2012

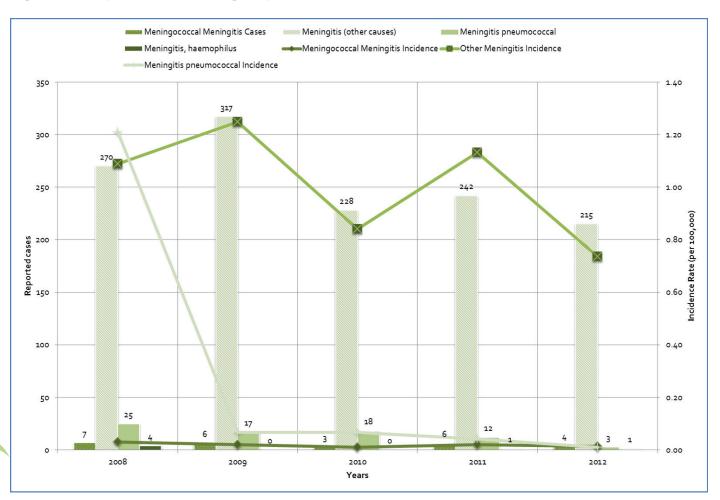


Figure 10.2a: Reported cases and incidence of meningitis, KSA, 2008—2012

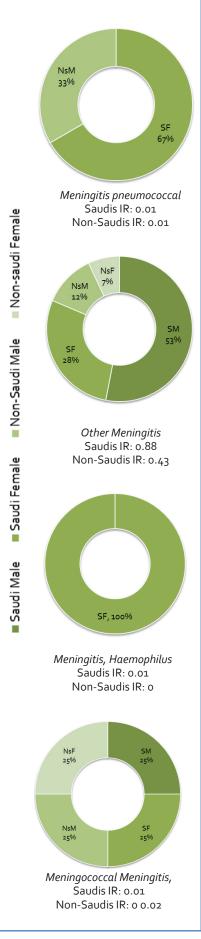


Figure 10.3a: Reported cases and incidence rate (IR, per 100,000) of meningitis by nationality and gender, KSA, 2012

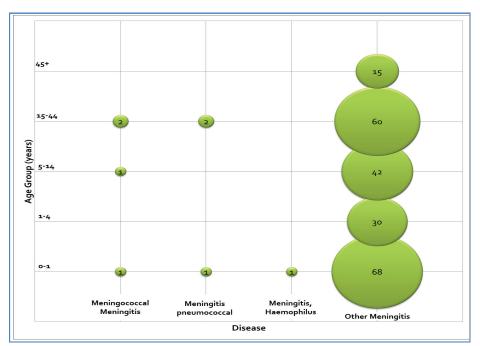


Figure 10.4a: Reported cases of meningitis by age group , KSA, 2012 Table 10.1a: Reported cases of meningitis by region, KSA, 2012

	Meningitis							
Region	Meningococcal Pneumoco		Haemophilus influenzae	Others	Total			
Riyadh	1	0	0	119	120			
Makkah	1	0	0	11	12			
Medinah	1	2	0	7	10			
Qaseem	0	1	1	40	42			
Eastern	0	0	0	16	16			
Aseer	0	0	0	4	4			
Tabouk	0	0	0	0	0			
Ha`il	0	0	0	3	3			
Northern	0	0	0	11	11			
Jazan	1	0	0	1	2			
Najran	0	0	0	3	3			
Al-Bahah	0	0	0	0	0			
Al-Jouf	0	0	0	0	0			
Total	4	3	1	215	223			

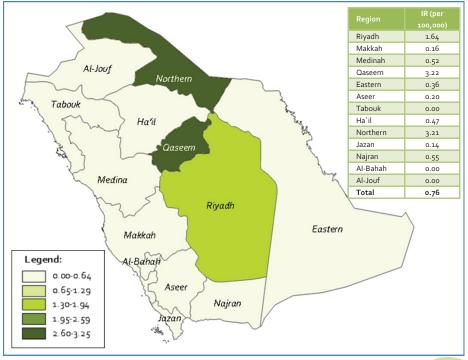


Figure 10.5a: Incidence Rate (IR, per 100,000) of total meningitis by region, KSA, 2012

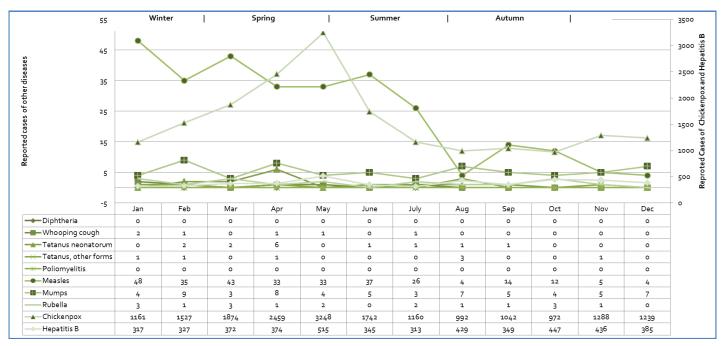
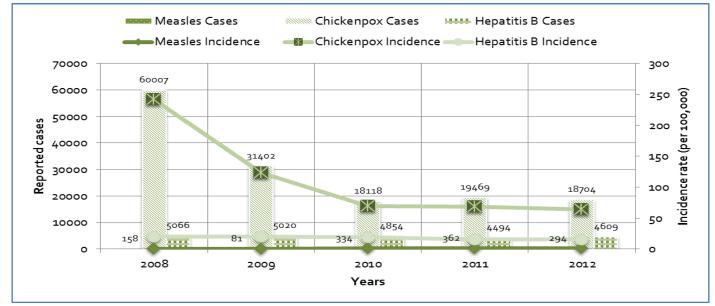
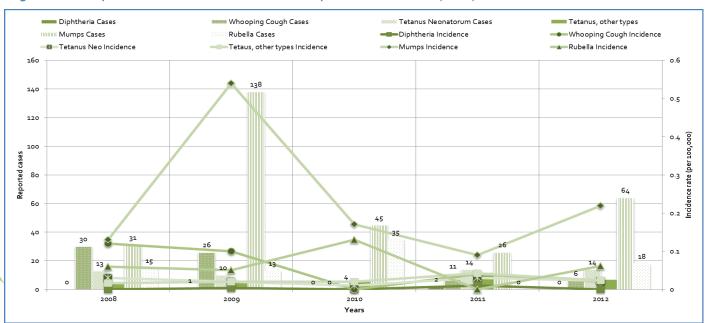
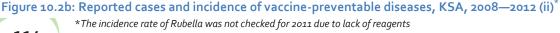


Figure 10.1b: Reported cases of vaccine-preventable diseases by month and season, KSA, 2012









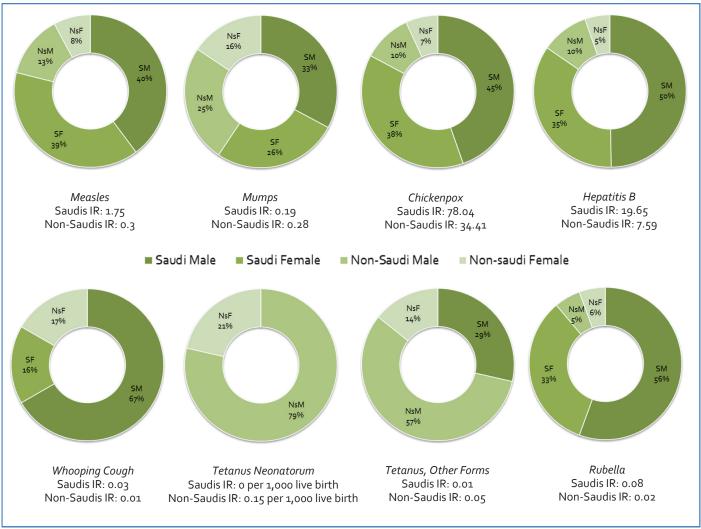


Figure 10.3b: Reported cases and incidence (per 100,000) of vaccine-preventable diseases by nationality and gender, KSA, 2012

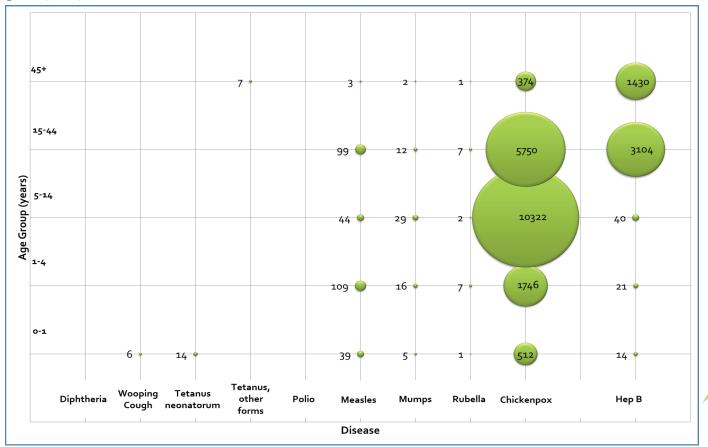


Figure 10.4b: Reported cases of vaccine-preventable diseases by age group, KSA, 2012

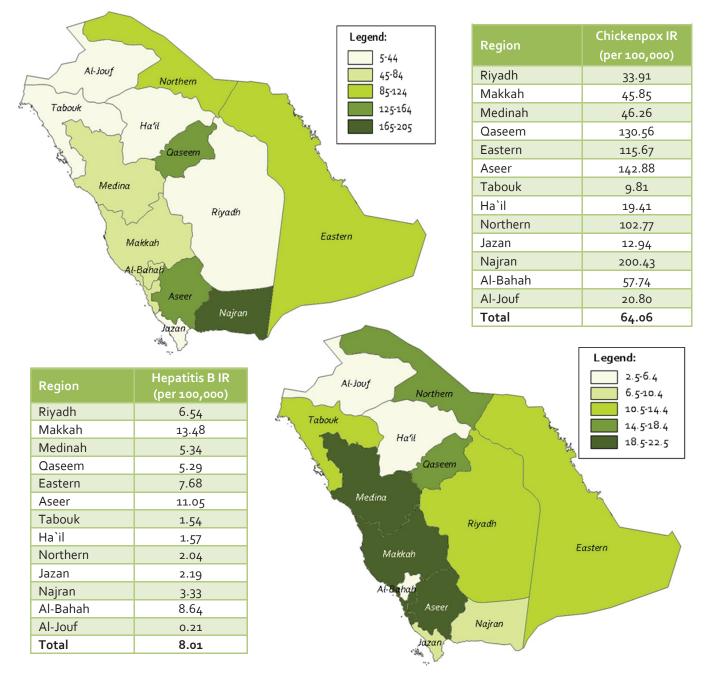


Figure 10.5b: Incidence Rate (IR, per 100,000) of total chickenpox (top) and Hepatitis B (bottom) by region, KSA, 2012 Table 10.1b: Reported cases of vaccine-preventable diseases by region, KSA, 2012

Region	Diphtheria	Whooping Cough	Tetanus neonatorum	Tetanus other forms	Poliomyelitis	Measles	Mumps	Rubella	Chickenpox	Hepatitis B
Riyadh	0	3	0	0	0	19	13	5	2,479	934
Makkah	0	0	14	7	0	131	5	4	3,426	1,608
Medina	0	0	0	0	0	29	0	0	884	394
Qaseem	0	0	0	0	0	3	9	2	1,702	223
Eastern	0	3	0	0	0	23	26	2	5,106	609
Aseer	0	0	0	0	0	16	2	1	2,922	457
Tabouk	0	0	0	0	0	2	0	0	83	116
Ha'il	0	0	0	0	0	1	0	0	124	19
Northern	0	0	0	0	0	0	2	0	352	62
Jazan	0	0	0	0	0	54	2	1	189	107
Najran	0	0	0	0	0	15	4	2	1,085	41
Al-Bahah	0	0	0	0	0	1	0	0	254	26
Al-Jouf	0	0	0	0	0	0	1	1	98	13
Total	0	6	14	7	0	294	64	18	18,704	4,609

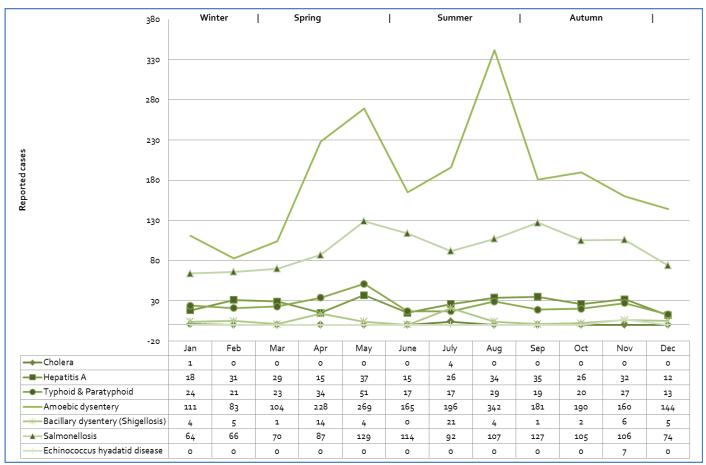


Figure 10.1c: Reported cases of environment-acquired diseases by month and season, KSA, 2012

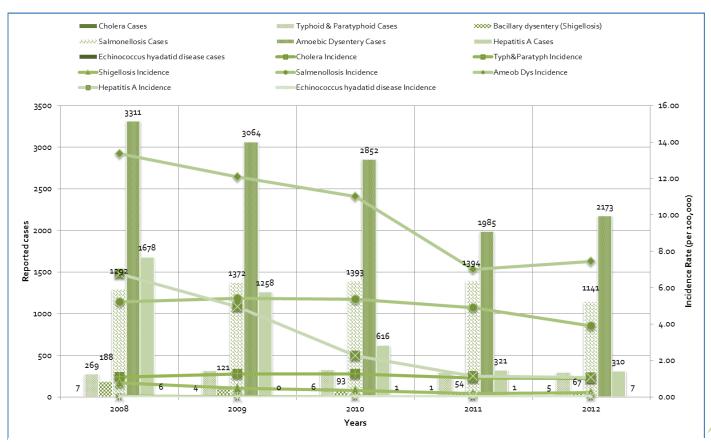
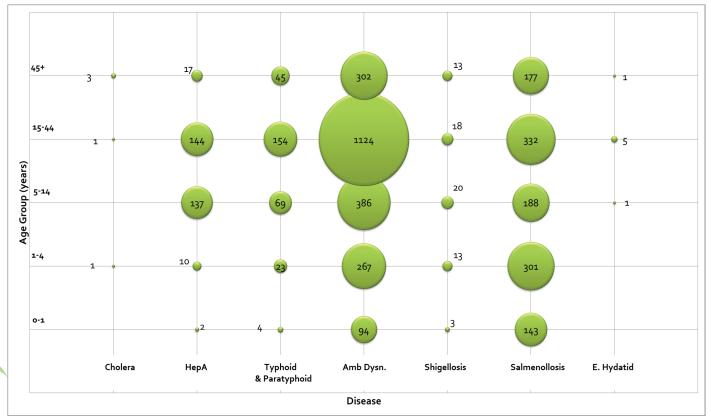


Figure 10.2c: Reported cases and incidence of environment-acquired diseases, KSA, 2008—2012



Figure 10.3c: Reported cases and incidence (per 100,000) of environment-acquired diseases by nationality and gender, KSA, 2012





Region	Riyadh	Makkah	Medinah	Qaseem	Eastern	Aseer	Tabouk	Ha`il	Northern	Jazan	Najran	Al-Bahah	Al-Jouf	Total
IR (per 100,000)	7.63	14.65	11.72	5.14	31.35	28.07	1.3	0.47	0.58	1.16	13.48	3.18	5.52	13.86

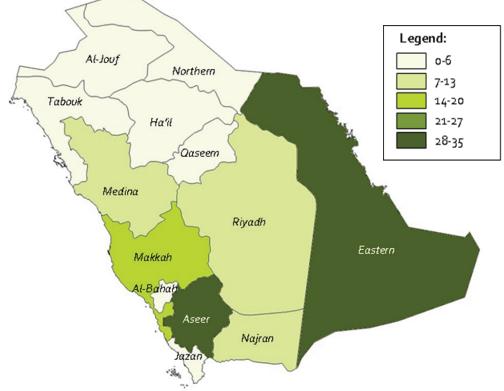


Figure 10.5c: Incidence Rate (IR, per 100,000) of total environment-acquired diseases by region, KSA, 2012

Table 10.1c: Reported cases	of environment-acquired	diseases by region, KSA, 2012
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			Environ	ment-acquire	d diseases		
Region	Cholera	Hepatitis A	Typhoid and Paratyphoid	Amoebic Dysentery	Bacillary dys- entery (Shigellosis)	Salmonella food poison- ing	Echinococcus Hydatid Disease
Riyadh	0	83	16	7	15	367	0
Makkah	0	40	77	1,124	13	155	0
Medina	0	12	45	48	3	16	0
Qaseem	0	21	28	18	2	6	0
Eastern	5	56	68	680	32	525	0
Aseer	0	67	28	274	0	35	0
Tabouk	0	6	0	0	0	0	0
Ha'il	0	3	5	0	0	0	0
Northern	0	1	0	3	0	0	0
Jazan	0	3	9	1	1	2	0
Najran	0	11	3	2	1	23	0
Al-Bahah	0	3	16	0	0	10	7
Al-Jouf	0	4	0	16	0	2	0
Total	5	310	295	2,173	67	1,141	7



Figure 10.1d: Reported cases of zoonotic diseases by month and season, KSA, 2012

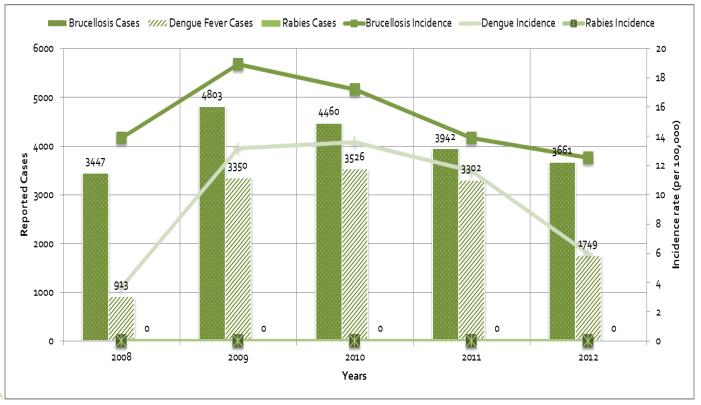


Figure 10.2d: Reported cases and incidence of zoonotic diseases, KSA, 2008—2012

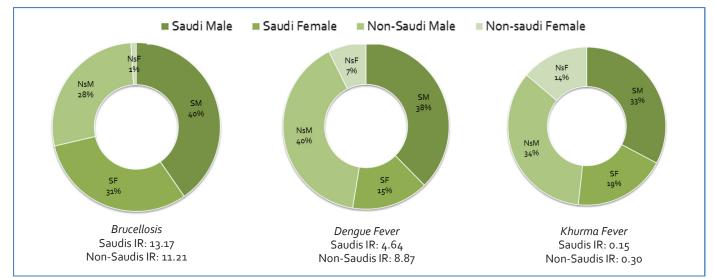
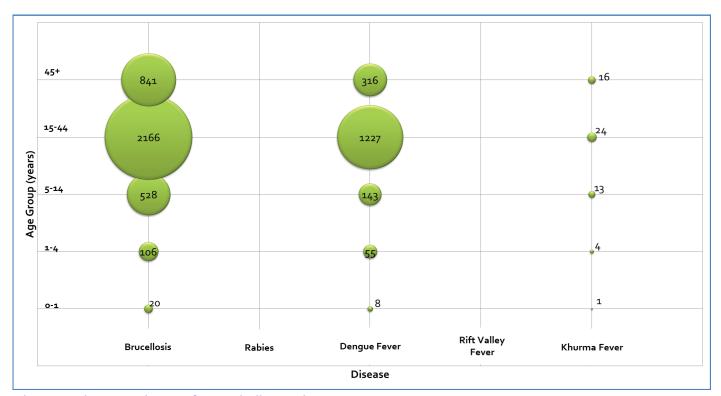
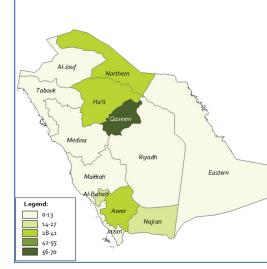


Figure 10.3d: Reported cases and incidence of zoonotic diseases by nationality and gender, KSA, 2012







	IR (per	T
Region	100,00	re
	o)	<u>-</u>
Riyadh	6.18	F
Makkah	3.02	
Medinah	9.21	F
Qaseem	69.58	N
Eastern	11.03	N
Aseer	38.78	
Tabouk	1.54	(
Ha`il	32.72	E
Northern	34-45	ļ
Jazan	4.25	1
Najran	22.35	H
Al-Bahah	17.96	١
Al-Jouf	3.82	J
Total	12.54	١
		1

Figure 10.5d: Incidence Rate (IR, per 100,000) cases of total brucellosis by region, KSA, 2012

## Table 10.1d: Reported cases of zoonotic diseases by region, KSA, 2012

Region	Brucellosis	Rabies	Dengue Fever	Rift Valley Fever	Khurma Fever
Riyadh	452	0	1	0	0
Makkah	226	0	1580	0	18
Medina	176	0	0	0	0
Qaseem	907	0	0	0	0
Eastern	487	0	0	0	0
Aseer	793	0	0	0	0
Tabouk	13	0	0	0	0
Ha'il	209	0	0	0	0
Northern	118	0	0	0	0
Jazan	62	0	165	0	0
Najran	121	0	3	0	40
Al-Bahah	79	0	0	0	0
Al-Jouf	18	0	0	0	0
Total	3661	0	1749	0	58

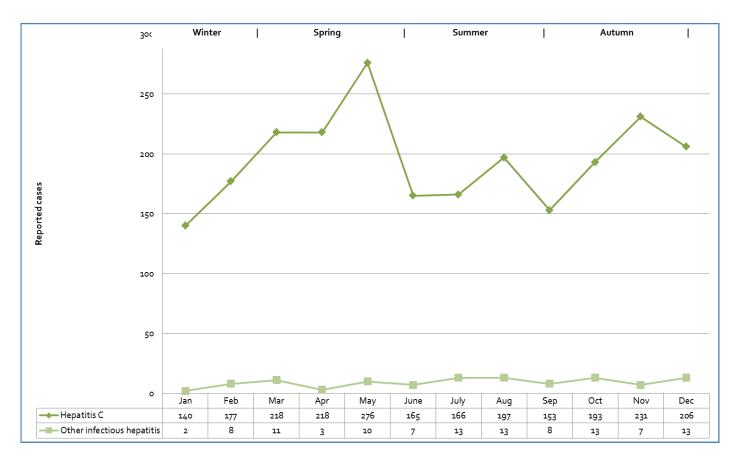


Figure 10.1e: Reported cases of Hepatitis C and other infections hepatitis by month and season, KSA, 2012

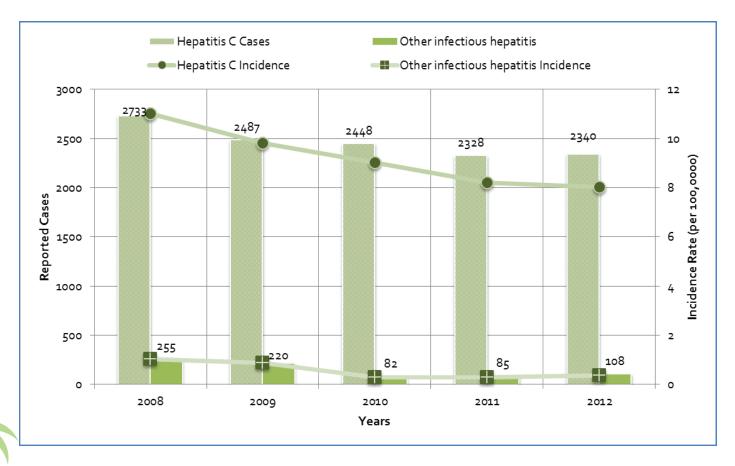


Figure 10.2e: Reported cases and incidence of Hepatitis C and other infectious hepatitis, KSA, 2008—2012

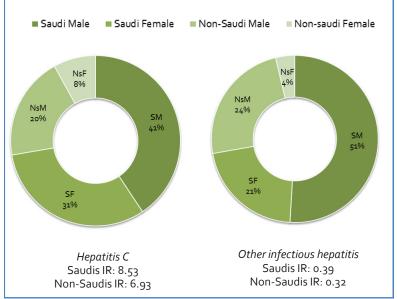


Figure 10.3e: Reported cases and incidence of Hepatitis C and other infectious hepatitis by nationality and gender, KSA, 2012

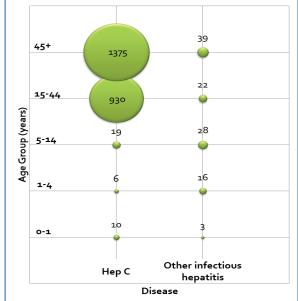
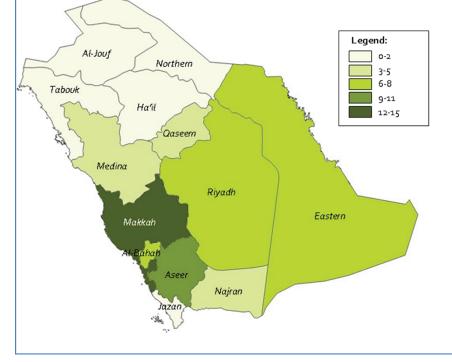


Figure 10.4e: Reported cases of Hepatitis C and other infectious hepatitis by age group, KSA, 2012



Region	IR (per 100,000 population)
Riyadh	6.54
Makkah	13.48
Medinah	5.34
Qaseem	5.29
Eastern	7.68
Aseer	11.05
Tabouk	1.54
Ha`il	1.57
Northern	2.04
Jazan	2.19
Najran	3.33
Al-Bahah	8.64
Al-Jouf	0.21
Total	8.01

Figure 10.5e: Incidence Rate (IR, per 100,000) of Hepatitis C by region, KSA, 2012

Table 10.1e: Reported	l cases of Hepatitis C	and unspecified	Hepatitis by	region, KSA, 2012
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Region	Hepatitis C	Other infectious hepatitis
Riyadh	478	8
Makkah	1007	9
Medinah	102	1
Qaseem	69	0
Eastern	339	0
Aseer	226	89
Tabouk	13	0
Ha`il	10	0
Northern	7	0
Jazan	32	1
Najran	18	0
Al-Bahah	38	0
Al-Jouf	1	0
Total	2340	108





SECTION III.

# PUBLIC HEALTH AND PREVENTIVE MEDICINE

Chapter 11: Chest disease

## 11. CHEST DISEASE

## TUBERCULOSIS

Tuberculosis (TB) is an infectious bacterial disease caused by *Mycobacterium tuberculosis*, which most commonly affects the lungs. It is transmitted via droplets from the throat and lungs of infected individuals. TB may infect any part of the body, but most commonly occurs in the lungs (referred to as pulmonary TB). Extra-pulmonary TB occurs when it develops outside of the lungs. The symptoms of active TB of the lung are coughing, sometimes with sputum or blood, chest pains, weakness, weight loss, fever and night sweats.

The total number of cases of TB (pulmonary and extra-pulmonary) in year 2012 is 3,599. Pulmonary TB, with an incidence rate of 8.83 per 100,000 population, constitutes 71.6% of all TB cases, while the extra-pulmonary TB, with an incidence rate of 3.50 per 100,000 population, accounted for 28.4% of all TB cases in year 2012.



#### HOW DOES KSA COMPARE?

In 2012, the incidence rate of Tuberculosis (both pulmonary and extra-pulmonary) is 12.3 per 100,000 population, in comparison with the regional rate of 109 per 100,000 population and the global rate of 125 per 100,000 population.

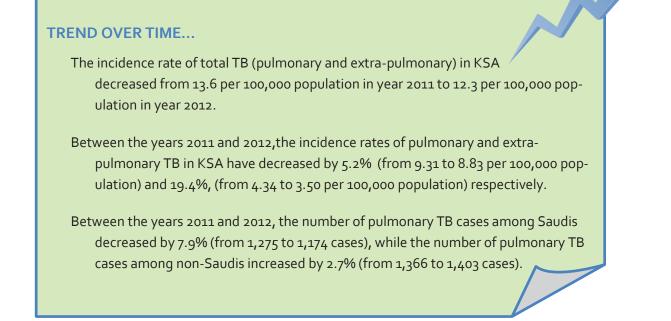
Source: World Health Statistics Report (2013), World Health Organization

## A. Epidemiological aspects of pulmonary and extra-pulmonary TB

#### Distribution of TB cases according to geographic regions

Figure 11.1a displays the incidence rates of pulmonary TB across the regions of the Kingdom. The highest incidence rate was observed in Makkah (13.45 cases per 100,000 population).

Figure 11.1b displays the incidence rate of extra-pulmonary TB across the regions of the Kingdom. Riyadh contains the highest incidence rate (5.31 cases per 100,000 population).



### Distribution of TB cases according to different age groups

According to Figure 11.3a, the majority of pulmonary TB cases are among the age group of "15-34 years", which constituted 51.6% of all cases, followed by the age group of "35-54 years" (27.5%). The least number of cases is in the youngest age group (0-14 years) with 2.8%. A similar trend is observed for the extra-pulmonary TB cases (Figure 11.3b); the highest percentage is among the age group of 15-34 years, which constituted 49.5% of all cases, followed by the age group of 35-54 years (30.6%). Those less than 14 years old represent the lowest percentage of cases (5.6%).

## **B.** Epidemiological aspects of Leprosy

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*. The disease mainly affects the skin, peripheral nerves, mucosa of the upper respiratory tract, and also the eyes. In the year 2012, the incidence rate of Leprosy in the Kingdom is 0.01 per 100,000 population.

### Distribution of the cases according to geographic regions

Only three cases of Leprosy are reported in 2012, all of which occurred in Makkah.

### **KEY ACHIEVEMENTS** ...

Between 2011 and 2012, the incidence rate of total TB in KSA dropped by 9.6% (from 13.6 to 12.3 per 100,000 population).

Over the years, there has been a pronounced decrease in leprosy cases, as the incidence rate dropped by 99.7% from year 1984, when it was 3.27 per 100,000 population.

Region	Riyadh	Makkah	Medinah	Qaseem	Eastern	Aseer	Tabouk
Cases	388	336	26	34	51	52	26
IR (per 100,000)	5.31	4.5	1.36	2.61	1.16	2.54	3.07
Region	Ha`il	Northern		Najran	Al-Bahah	Al-Jouf	Total
Cases	3	7	60	22	11	6	1022
IR (per 100,000)	0.47	2.04	4.11	4.06	2.5	1.27	3.5

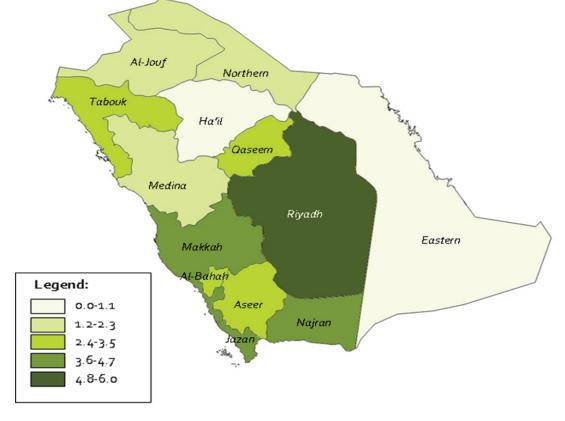


Figure 11.1b: Incidence Rate (IR, per 100,000) of extra-pulmonary tuberculosis by region, KSA, 2012



Region	Riyadh	Makkah	Medinah	Qaseem	Eastern	Aseer	Tabouk
Cases	721	1005	139	97	251	86	38
IR (per 100,000)	9.86	13.45	7.27	7.44	5.69	4.21	4.49
Region	Ha`il	Northern		Najran	Al-Bahah	Al-Jouf	Total
Cases	25	13	135	17	17	33	2577
IR (per 100,000)	3.91	3.8	9.24	3.14	3.86	7	8.83

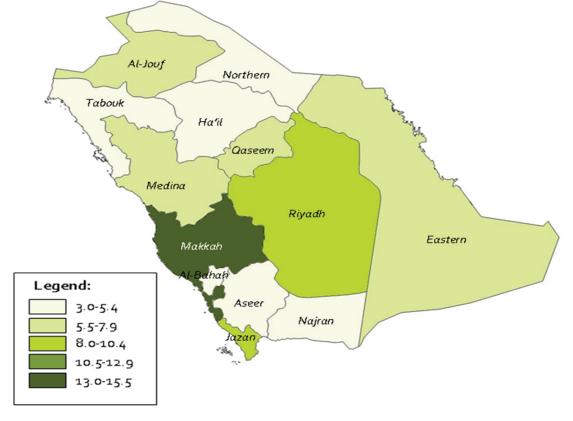


Figure 11.1a: Incidence Rate (IR, per 100,000) of pulmonary tuberculosis by region, KSA, 2012

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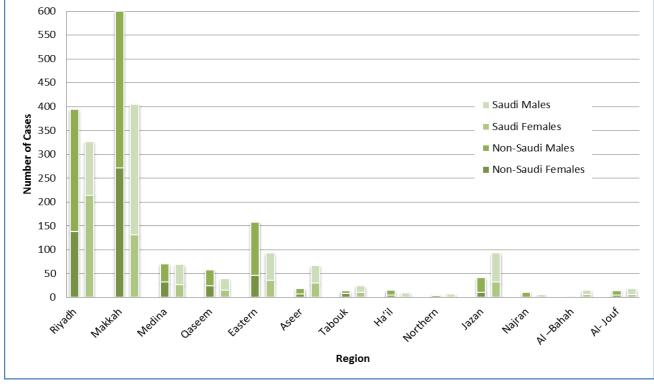


Figure 11.2a: Cases of pulmonary tuberculosis by region, gender and nationality, KSA, 2012

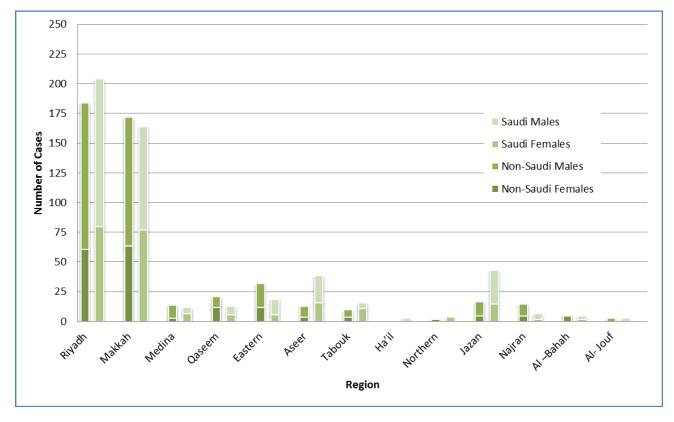


Figure 11.2b: Cases of extra-pulmonary tuberculosis by region, gender and nationality, KSA, 2012

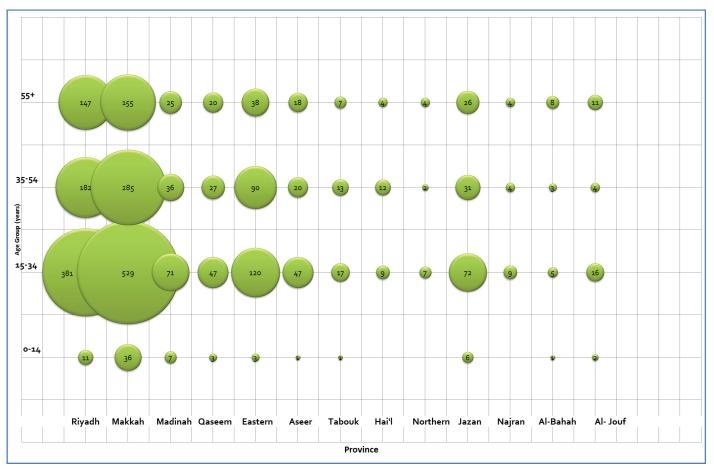
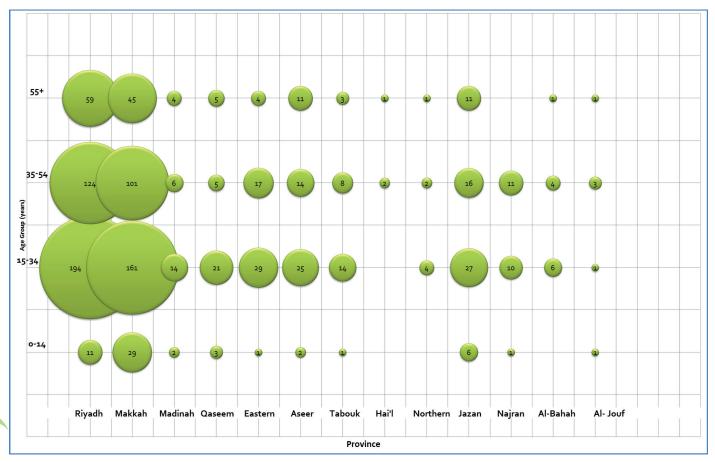


Figure 11.3a: Cases of pulmonary tuberculosis by region and age group, KSA, 2012





Region	2008	2009	2010	2011	2012
Riyadh	5	4	0	1	0
Makkah	13	6	2	4	3
Medinah	0	1	0	0	0
Qaseem	0	0	0	0	0
Eastern	4	1	0	9	0
Aseer	0	0	3	2	0
Tabouk	0	0	0	0	0
Ha`il	0	0	0	0	0
Northern	0	0	0	0	0
Jazan	1	1	0	2	0
Najran	0	0	0	0	0
Al-Bahah	0	1	0	0	0
Al-Jouf	0	1	0	1	0
Total	23	15	5	19	3
Incidence rate (per 100,000 population)	0.09	0.06	0.02	0.07	0.01

#### Table 11.1: Leprosy cases by region, 2008—2012





SECTION III.

# PUBLIC HEALTH AND PREVENTIVE MEDICINE

Chapter 12: Bilharziasis

## 12. BILHARZIASIS

Bilharziasis, also known as Schistosomiasis is a parasitic disease caused by several species of trematodes, a parasitic worm of the genus *Schistosoma*. Snails serve as the intermediary agent between mammalian hosts. Individuals within developing countries that cannot afford to establish proper water and sanitation facilities are often exposed to contaminated water containing the infected snails. Although it has a low associated mortality rate, Bilharziasis often is a chronic illness that can damage internal organs and, in children, impair growth and cognitive development. The urinary form of Bilharziasis is associated with increased risks for bladder cancer in adults. Bilharziasis is the second most socioeconomically devastating parasitic disease after Malaria.

Bilharziasis affects many people in developing countries, particularly children who may acquire the disease by swimming or playing in infected water. Disease transmission has been documented in 78 countries worldwide, one of which is the Kingdom of Saudi Arabia.

## **Epidemiological Aspects**

In year 2012, a total number of 799,765 individuals from all over the Kingdom were examined for Bilharziasis, out of which 254 cases are reported (0.032% positive cases). From the total cases, 13.80% are urinary Bilharziasis and 86.22% intestinal Bilharziasis. The overall prevalence rate in the Kingdom for year 2012 is 0.9 per 100,000 population.

The distribution of cases according to geographical regions (Figure 12.1) reveals that Makkah and Medinah are endemic areas, with 130 and 83 cases, respectively. The environmental predisposing factors are the cause of the prevalence present in these areas.

### **KEY ACHIEVEMENTS ...**

According to the WHO, Bilharziasis has been successfully controlled over the past 20 years in several countries, including Brazil, Cambodia, China, Egypt, and Saudi Arabia.

Source: World Health Organization website

The distribution of Bilharzial cases by nationality (Figure 12.4) shows that 18.90% of total cases of Bilharziasis (48 cases) have been diagnosed among Saudis. Moreover, according to gender, the total number cases among males is 150 (59.1% of total cases). This difference in gender distribution can be explained by the fact that the male population is more exposed to the source of infection while swimming and working in agriculture. Figure 12.1 displays the distribution of cases by nationality and gender across the 13 provinces, where it is clear that most cases are among Non-Saudis.

The distribution of cases according to the different age groups (Figure 12.2) reveals a highest percentage of cases (84.3%) among the age group of 15-39 years, followed by the age group 40 years and older (9.8%). Furthermore, Figure 12.2 reveals that there is an ongoing transmission of infection in Makkah and Medinah; cases are discovered among the young and middle-aged individuals.

The geographical distribution of the intermediate host of Bilharziasis (Figure 12.3) shows that urinary Bilharziasis is endemic in Medinah, Jazan, and Aseer, while intestinal Bilharziasis is endemic in Makkah, Medinah, and Al-Bahah. Also displayed in Figure 12.3 is the distribution of examined cases across regions, where it is seen that Medinah contain the highest number of examined cases.

#### TREND OVER TIME...

In year 2012, the prevalence rate of Bilharziasis in KSA (0.9 per 100,000 population) is higher than that recorded in 2010 (0.5 per 100,000 population). However, when compared to that recorded in 2002 (5.5 per 100,000 population), there has been a 83.6% drop in the prevalence rate.

Between the years 2007 and 2012, the proportion of Bilharzial cases among Saudis has been decreasing, with an observed drop from 55.5% of total cases to 18.9% of total cases.

Between the years 2008 and 2012, the proportion of Bilharzial cases that are intestinal have increased from 75% to 86% of total cases.

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Figure 12.4: Reported Bilharzial cases by type of disease and nationality, KSA< 2008-2012

2010 Years

2009



igure 12.3: Reported Bilharzial cases by region  $\overset{\circ}{}$  and type of disease, KSA, 2012 \*Data were not reported for Caseem, Eastern and Northern provinces

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Region



SECTION III.

# PUBLIC HEALTH AND PREVENTIVE MEDICINE

Chapter 13: Leishmaniasis

## 13. LEISHMANIASIS

Leishmaniasis is caused by a parasitic protozoa of the genus *Leishmania*. Humans are infected via the bite of phlebotomine sandflies, which breed in forest areas, caves, or the burrows of small rodents.

## **CUTANEOUS LEISHMANIASIS**

In year 2012, there are 1,464 reported cases of Cutaneous Leishmaniasis. Cases are spread all over the Kingdom but there is eminent variation regarding its prevalence rate among the different regions. Figure 13.1 provides the incidence rates for Cutaneous Leishmaniasis across the regions of the Kingdom. Qaseem markedly has the highest incidence rate (28.23 cases per 100,000 population). No cases are reported in Northern Borders and Al-Jouf.

The distribution of Cutaneous Leishmaniasis according to nationality (Figure 13.2) shows that 52% of cases are among Saudis (761 cases). The majority of cases (79.4%) occurred among the male gender. Figure 13.3 and Figure 13.4 display the detailed distribution of reported cases of Cutaneous Leishmaniasis by gender and by nationality, respectively, for the 13 regions.

According to the different age groups, highest percentage of Cutaneous Leishmaniasis cases (66.2%) are among the age group of 15-44 years, followed by the age group of 5-14 years (14.8%). Figure 13.5 shows the distribution by age groups across the different regions.

Figure 13.6, which represents the seasonal variation of Cutaneous Leishmaniasis cases, demonstrates a peak during the winter season (November-February) of 2012.



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### **VISCERAL LEISHMANIASIS**

A total number of 8 cases of Visceral Leishmaniasis are reported in 2012. Incidence rate is 0.03 per 100,000 population. Table 13.2 describes the distribution of reported cases of Visceral Leishmaniasis by region, nationality over the time period of 2008-2012.

In terms of geographical distribution, cases of Visceral Leishmaniasis are present only in Jazan (87.5% of cases) and Aseer (12.5% of cases).

#### **KEY ACHIEVE-TREND OVER** MENTS ... TIME... Between the years The Kingdom witnessed a 37.0% 2008 and 2012, the incidecrease in the number of dence rate of Cutaneous cases of Cutaneous Leish-Leishmaniasis decreased by maniasis, from 2,321 in 2011 46.8%, from 9.4 to 5.0 per to 1,464 in 2012. 100,000 population in KSA. Across the five years from 2008 to 2012, there has been an almost equal distribution (50:50) of Cutaneous Leishmaniasis cases among Saudis and non-Saudis in KSA.

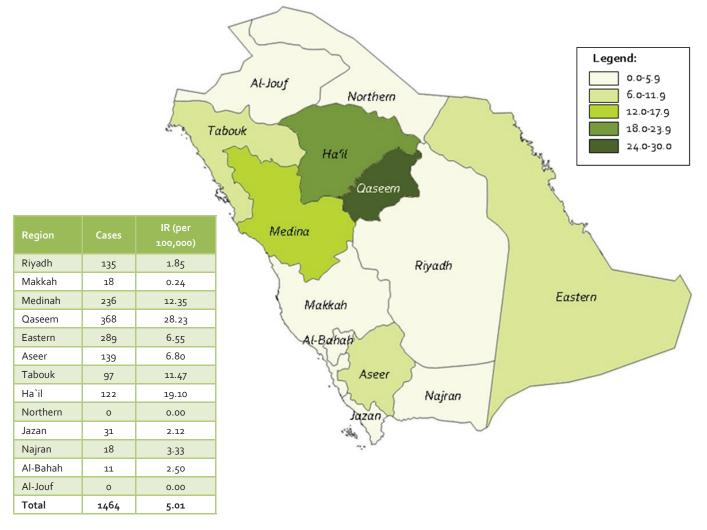


Figure 13.1: Incidence Rate (IR, per 100,000) of Cutaneous Leishmaniasis by region, KSA, 2012

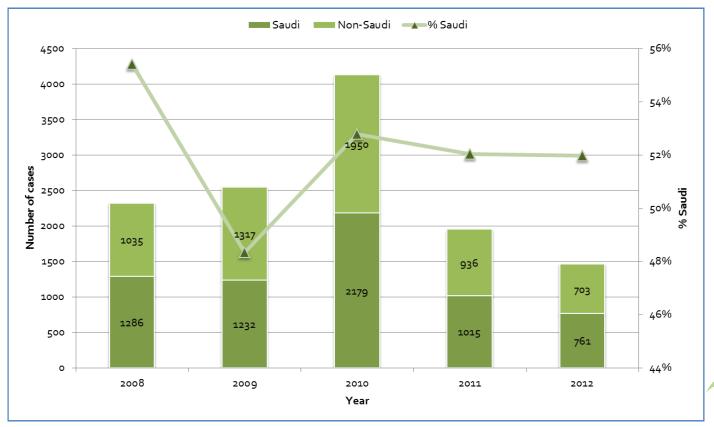


Figure 13.2: Reported cases of Cutaneous Leishmaniasis by nationality, KSA, 2008-2012

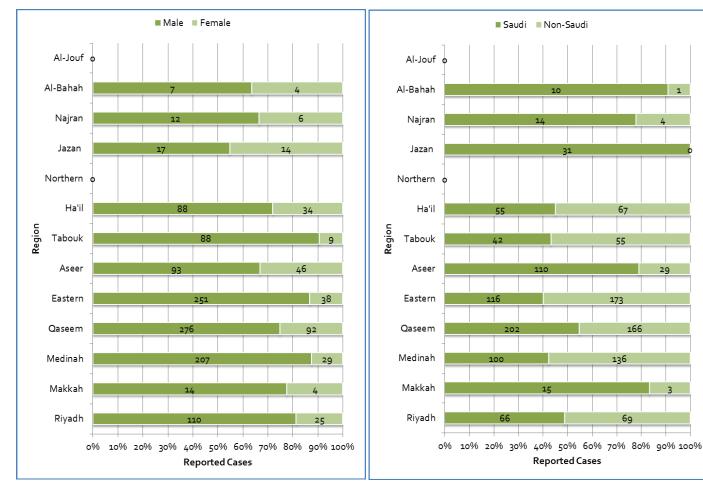


Figure 13.3: Reported cases of Cutaneous Leishmaniasis by region and gender, KSA, 2012

Figure 13.4: Reported cases of Cutaneous Leishmaniasis by region and nationality, KSA, 2012

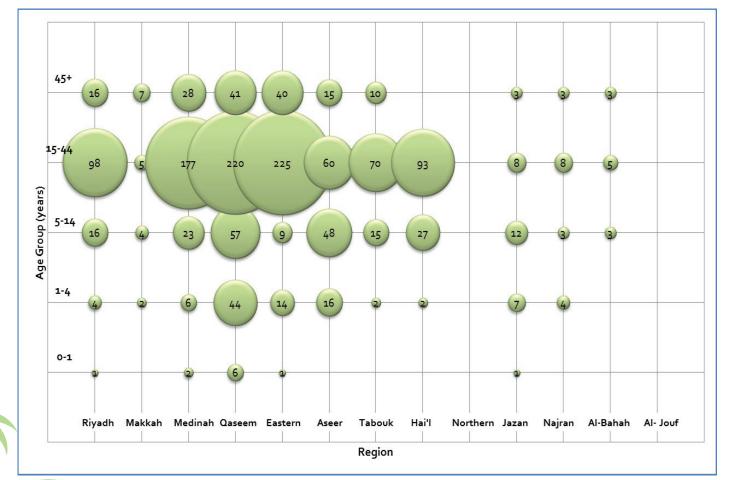
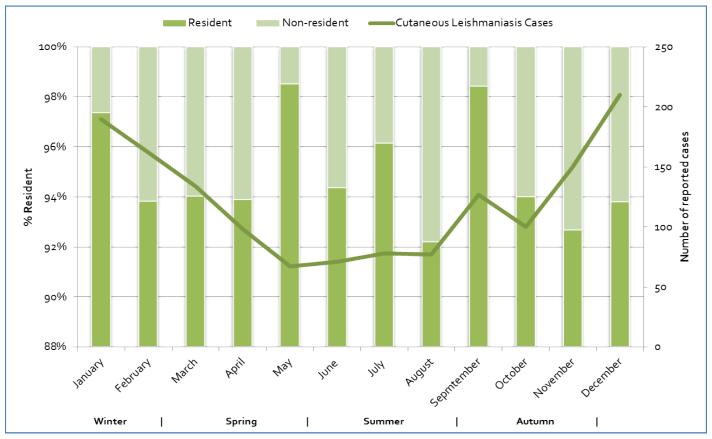


Figure 13.5: Reported cases of Cutaneous Leishmaniasis by region and age group, KSA, 2012



#### Figure 13.6: Reported cases of Cutaneous Leishmaniasis by month & season , and residence , KSA, 2012

Month	No. of	Natio	nality	Gender		Residence		Age group (years)					
	cases	Saudi	Non- Saudi	Male	Female	Resident	Non- resident	0-1	1-4	5-10	10-14	15-44	45+
Jan.	190	94	96	153	37	185	5	2	20	22	11	126	9
Feb.	162	85	77	126	36	152	10	0	14	11	15	109	13
Mar.	134	84	50	97	37	126	8	0	8	12	15	82	17
Apr.	98	58	40	75	23	92	6	1	5	11	9	65	7
May	67	43	24	47	20	66	1	2	3	6	8	36	12
June	71	32	39	62	9	67	4	0	2	4	6	47	12
July	78	37	41	60	18	75	3	1	6	7	5	46	13
Aug.	77	43	34	61	16	71	6	1	7	4	5	49	11
Sep.	127	63	64	100	27	125	2	0	15	5	16	75	16
Oct.	100	55	45	78	22	94	6	2	4	5	9	67	13
Nov.	150	68	82	129	21	139	11	1	5	3	10	108	23
Dec.	210	99	111	175	35	197	13	1	12	12	17	148	20
Total	1464	761	703	1163	301	1389	75	11	101	102	126	958	166

#### Table 13.1: Reported cases of Cutaneous Leishmaniasis by month, nationality, gender, residence, and age group, KSA, 2012

#### Table 13.2: Reported cases of Visceral Leishmaniasis by region, KSA, 2008—2012

Region* Medinah	2008	2009	2010	2011	2012
Medinah	0	1	0	0	0
Qaseem	0	1	0	0	0
Aseer	2	0	2	1	1
Bishah	1	0	0	0	0
Jazan	29	15	6	6	7
Total	32	17	8	7	8

\* No cases of Visceral Leishmaniasis were reported from other regions



SECTION III.

# PUBLIC HEALTH AND PREVENTIVE MEDICINE

Chapter 14: Malaria

## 14. MALARIA

Malaria is caused by a parasite called Plasmodium, which is transmitted via the bites of infected mos-

quitoes. Environmental conditions play an important role in the spread of Malaria. They affect mosquito species, life cycle and density. They also affect the life span of the plasmodium inside the mosquito.

The epidemiological aspects of Malaria vary from one region in the Kingdom to another and even within areas of the same region. This variation is related to the difference in the environmental conditions across the vast area of the Kingdom. Epidemiological aspects vary from one year to another, and are affected by the control measures taken against Malaria during that time period.

## **Anti-Malaria Control Measures**

Anti-Malaria control measures in the Kingdom were initiated in 1948. Malaria transmission was successfully controlled in the Northern Borders and Eastern Province, as well as in large areas of the western regions, especially in the big cities.

Malaria remains endemic in Tohama valley and Jazan region, as control programs were only recently implemented in these regions. The delay in intervention was due to the absence of paved roads lead-ing to these regions, poor communication network and shortage in manpower.

The majority of malarial cases (90%) are caused by the parasite *Plasmodium falciparum*; the main vector being the Anopheles arabiensis.

## **Epidemiological Aspects**

A total of 3,406 cases are recorded this year. With regards to type of parasite involved, Figure 14.1 shows that 37.3% of cases of malaria are malignant, infected by Plasmodium falciparum, while 61.6% of cases are benign, infected by *Plasmodium vivax*. Figure 14.3 further represents the distribution of reported cases of Malaria by type of parasite among the different regions.

Figure 14.2, which represents the seasonal variation of Malaria cases, shows that there is a marked increase in the number of cases from January to February.

The distribution of cases of malaria according to the different age groups within endemic zones is displayed in Figure 14.4. Out of all cases reported within endemic zones, 91.1% were discovered among the age group of 10 years and above.





According to WHO, seven countries in the EMR still have areas of high malaria transmission and are in the control stage (Afghanistan, Djibouti, Pakistan, Somalia, Sudan, South Sudan, and Yemen); two countries with geographically limited malaria transmission are in the elimination stage (the Islamic Republic of Iran, and Saudi Arabia); and Egypt, Oman and the Syrian Arab Republic are in the prevention of reintroduction stage. The remaining countries are malaria-free.

Source: World Health Organization website

## **Control Strategy**

The anti-malaria control measures in the Kingdom are based on the following guidelines:

- a. Spraying of the breeding foci of mosquito to control the larva. This method is widely spread all over the Kingdom, except in the mosquito free areas.
- b. Spraying the houses with insecticides that have residual effect. This is used in the areas with high density of malaria.
- c. Spraying the narrow spaces minute particulates to reach deep areas. This method is used in areas with high cases of malaria.
- d. Use of mechanical control methods.
- e. Widespread use of nets impregnated with insecticides.
- f. Increasing health awareness programs.

### **Insect Survey**

Insect surveys are conducted throughout the year and all over the Kingdom, in order to study the insect density, habits and behavior, and sensitivity to different insecticides.

#### TREND OVER TIME...

The total number of reported Malaria cases in the Kingdom increased by 22.2% in 2012 compared to 2011, when there were 2,788 cases.

Region	No. Examined	Positive Cases	Slide Positivity Rate (%)	
Riyadh	212,812	417	0.20	
Makkah	42,356	290	o.68	
Medinah	147,568	298	0.20	
Qaseem	88,660	302	0.34	
Eastern	303,557	956	0.31	
Aseer	60,976	96	0.16	
Tabouk	9,173	8	0.09	
Ha`il	16,300	33	0.20	
Northern	10,475	31	0.30	
Jazan	187,477	860	0.46	
Najran	31,342	84	0.27	
Al-Bahah	40,660	21	0.05	
Al-Jouf	34,823	10	0.03	
Total	1,186,179	3,406	0.29	

### Table 14.1: Notified Malaria Cases by Region and classification, KSA, 2012

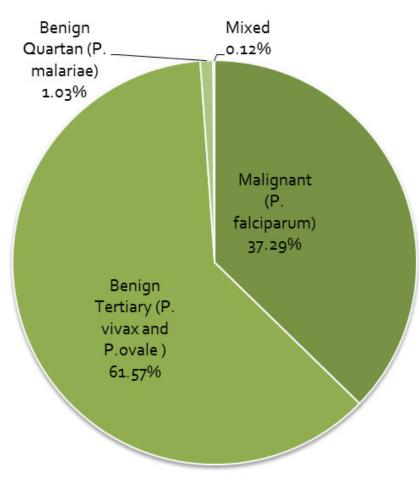
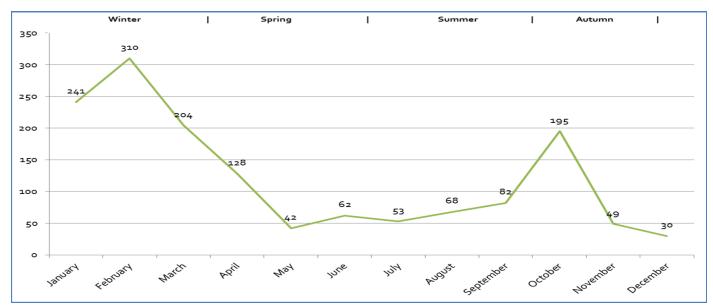
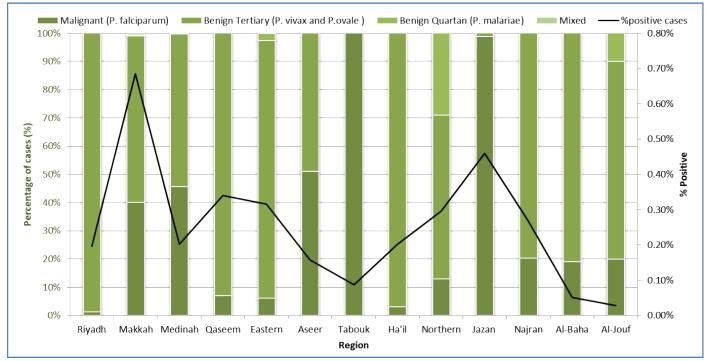


Figure 14.1: Notified Malarial cases by type of parasite, KSA, 2012









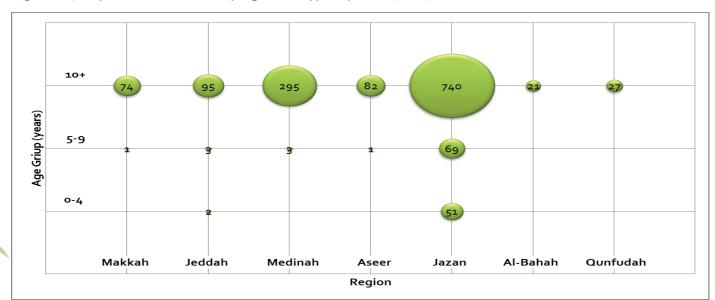


Figure 14.4: Notified malarial cases in endemic zones by age group, KSA, 2012



SECTION III.

## PUBLIC HEALTH AND PREVENTIVE MEDICINE

# Chapter 15: Environmental health and health education activities

## 15. Environmental Health and Health Education Activities

## **Environmental Health**

Public health and environment-related authorities collaborate with each other in supervising public places and food stores. Samples of drinking water obtained from water supply resources are tested, and public places as well as residences of workers are continuously inspected.

As shown in Table 15.1, there were 77,859 visits to water supply sources, where 39,699 water samples were tested bacteriologically and chemically. Additionally, a total of 151,332 visits to public places and 15,144 visits to health utilities were done along with 9,590 visits to residences of company workers. Consequently, 23,631 kg and 17,955 L of food were destroyed.

### **Health Education**

The Ministry of Health covers the following fields through the different activities and programs of health education:

- Family
- Nutrition
- Youth
- Child Health
- Maternal Health and antenatal care
- Smoking control
- Prevention of communicable diseases

Health education materials have been produced for most of the campaigns, immunization and other occasions. The health education message is also broadcasted through different meetings.

#### **KEY ACHIEVEMENTS ...**

The Kingdom has become more active in terms of organizing activities on health awareness within national campaigns; the number of activities increased from 2 in2009 to 113 in year 2012

		Visits	Number		Samples	Number	Execution of	Food Stuffs	No. of workers
Region	Sources of water sup- ply	Public places	Health utilities	Houses of company workers	Water	Food	In Kilogram	In Liter	checked for certificates
Riyadh	1,811	21,578	3,245	250	**	**	**	**	7,870
Makkah	15,664	37,012	1,591	563	13,322	1,077**	10,250**	1,561**	79,276
Medinah	36,862	32,931	2,976	1,426	10,255	31,340	4,308	4,389	43,588
Qaseem	330	1,024	272	14	76	135			274
Eastern	4,798	5,151	1,930	705	6,464	113**	573**	2,496**	6,303**
Aseer	2,492	14,582	2,429	2,166	1,119	*	862**	4**	8,279
Tabouk	421	1,914	132	20	220	393	520	133	1,330
Ha'il	2,075	5,507	20	608	1,618	14	24	4	2,201
Northern	282	1,921	67	**	288	372	**	**	2,000
Jazan	2,320	8,956	830	203	1,387		3,278	5,147	5,201
Najran	753	1,773	133	111	833	*	**	**	1,052
Al-Baha	8,548	6,935	128	2,352	3,411	746	212		7,157
Al-Jouf	1,503	12,048	1,391	1,172	706	34*	3,604	4,221	9,107
Total	77,859	151,332	15,144	9,590	39,699	34,224	23,631	17,955	173,638

#### Table 15.1: Environmental health activities by region, MOH, 2012

\* No available laboratories in the following areas: Aseer, Najran, Quarrayat in Al-Jouf,

\*\* Some activities in this region are under the under supervision of municipal local authority and were not reported in this sum

... Not reported

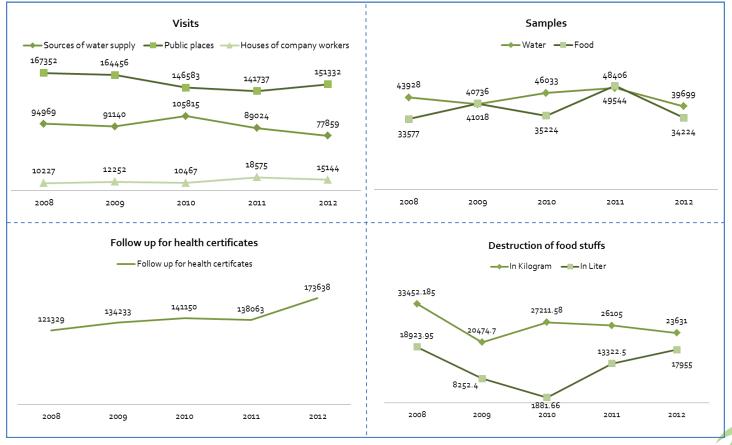


Figure 15.1: Environmental health activities, MOH, 2008-2012

#### Table 15.2: Health awareness, MOH, 2012

	Activity	Number of
	Inside Health Centers	49,796
Lectures	Outside Health Centers	64,228
	Total	114,024
	Inside Health Centers	4,650
Meeting	Outside Health Centers	2,387
	Total	7,037
	Booklet	103,900
Prints	Announcements	479,954
PTITUS	Posters	85,968
	Leaflets	801,743
Training Courses		60
Number of Activities in	National Campaigns	113
Activities related to inte	rnational days in regions and governorates	1,362







AND ACTIVITIES

Chapter 16: Outpatient visits Chapter 17: Inpatients (admissions to hospitals) Chapter 18: Surgical operations Chapter 19: Deliveries and births Chapter 20: Ophthalmology Chapter 21: Psychiatric and social health Chapter 22: Dental services Chapter 23: Hemodialysis and organ transplantations Chapter 24: Laboratory & radiology investigations and blood bank Chapter 25: Medical rehabilitation Chapter 26: Medical commissions Chapter 27: Nutrition Chapter 28: Other activities Chapter 29: Deaths registered at MOH hospitals



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 16: Outpatient visits

## 16. OUTPATIENT VISITS

This chapter provides information regarding the outpatient visits to the MOH facilities (MOH primary health care centers, emergency departments at the MOH hospitals, and outpatient departments at the MOH hospitals), visits to clinics at facilities of the other governmental sector, and visits to clinics at facilities of the private sector.

## A. OUTPATIENT VISITS TO THE MOH FACILITIES

### 1. MOH Primary Health Care Centers

Table 16.1 displays a summary of patient visits to various clinics at the MOH primary health care centers across the Kingdom, by region and nationality. A total of 53.57 million visits are recorded in year 2012. An evident majority of the visits (90%) are among Saudi nationals. Figure 16.2 shows that almost two thirds of the visits (60%) take place at General Clinics.

## 2. Emergency Department (ED) at the MOH Hospitals

Visits to the ED at the MOH hospitals for the year 2012 are summarized in Table 16.2, by region, type of disease/injury, and nationality. The majority of the emergency cases (89%) are disease-related. As seen in Table 16.2 and Figure 16.3, in year 2012, the vast majority of emergency cases (90.7%) across all regions are of Saudi nationality. More details on emergency cases at the MOH hospitals are displayed in Table 16.3 and Figure 16.4.

As known, the Saudi Arabian Red Crescent Society is a humanitarian society that provides emergency medical service and transfer patients. In year 2012, a total of 227,555 cases were offered transport by the Red Crescent vehicles. Table 16.4 provides a summary of these cases, by region and type of case. Generally, and as seen in Figure 16.5, the scope of activity of the Red Crescent Society has been increasing from year 2008 to year 2012.

## 3. Outpatient Department (OPD) at the MOH Hospitals

Visits to the OPD of the MOH hospitals by selected diseases and region are displayed in Table 16.5. A total of 11.67 million visits are recorded in year 2012.

Figure 16.7 summarizes the visits to clinics at MOH primary health care centers and OPDs at MOH hospitals by region and nationality for the year 2012. Visits to health centers represent the majority of total visits across all regions of the Kingdom. Moreover, across all regions of the Kingdom, the majority of both types of visits are made by Saudi nationals.

Figure 16.8 shows that, on average, there are 2.2 annual visits per individual in the Kingdom for the year 2012.

## B. OUTPATIENT VISITS TO FACILITIES OF THE OTHER GOVERNMENTAL SECTORS

Figure 16.9 displays the visits to clinics and OPDs at facilities of the other governmental sector for year 2012, with representation of the proportion of visits made by Saudi nationals.

## C. OUTPATIENT VISITS TO FACILITIES OF THE PRIVATE SECTOR

Visits to clinics at private sector dispensaries and hospitals by region for year 2012 are shown in Figure 16.10, with representation of the proportion of visits made by Saudi nationals. The trend for visits to clinics at private dispensaries and hospitals over the time period 2008-2012 is displayed in Figure 16.11.

## D. OUTPATIENT VISITS ACROSS ALL HEALTH SECTORS

This section summarizes all outpatient visits to facilities across all health sectors (MOH, other governmental and private). The total number of outpatient visits in the Kingdom is around 134 million in year 2012, representing an average of 513,410 daily visits. As seen in Figure 16.12, there has not been a major change in the proportions of visits within each health sector from total visits across all health sectors. Consistently, visits to facilities of the MOH have represented the majority of total visits for all years recorded, and more specifically 49% of total visits in year 2012 (Figure 16.13).

## E. OUTPATIENT VISITS TO SELECTED HEALTH SERVICES

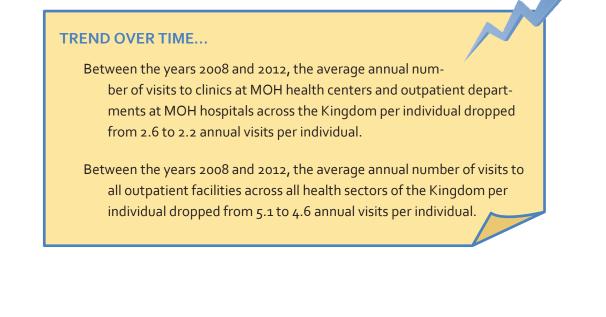
Outpatient visits to diabetic clinics at the MOH hospitals by region of the Kingdom for year 2012 are shown in Figure 16.14, with representation of the proportion of visits made by Saudi nationals and by the male gender. Males constituted 44.2% of the total visits to diabetic clinics. The number of visits by Saudi nationals constituted 95.6% of total visits.

Figure 16.15 displays the visits to antenatal and gynecology clinics at the MOH hospitals between 2008 and 2012. Table 16.6 display the cases of complications related to pregnancy & childbirth and gynecology, as well as abortion cases that took place at the MOH hospitals during the time period of 2008-2012. For year 2102, cases of antepartum hemorrhage constituted the main obstetrical complications, while cases of infertility constituted the highest proportion of gynecological cases. Between the years 2008 and 2012, the number of abortion cases dropped by 4% from 44,837 to 43,036 cases.

Malignant tumors that are recorded in King Faisal Specialist Hospital and Research Center, in Riyadh and Jeddah, are displayed by tumor site and gender, in Figure 16.16. Breast Cancer constitutes 19.1% of total tumor cases recorded for year 2012.

According to Table 16.7, Leukemia constitutes the highest percentage of tumor cases recorded among males (8.5%), while Breast Cancer constitutes the highest percentage of tumor cases recorded among females (33.1%).

Figure 16.17 displays the proportion of cases of tumors among children, who are referred to King Faisal Specialist Hospital, Riyadh and Jeddah, by tumor site and gender for year 2012. Leukemia constitutes the majority (32%) of total tumor cases.



## A. OUTPATIENT VISITS TO MOH FACILITIES

## 1. MOH Primary Health Care Centers

#### **General clinics** Chronic disease clinic Dental clinic **Antenatal clinic** Region Non-Non-Non-Non-Saudi Saudi Saudi Saudi Saudi Saudi Saudi Saudi Riyadh 4,620,948 583,760 702,504 90,462 2,587 98,064 213,323 5,931 Makkah 86,813 5,179,964 674,013 894,464 42,498 451,098 8,741 3,645 Medinah 2,680,706 6,865 945,136 307,972 234,682 214,443 6,314 62,405 Qaseem 1,918,751 398,864 4,628 43,906 900 144,775 240,257 9,352 Eastern 3,636,263 377,630 667,043 31,122 408,774 11,739 122,584 6,671 Aseer 3,085,878 142,816 408,085 9,270 287,849 6,983 67,765 1,501 Tabouk 28,786 806,480 53,766 124,145 3,768 93,008 904 726 Ha`il 118 1,208,683 148,308 29,807 578 70,433 1,715 73,002 Northern 606,545 17,709 1,401 27,236 126 20,408 33,945 979 Jazan 2,785,542 416,609 12,805 57,089 3,833 190,022 153,030 9,735 Najran 89,818 809,556 93,705 3,408 93,523 10,444 134 17,510 Al-Bahah 878,579 61,818 220,677 5,106 105,287 90 23,630 463 Al-Jouf 674,126 49,467 71,041 1,982 70,938 583 560 30,140 Total 28,892,021 3,421,104 4,471,126 454,607 2,428,063 52,682 688,907 36,060 Well-baby clinic **Other clinics** Total

#### Table 16.1: Visits to clinics at the MOH health centers by region, type of clinic and nationality, 2012

Region	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	Total
Riyadh	434,534	34,917	1,177,956	263,683	7,247,329	981,340	8,228,669
Makkah	456,121	111,150	1,737,438	215,353	8,805,898	1,055,400	9,861,298
Medinah	259,219	38,732	751,370	104,913	4,276,115	1,336,642	5,612,757
Qaseem	175,571	5,858	480,914	58,201	3,258,263	223,714	3,481,977
Eastern	393,864	46,496	1,432,672	152,100	6,661,200	625,758	7,286,958
Aseer	294,942	6,541	820,732	55,943	4,965,251	223,054	5,188,305
Tabouk	132,890	3,851	230,956	16,179	1,416,265	79,194	1,495,459
Ha`il	87,846	1,237	225,247	24,084	1,772,893	98,165	1,871,058
Northern	77,253	2,639	238,955	18,444	988,106	57,534	1,045,640
Jazan	198,615	14,731	930,449	81,563	4,541,334	312,689	4,854,023
Najran	137,096	21,639	339,887	50,761	1,487,572	179,909	1,667,481
Al-Bahah	49,719	68 <sub>3</sub>	395,291	22,076	1,673,183	90,236	1,763,419
Al-Jouf	90,398	6,372	195,350	26,375	1,131,993	85,339	1,217,332
Total	2,788,068	294,846	8,957,217	1,089,675	48,225,402	5,348,974	53,574,376

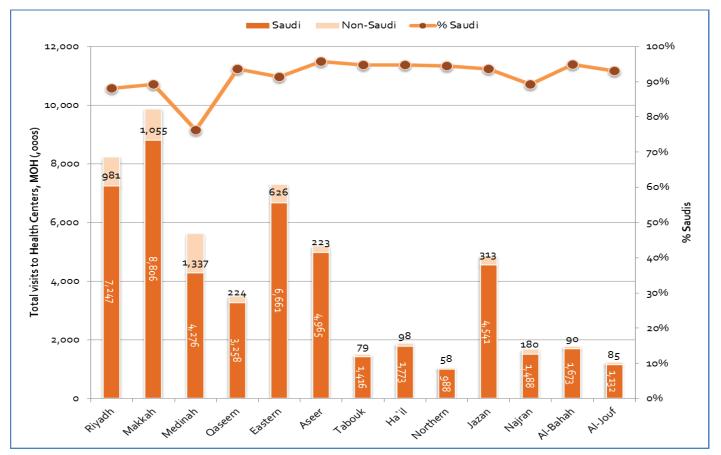


Figure 16.1: Total visits to clinics at MOH health centers by region and nationality, 2012

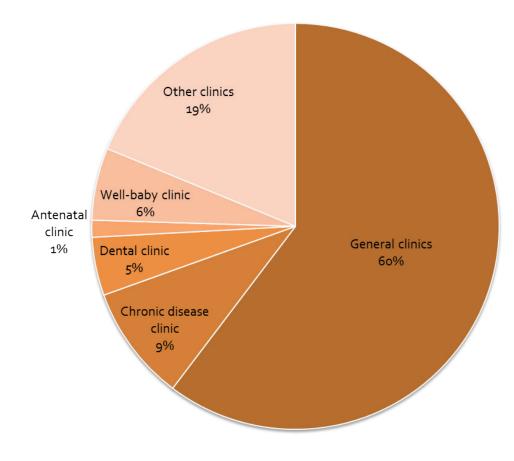


Figure 16.2: Visits to clinics at the MOH health centers by specialty, 2012

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2. Emergency Department (ED) at the MOH Hospital	
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Table 16.2: Emergency cases at the MOH hospitals by region, type of disease/injury, and nationality,2012

		% Saudi	88.8%	88.2%	87.1%	91.7%	94.4%	94.0%	89.2%	92.0%	91.5%	92.5%	88.0%	95.4%	90.9%	90.7%
-	5	Total	2,763,421	3,653,457	2,496,460	1,494,215	2,566,791	2,061,720	852,171	726,688	529,063	1,680,067	591,004	666,093	800,327	20,881,477
τς Η		Non-Saudi	310,131	432,359	322,265	123,587	144,136	123,666	91,794	58,247	44,950	126,208	70,876	30,510	72,748	1,951,477
		Saudi	2,453,290	3,221,098	2,174,195	1,370,628	2,422,655	1,938,054	760,377	668,441	484,113	1,553,859	520,128	635,583	727,579	18,930,000
	Diseases	Non- Saudi	1,123	1,347	111	140	290	691	471	134	215	730	135	73	111	5,571
	Neonatal Diseases	Saudi	8,321	8,319	6,222	10,425	12,148	6,787	8,147	3,318	2,560	6,632	1,448	1,639	3,965	79,931
	GΥN	Non-Saudi	4,951	11,312	4,321	3,107	3,038	1,283	1,049	929	227	1,539	1,428	505	821	34,510
Ş	OBS/GYN	Saudi	51,649	53,051	85,253	35,150	48,613	28,293	9,604	18,003	2,857	15,938	14,060	10,603	19,222	392,296
Cases	Injuries	Non-Saudi	55,482	42,368	63,262	24,027	20,922	17,375	24,234	6,642	4,935	13,515	8,293	4,326	14,194	299,575
	Inju	Saudi	249,240	220,164	133,058	127,380	155,361	151,765	139,303	33,821	58,449	107,058	38,865	48,079	71,974	1,534,517
	ises	Non-Saudi	248,575	377,332	254,571	96,313	119,886	104,317	66,040	50,542	39,573	110,424	61,020	25,606	57,622	1,611,821
	Diseases	Saudi	2,144,080	2,939,564	1,949,662	1,197,673	2,206,533	1,751,209	603,323	613,299	420,247	1,424,231	465,755	575,262	632,418	16,923,256
	Region		Riyadh	Makkah	Medinah	Qaseem	Eastern	Aseer	Tabouk	Ha`il	Northern	Jazan	Najran	Al-Bahah	Al-Jouf	Total

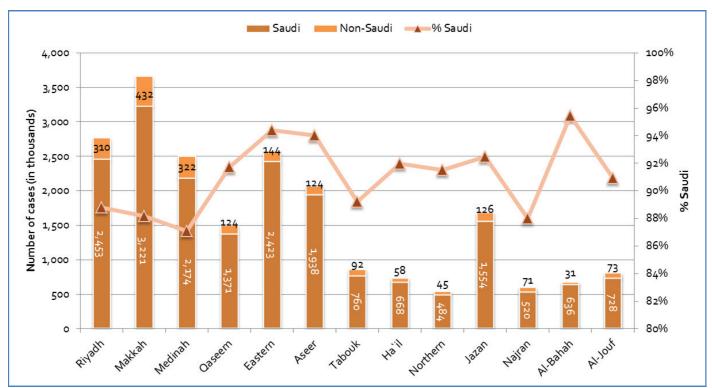


Figure 16.3: Total emergency cases at the MOH Hospitals by region and nationality, 2012

Table 16.3: Emergency	cases at the MOH hosp	itals by type of diseas	e/injury, nationalit	y and gender, 2012

Disease	an inium.	Casas	Natio	nality	Gen	der
Disease	or injury	Cases	Saudi	Non-Saudi	Male	Female
	Infectious & parasitic diseases	202,563	176,642	25,921	117,174	85,389
	Diabetes Mellitus	736,843	661,733	75,110	403,596	333,247
	Blood diseases	261,692	244,498	17,194	141,653	120,039
	Nervous system	212,099	189,406	22,693	118,675	93,424
	Eye diseases	636,595	592,361	44,234	352,065	284,530
	ENT	1,995,286	1,843,322	151,964	1,101,660	893,626
	Hypertensive diseases	743,956	673,331	70,625	408,250	335,706
lise	Ischemic heart diseases	157,867	130,838	27,029	90,520	67,347
Diseases	Rheumatic heart and others	245,385	218,231	27,154	137,342	108,043
S	Respiratory system diseases	5,183,575	4,848,586	334,989	2,842,042	2,341,533
	Diseases of the GIT	2,648,266	2,444,835	203,431	1,390,410	1,257,856
	Appendicitis	68,568	60,107	8,461	39,444	29,124
	Diseases of the genitourinary system	607,372	526,886	80,486	318,591	288,781
	Food poisoning	23,310	20,983	2,327	14,119	9,191
	Other diseases	4,811,700	4,291,497	520,203	2,588,010	2,223,690
	Total	18,535,077	16,923,256	1,611,821	10,063,551	8,471,526
OBS/GY	Ń	426,806	392,296	34,510	0	426,806
Disease	s of neonates	85,502	79,931	5,571	46,007	39,495
	Car & road accidents	195,880	151,175	44,705	155,749	40,131
	Drug & cleaning agents poisoning	17,464	14,829	2,635	9,083	8,381
	Fall & accidentally injuries	527,206	435,099	92,107	347,043	180,163
_	Burns	66,911	55,757	11,154	38,024	28,887
Injuries	Firearm, drowning & rape	16,915	9,503	7,412	13,820	3,095
ries	Scorpion or snake bite	29,050	23,052	5,998	19,793	9,257
	Dog or other animal bite	13,190	9,311	3,879	10,017	3,173
	Foreign bodies	102,369	86,423	15,946	63,823	38,546
	Others	865,107	749,368	115,739	518,033	347,074
	Total	1,834,092	1,534,517	299,575	1,175,385	658,707
Total		20,881,477	18,930,000	1,951,477	11,284,943	9,596,534

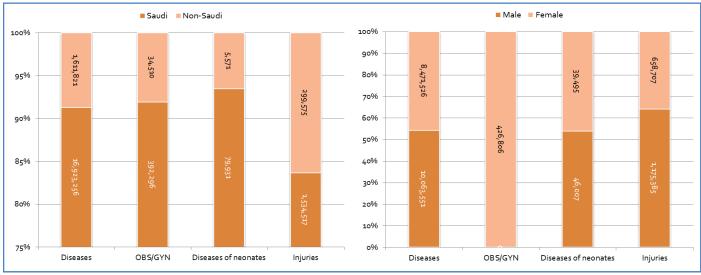


Figure 16.4: Total emergency cases at the MOH hospitals by type of disease/injury and nationality (left) and gender (right), 2012

 Table 16.4: Patients & casualties offered first-aid carried by the Saudi Red Crescent Society Ambulance by region & type of case, 2012

Region	Road Accidents	Alterca- tion	Falls	Burns	Drowning	Other ac- cidents	Diseases	Total
Riyadh	18,520	825	2,124	223	13	796	26,596	49 <b>,</b> 097
Makkah	21,224	3,637	4,359	485	46	1,419	37,473	68,643
Medinah	6,106	714	1,543	104	4	341	13,687	22,499
Qaseem	4,474	400	539	77	1	196	6,517	12,204
Eastern	9,661	819	1,327	246	7	352	14,264	26,676
Aseer	5,212	497	763	107	13	433	8,347	15,372
Tabouk	3,034	192	284	43	17	71	4,707	8,348
Ha`il	1,510	152	226	39	2	48	2,777	4,754
Northern	795	95	120	22	2	55	1,440	2,529
Jazan	2,476	173	442	41	6	254	3,812	7,204
Najran	1,077	126	169	18	0	324	1,411	3,125
Al -Bahah	1,774	123	218	14	1	20	2,067	4,217
Al-Jouf	1,050	62	94	10	3	50	1,618	2,887
Total	76,913	7,815	12,208	1,429	115	4,359	124,716	227,555

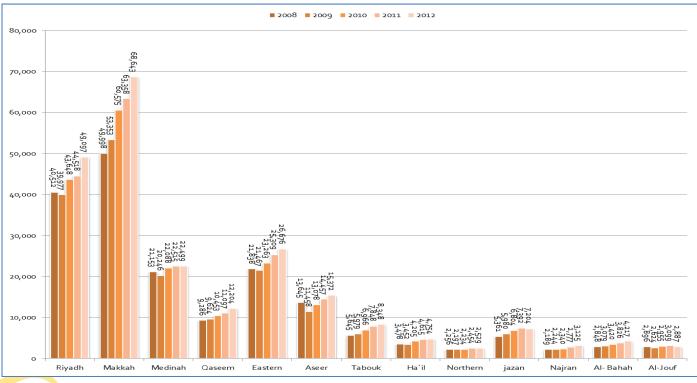


Figure 16.5: Cases offered first aid and carried by ambulances of the Saudi Red Crescent Society by region, 160 2008 – 2012

## 3. Outpatient Department (OPD) at MOH Hospitals

Table 16.5: MOH hospital visits by selected diseases and region, 2012

Table 16.5: MOH hospital visits by selected diseases and region, 2012										
Region	Infectious & parasitic dis- eases	Diabetes Mellitus	Blood diseases	Nervous system Diseases	Eye diseases	ENT diseases	Hypertension	Coronary heart diseases	Rheumatic & other heart diseases	
Riyadh	12,583	79,653	19,511	84,585	305,289	132,812	76,149	16,332	22,822	
Makkah	22,990	79,615	44,131	58,546	243,381	140,808	57,830	28,437	45,590	
Medinah	6,579	20,946	13,152	19,582	86,301	65,678	22,135	23,090	26,674	
Qaseem	2,649	62,072	7,354	24,822	73,737	53,474	28,951	20,965	2,955	
Eastern	8,159	76,088	25,417	60,348	240,677	134,601	57,436	30,993	14,845	
Aseer	6,906	29,310	9,374	37,787	92,175	75,181	32,415	18,425	4,166	
Tabouk	3,586	14,795	3,762	30,372	36,307	39,817	14,069	5,163	4,127	
Ha`il	2,401	14,186	2,322	22,819	24,406	17,974	9,751	1,444	2,902	
Northern	909	4,303	705	9,525	16,890	21,592	11,313	2,886	1,913	
Jazan	3,687	25,764	17,491	13,572	59,990	57,875	21,397	9,529	6,995	
Najran	2,005	8,268	3,555	13,234	27,318	18,288	7,786	5,145	5,396	
Al-Bahah	2,613	28,841	3,830	22,392	33,531	24,015	9,685	2,953	6,183	
Al-Jouf	1,318	9,161	3,898	13,541	27,351	21,167	13,049	8,369	5,303	
Total	76,385	453,002	154,502	411,125	1,267,353	803,282	361,966	173,731	149,871	
Region	Chest diseases	Diseases of digestive System	Skin and subcutaneous tissue diseases	Musculo- skeletal diseases	Obstetrics and Gynecology	Oral and dental diseases	Diseases of genito-urinary system	Other diseases	Total	
Riyadh	84,658	86,443	125,076	190,051	244,383	143,955	72,232	359,057	2,055,591	
Makkah	85,659	130,112	114,183	156,197	212,541	154,024	86,035	518,924	2,179,003	
Medinah	34,418	40,387	45,796	92,080	79,342	21,068	36,867	187,847	821,942	
Qaseem	42,939	37,103	61,764	91,486	138,340	100,326	49,324	193,497	991,758	
Eastern Aseer	45,495 45,480	65,944 54,994	110,519 70,605	208,155 102,276	199,108 115,035	123,355 40,221	6 <u>5,94</u> 8 49,059	451,006 180,231	<b>1,918,094</b> 963,640	
Tabouk	25,821	18,461	29,091	44,120	42,354	30,925	14,825	73,656	431,251	
Ha`il	12,425	14,873	10,437	22,497	41,694	13,789	11,849	61,082	286,851	
Northern	10,310	19,361	15,582	18,615	13,580	2,209	9,534	115,320	274,547	
Jazan	44,983	32,551	55,542	84,242	72,751	57,373	40,395	155,003	759,140	
Najran	9,421	7,448	16,557	16,679	36,916	7,058	14,792	73,766	273,632	
Al-Bahah	14,902	15,731	23,387	36,902	70,778	13,972	18,103	74,779	402,597	
Al-Jouf Total	14,723	14,439	26,657	30,067	47,826	12,062	18,935	46,398	314,264	
Total	471,234	537,847	705,196	1,093,367	1,314,648	720,337	487,898	2,490,566	11,672,310	

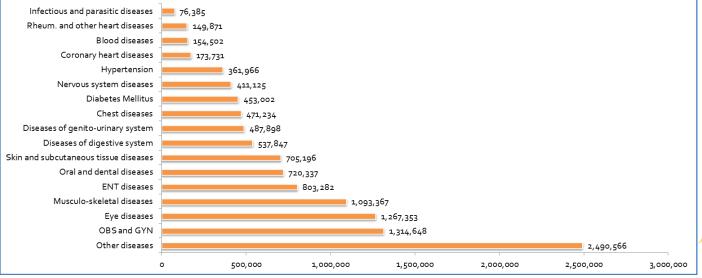


Figure 16.6: MOH hospital visits by selected diseases, 2012



Figure 16.7: Visits to clinics at the MOH health centers and hospitals' outpatients department by region & nationality, 2012

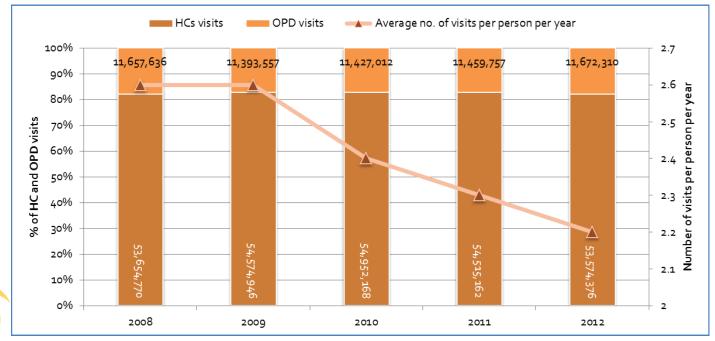
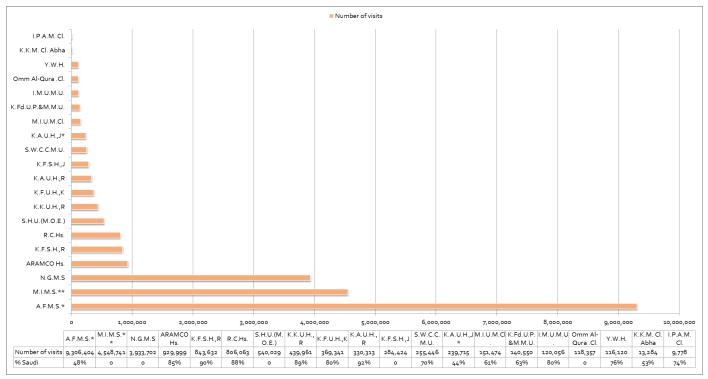


Figure 16.8: Visits to clinics at the MOH health centers and hospitals' outpatients department, 2008-2012

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## B. OUTPATIENT VISITS TO CLINICS OF THE OTHER GOVERNMENTAL SECTOR FACILITIES



## Figure 16.9: Visits to clinics and outpatient departments at facilities of other governmental sector (showing % Saudis), 2012<sup>\*</sup>

KAUHR: King Abdulaziz University Hospital, Riyadh; KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KFUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGMS: National Guards Medical Services; MIMS: Ministry of Interior Medical Services; KFSHR: King Faisal Specialist Hospital & Research Center, Jeddah; RCHS: Royal Commission Hospitals; ARAMCO: ARAMCO: Hospitals; SHU (MOE): School Health Units, Ministry of Education; YWH: Youth Welfare; SWCC: Saline Water Conversion Corporation; KFdUP&MMU: King Fahd University of Petroleum & Minerals; MUMCI: Medinah Islamic University; IMUMU: Imam Muhammad bin Saud Islamic University; KKMCL: King Khaled University; Omm Alqurra University, and IPAMCI: Institute of Public Administration, Riyadh.

\*Note: Represent data from year 2011 due to the absence of data for the year 2012

\*\*Note: Represent data from year 2010 due to the absence of data for the year 2011 and 2012

o: % Saudi not reported

## C. OUTPATIENT VISITS TO CLINICS OF THE PRIVATE SECTOR FACILITIES

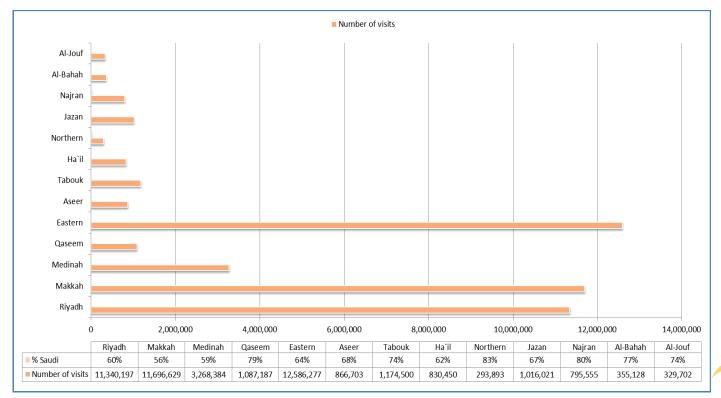


Figure 16.10: Visits to clinics at private sector dispensaries and hospitals by region (showing % Saudis), 2012

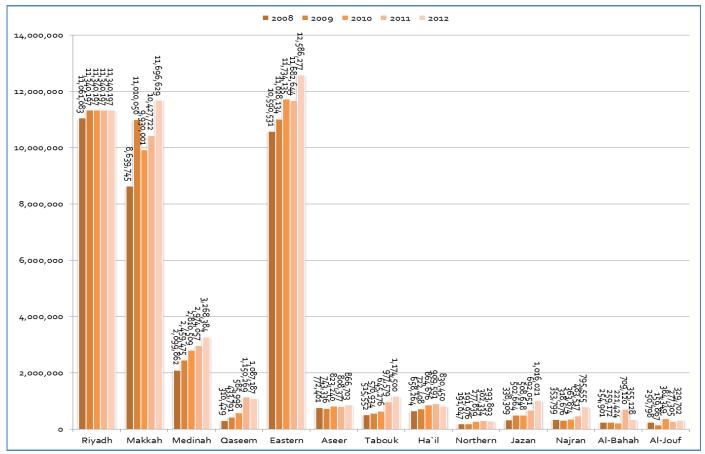


Figure 16.11: Visits to clinics at private sector dispensaries and hospitals by region, 2008-2012\*

\*Note: Riyadh data represents that of 2009 due to the absence of data for the years 2010—2012 Aseer data represent that of the year 2010 due to the absence of data for the years 2011 and 2012

## D. OUTPATIENT VISITS TO FACILITIES ACROSS ALL HEALTH SECTORS

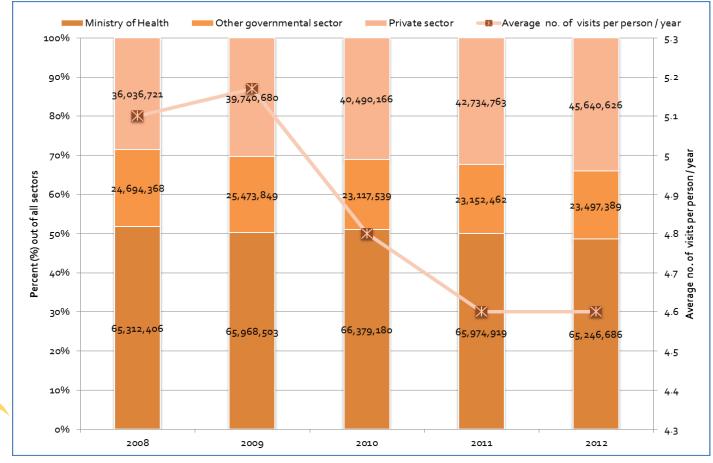


Figure 16.12: Outpatient visits to facilities across all health sectors (showing average number of visits per person), 2008 2012

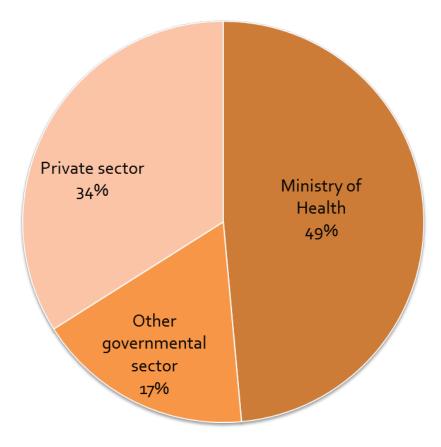
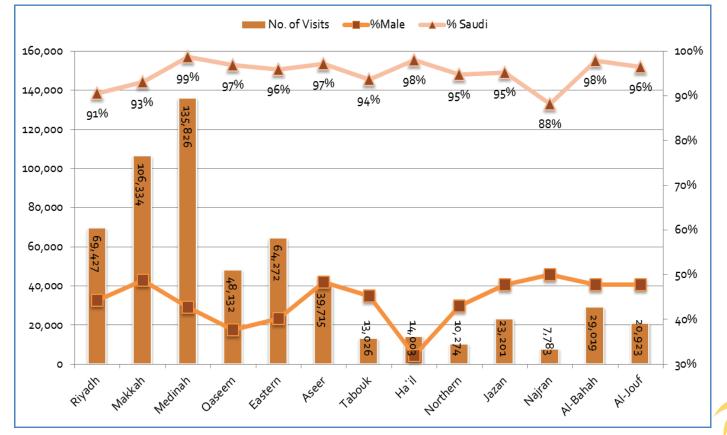


Figure 16.13: Proportions of outpatient visits in various health sectors, 2012



## E. OUTPATIENT VISITS TO SELECTED HEALTH SERVICES

Figure 16.14: Visits to diabetic clinics at MOH hospitals by region (showing % Males and % Saudis), 2012

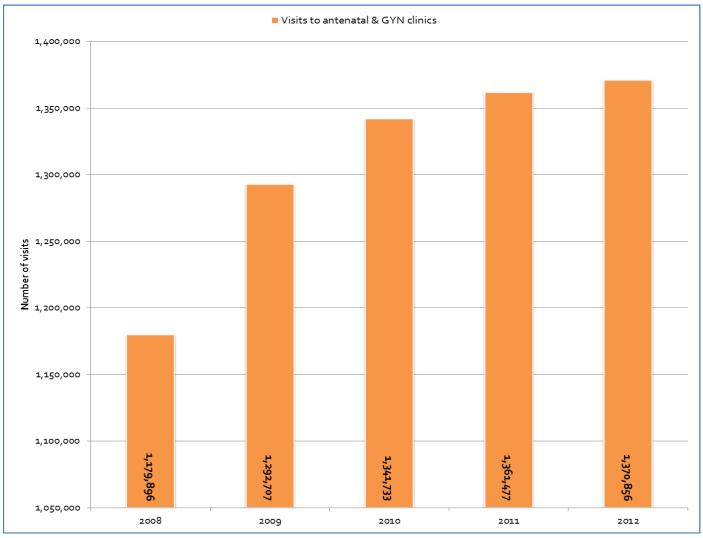


Figure 16.15: Visits to antenatal and GYN clinics at the MOH Hospitals, 2008-2012

Table 16.6: Cases of complications related to pregnancy & childbirth, and gynecology, as well as cases if abortion at
the MOH Hospitals, 2008-2012

	Data	2008	2009	2010	2011	2012
	Eclampsia	2,017	2,406	1,981	2,023	2,008
Complications	Antepartum hemorrhage	3,899	4,809	5,165	4,230	4,631
related to pregnancy &	Postpartum hemorrhage	1,789	2,125	2,543	2,029	2,190
childbirth	Rupture uterus	697	970	982	752	553
	Other complications	62,207	61,220	84,984	73,988	87,367
	Cases of uterine bleeding	16,382	16,111	18,277	17,792	20,305
	Cases of infertility	39,627	34,795	38,265	38,542	34,189
	Prolapse of uterus	1,873	1,145	1,239	1,416	1,576
Complications	Urinary fistulae	166	60	136	183	68
related to	Anal fistulae	480	137	140	57	105
gynecology	Inflammatory cases	39,034	32,495	32,168	31,033	30,031
	Tumors of uterus	734	1,062	1,053	1,265	1,614
	Tumors of ovary	1,643	2,111	1,703	2,042	2,693
	Other tumors	1,297	3,512	2,194	2,287	1,666
Abortion cases		44,837	41,764	41,628	42,022	43,036

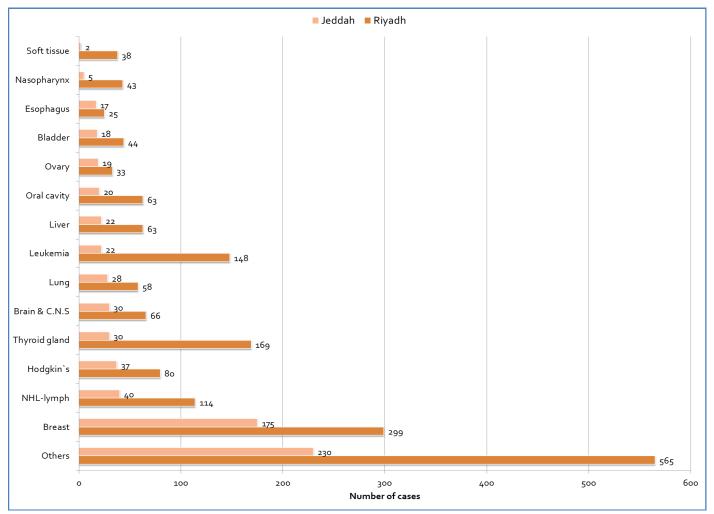


Figure 16.16: Cases of malignant tumors registered in King Faisal Specialist Hospital and Research Center (Riyadh and Jeddah) by site of tumor, 2012

	Riyadh		Jed	dah	Total		
Site	% of all Male cases	% of all Female cases	% of all Male cases	% of all Female cases	% of all Male cases	% of all Female cases	
Breast	0.0	28.9	0.0	43.8	0.0	33.1	
Thyroid gland	5.5	12.2	3.4	5.0	5.0	10.2	
NHL-lymph	7.9	5.1	8.5	3.8	8.0	4.7	
Leukemia	10.8	6.2	2.4	3.8	8.5	5.5	
Lung	5.3	1.6	6.1	2.5	5.5	1.9	
Oral cavity	4.1	3.0	3.4	2.5	3.9	2.9	
Liver	6.3	1.4	4.1	2.5	5.7	1.7	
Ovary	0.0	3.2	0.0	4.8	0.0	3.6	
Esophagus	1.9	1.0	2.4	2.5	2.1	1.4	
Nasopharynx	4.3	1.0	1.0	0.5	3.4	0.8	
Brain & C.N.S	5.4	2.3	6.8	2.5	5.8	2.4	
Bladder	4.5	0.9	5.4	0.5	4.8	0.8	
Soft tissue	2.8	1.5	0.7	0.0	2.2	1.1	
Hodgkin`s	4.3	4.5	8.5	3.0	5.4	4.1	
Others	36.8	27.1	47.5	22.5	39.7	25.8	
Total	100.0	100.0	100.0	100.0	100.0	100.0	

 Table 16.7: Percentage of malignant tumor cases registered in King Faisal Specialist Hospital and Research Center (Riyadh and Jeddah) among each gender, 2012

Source : King Faisal Specialist Hospital and Research Center (Riyadh and Jeddah)

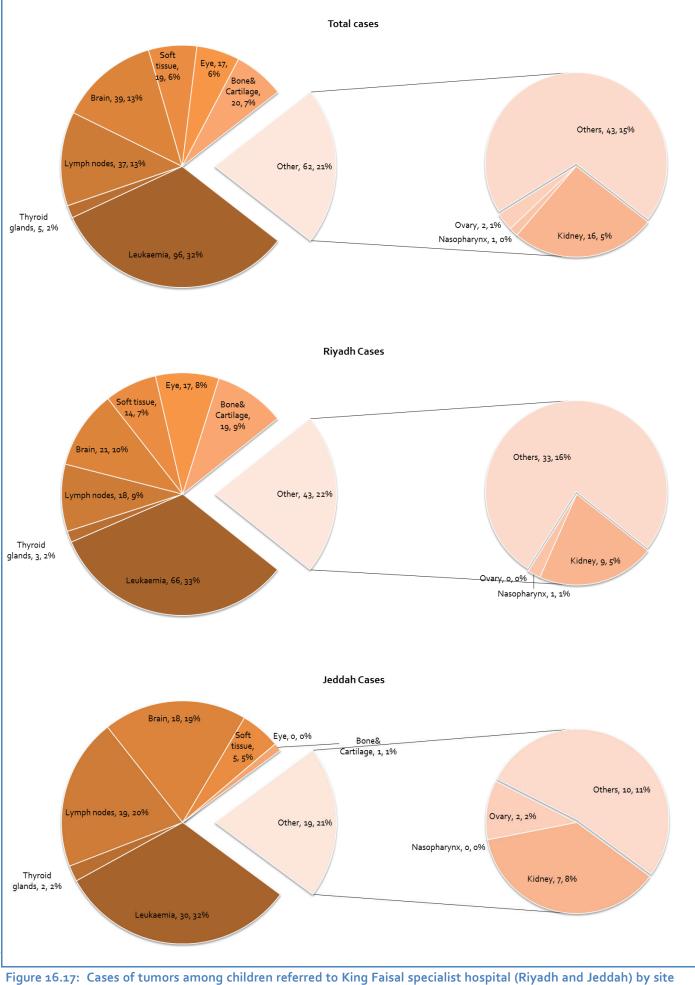


Figure 16.17: Cases of tumors among children referred to King Faisal specialist hospital (Riyadh and Jeddah) by s of tumor, 2012

Source : King Faisal Specialist Hospital and Research Center (Riyadh and Jeddah)



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 17: Inpatients (admissions to hospitals)

## 17. INPATIENTS (ADMISSIONS TO HOSPITALS)

The term 'inpatient' refers to patients admitted to hospitals for medical treatment. The total inpatient count includes inpatients at the MOH hospitals, inpatients at the other governmental hospitals, and inpatients at the private sector hospitals.

## A. INPATIENTS AT THE MOH HOSPITALS

Figure 17.1 displays the number of inpatients admitted to the MOH hospitals by region for the year 2012, with representation of the proportion of inpatients who are Saudi nationals. The total number of inpatients recorded this year is 1,686,353. Figure 17.2 displays the trend in number of inpatients at MOH hospitals across the tie period 2008-2012, including a representation of the proportion of inpatients who are Saudi nationals. In the year 2012, Saudi nationals constitute 88.8% of the total cases.

In Table 17.1, selected indicators for services provided at MOH hospitals are shown by region of the Kingdom for year 2012. In terms of bed turn over, the average values for the Kingdom as a whole are as follows: general hospitals (54.2), psychiatry, fever and chest hospitals (5.4), and obstetrics & gyne-cology and pediatrics hospitals (83.8). In terms of length of stay, the average values for the Kingdom as a whole are as follows: general hospitals (3.9 days), psychiatry, fever and chest hospitals (66.0 days), and obstetrics & gynecology and pediatrics hospitals (3.2 days). In terms of bed occupancy rate, the average rates for the Kingdom as a whole are as follows: general hospitals (3.9 days), and obstetrics (56.6%), psychiatry, fever and chest hospitals (56.6%), psychiatry, fever and chest hospitals (71.0%), and obstetrics & gynecology and pediatrics hospital over the time period of 2008-2012 are displayed in Figures 17.3-17.5.

## **B. INPATIENTS AT THE OTHER GOVERNMENTAL SECTOR HOSPITALS**

Figure 17.6 displays the number of inpatients admitted to the other governmental sector hospitals by individual hospital for year 2012, with representation of the proportion of inpatients who are Saudi nationals. The total number of inpatients recorded for this year is 527,674.

## C. INPATIENTS AT THE PRIVATE SECTOR HOSPITALS

Figure 17.7 shows the number of inpatients admitted to the private sector hospitals by region for the year 2012, with representation of the proportion of inpatients who are Saudi nationals. The total number of inpatients recorded for this year is 879,872.

## TREND OVER TIME... Between the time period 2008-2012, the total number of inpatients at MOH hospitals in the Kingdom has been steadily increasing up until year 2011, where there is a witnessed drop of around 1% from year 2011 (1,700,176 inpatients) to 2012 (1,686,353 inpatients). Between the years 2008 and 2012, there was a marked increase in the average length of stay at psychiatry, fever and chest hospitals of the MOH from 49.4 days in 2008 to 66 days in 2012 (34% increase). Between the years 2008 and 2012, the bed occupancy rate for two types of MOH hospital (general hospitals and psychiatry, fever and chest hospitals) dropped by 12.2% and 7.4%, respectively.

## D. TOTAL INPATIENTS ACROSS HOSPITALS OF ALL HEALTH SECTORS

Figure 17.8 is a visual representation of the proportion of inpatients admitted to hospitals across the various health sectors for year 2012. The majority of inpatients have been admitted to MOH hospitals (55%), followed by the private sector hospitals (28%) and the other governmental sector hospitals (17%). During the time period of 2008-2012, the total number of inpatients admitted to hospitals across the Kingdom has been relatively stable (around 3 million), except for a small surge that was observed in 2012 (reaching 3.2 million), which was then followed by a drop to the average value.

Figure 17.9 displays the trend in number of inpatients admitted to all hospitals of the kingdom for the time period of 2008-2012. Figure 17.10 displays the change in the number of inpatients admitted to hospitals of each health sector of the Kingdom over the time period of 2008-2012. Generally, there were minor variations across the years. The change in the proportion of inpatients admitted to hospitals of the different health sectors from 2008 to 2012 is displayed in Figure 17.11. Generally, there were minor variations across the years.

### **KEY ACHIEVEMENTS ...**

During the time period of 2008-2012, there was an observed drop in the average number of admissions to all hospitals of the Kingdom per 100 individual, from 12.4 to 10.6 admissions.

## A. INPATIENTS AT THE MOH HOSPITALS

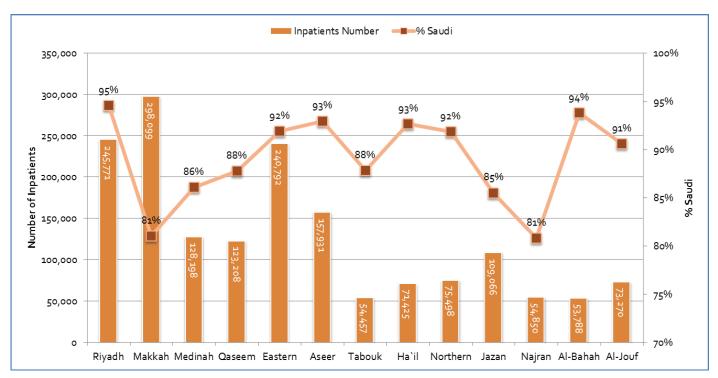


Figure 17.1: Number of inpatients at the MOH hospitals by region (showing % Saudis), 2012

#### Table 17.1: Selected indicators for MOH hospital services by region, 2012

Region <sup>#</sup>	Bed turn-over			Average length of stay			Bed occupancy rate		
	GHs *	PCF **	ObGyn & Peds ***	GHs *	PCF **	ObGyn & Peds ***	GHs *	PCF **	ObGyn & Peds ***
Riyadh	42.3	3.8	54.3	4.8	65.0	3.3	57.3	69.2	50.2
Makkah	38.9	-	72.1	5.4	-	4.0	59.2	-	81.0
Jeddah	36.8	9.2	64.1	5.9	34.9	4.2	60.9	89.9	75.4
Ta`if	67.0	14.2	52.7	3.5	102.5	5.2	60.2	89.5	76.9
Medinah	46.5	3.1	67.8	4.0	116.4	3.9	52.2	100.0	74.8
Qaseem	49.9	2.5	96.7	4.0	134.0	3.3	56.6	93.1	90.6
Eastern	34.6	6.2	70.6	5.1	47.5	3.0	50.1	82.7	60.4
Al-Ahsa	35.4	7.7	124.9	5.2	49.2	2.3	51.6	106.4	82.3
Hafr Al-Baten	54.7	3.8	-	3.1	43.3	-	47.8	45.7	-
Aseer	55.6	7.4	93.6	4.0	42.0	2.6	61.5	87.0	68.6
Bishah	49.6	1.9	-	3.2	77.4	-	45.2	41.2	-
Tabouk	42.9	2.6	120.9	4.0	110.8	1.7	47.8	97.3	56.8
Ha`il	54.4	4.4	147.8	3.2	52.3	1.7	49.6	64.7	70.5
Northern	63.2	0.3	-	3.4	33.7	-	60.3	2.9	-
Jazan	64.3	6.9	-	3.9	40.3	-	70.4	78.6	-
Najran	51.8	10.5	72.1	3.8	22.1	3.6	55.3	65.1	73.6
Al-Bahah	55.2	1.5	70.2	3.7	154.3	2.3	58.2	65.2	45.8
Qurrayyat	100.0	3.6	-	2.2	31.3	-	62.5	31.7	-
Al-Jouf	50.9	7.9	65.9	3.1	30.4	3.1	44.0	68.0	56.8
Qunfudah	89.8	-	-	3.2	-	-	81.5	-	-
Total	54.2	5.4	83.8	3.9	66.0	3.2	56.6	71.0	68.8

# Indicator data were reported for the health regions (20 regions) rather than provincial regions (13 provinces) due to the absence of the data on provincial level

\* GHs: General Hospitals

\*\* **PCF:** Psychiatry ,chest & fever hospitals

\*\*\* ObGyn & Peds: OBS/GYN & pediatrics hospitals

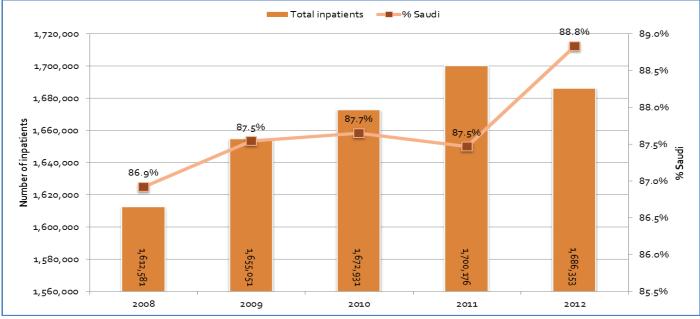


Figure 17.2: Number of inpatients at the MOH hospitals (showing % Saudis), 2008-2012

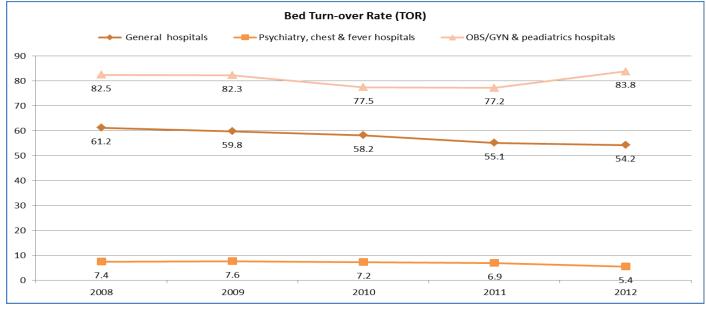


Figure 17.3: Trends of bed turn-over rate at the MOH hospitals, 2008-2012

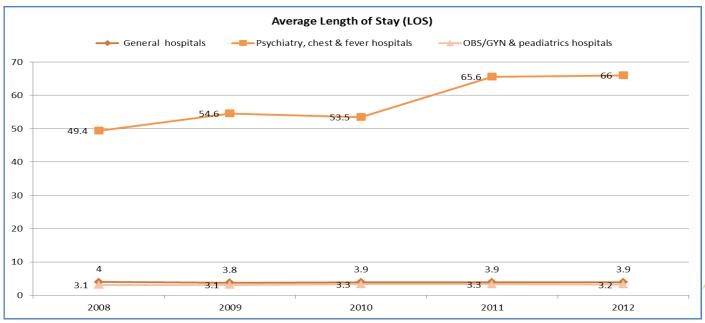


Figure 17.4: Trends of average length of stay at the MOH hospitals, 2008-2012

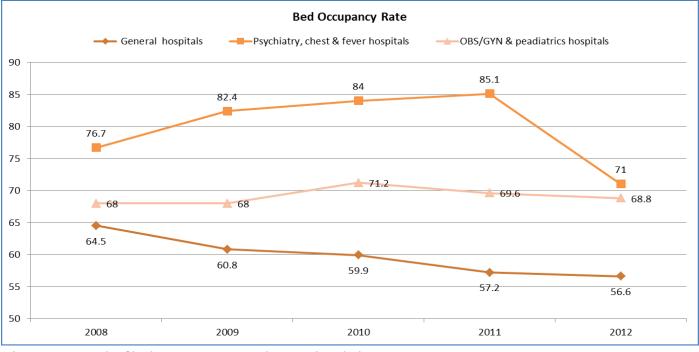


Figure 17.5: Trends of bed occupancy rate at the MOH hospitals, 2008-2012

## **B. INPATIENTS AT THE OTHER GOVERNMENTAL SECTOR HOSPITALS**

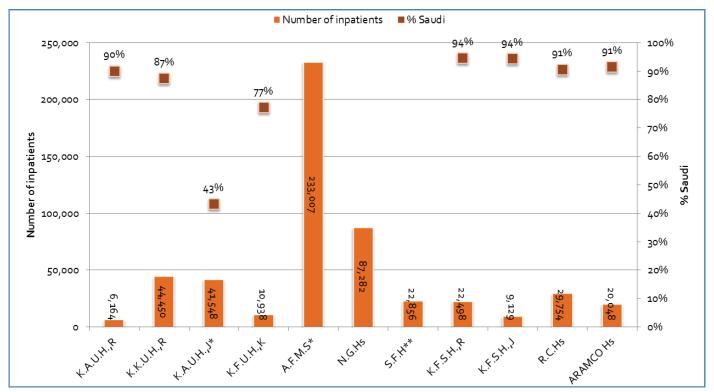


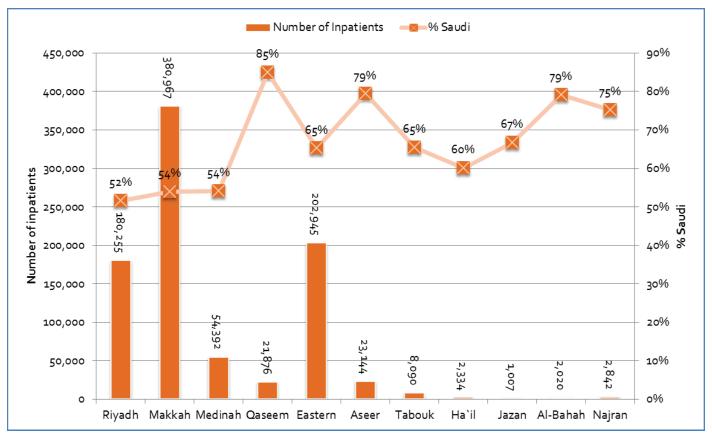
Figure 17.6: Number of inpatients at the other governmental sector hospitals (showing % Saudis), 2012

KAUHR: King Abdulaziz University Hospital, Riyadh; KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KFUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGHs: National Guards Hospitals; SFH: Security Forces Hospitals; KFSHR: King Faisal Specialist Hospital & Research Center, Riyadh; KFSHJ: King Faisal Specialist Hospital & Research Center, Jeddah; RCHS: Royal Commission Hospitals; ARAMCOHs: ARAMCO Hospitals;

\* Represent data from year 2011 due to the absence of data for the year 2012

\*\*Represent data from year 2010 due to the absence of data for the year 2011 and 2012

Note: Data on nationality is not available for: AFMs, NGHS, and SFH.



## C. INPATIENTS AT THE PRIVATE SECTOR HOSPITALS

Figure 17.7: Number of inpatients at the private sector hospitals by region (showing % Saudis), 2012

#### Note: Data not reported for the following regions: Northern Province, Al-Jouf Province, and Bishah region (within Aseer province); the only hospital in Qunfudah is closed

## D. TOTAL INPATIENTS ACROSS HOSPITALS OF ALL HEALTH SECTORS

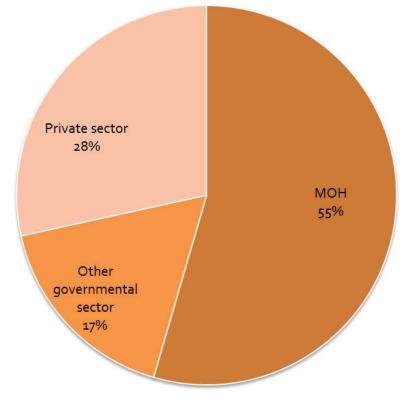
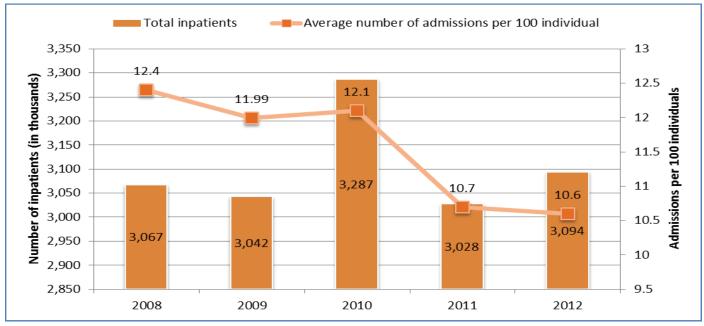


Figure 17.8: Proportion of inpatients across all health sectors of the Kingdom, 2012





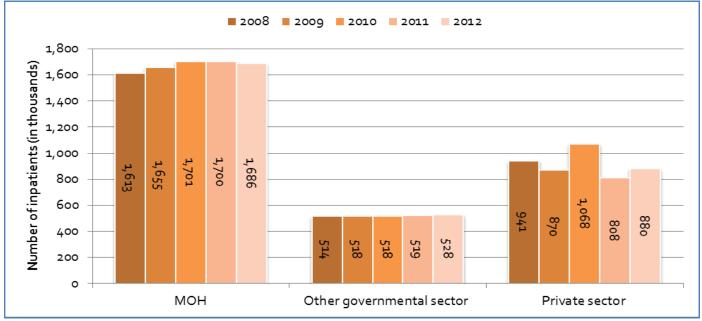


Figure 17.10: Total number of inpatients for each health sector of the Kingdom, 2008-2012

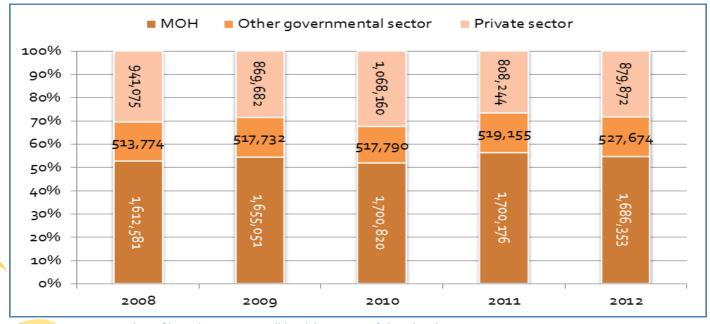


Figure 17.11: Proportion of inpatients across all health sectors of the Kingdom, 2008-2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 18: Surgical operations

## 18. SURGICAL OPERATIONS

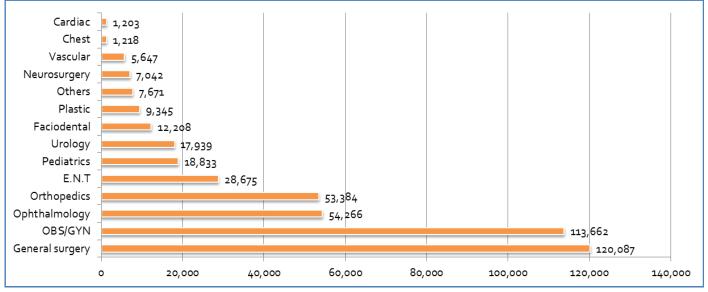


The total numbers of surgeries performed at hospitals of the different health sectors during the year 2012 are displayed by specialty in Figures 18.1-18.3. The total number of surgeries performed at the MOH hospitals in this year is 451,180. General surgeries constitute the majority of total surgeries (26.6%), followed by surgeries of obstetrics and gynecology (26.4%). The total number of surgeries performed at the other governmental sector hospitals in this year is 186,424. General surgeries constitute the majority of total surgeries (19.3%), followed by surgeries of obstetrics and gynecology (18.2%). The total number of surgeries performed at the private sector hospitals in this year is 364,870. Surgeries of obstetrics and gynecology constitute the majority of total surgeries (23.0%). The total numbers of surgeries performed at hospitals of the different health sectors during the year 2012 are detailed further by specialty and region of the Kingdom in Tables 18.1-18.3.

Figure 18.4 displays the number of same day surgeries that are performed at MOH hospitals by region during the year 2102. The total number of same day surgeries for this year is 61,277. Figure 18.5 portrays the proportion of selected gynecology (GYN) procedures that have been performed in year 2012. Evacuation constitutes the majority of total GYN procedures performed (66.8%). Geographical distribution of these procedures is provided in Table 18.4.

#### **TREND OVER TIME...**

Between the years 2008 and 2012, the total number of surgeries performed at all hospitals of the Kingdom increased by 15.4% (from 868,838 to 1,002,474 surgeries). The highest increase in number of surgeries was observed among those performed at the private sector hospitals (39.9% increase).





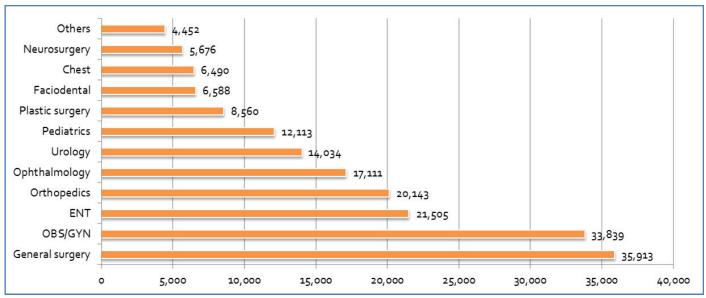


Figure 18.2: Total number of surgeries in the other governmental sector hospitals, 2012

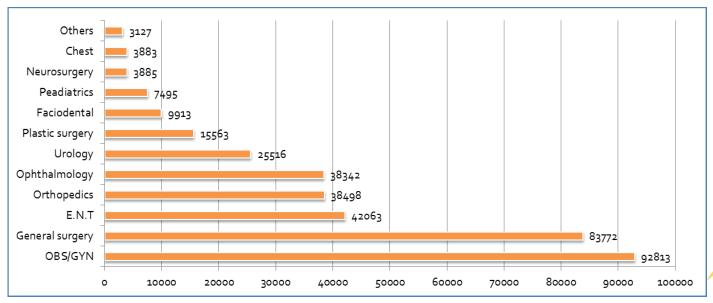


Figure 18.3: Total number of surgeries in the private hospitals, 2012

Region	General	Vascular	Cardiac	Chest	Urology	Plastic	Orthopedics	E.N.T	Faciodental	Pediatrics	OBS/GYN	Ophthalmology	Neurosurgery	Others	Total
Riyadh	21,794	624	06	166	3,969	1,779	10,205	6,209	3,505	2,823	15,065	25,873	2,110	2,557	96,769
Makkah	18,190	1,261	362	424	1,588	1,944	9,013	5,245	2,891	2,452	18,101	11,859	1,094	1,764	76,188
Medinah	11,363	468	0	48	1,725	638	3,940	2,565	279	1,807	9,183	2,167	395	77	34,655
Qaseem	8,656	425	4	59	780	551	3,462	1,611	541	2,211	8,784	1,428	277	2	28,791
Eastern	18,920	940	616	331	2,949	1,412	6,493	3,889	2,260	5,248	16,038	5,192	1,378	1,917	67,583
Aseer	13,415	476	7	39	1,807	807	7,450	3,070	1,567	1,175	14,205	2,579	467	421	47,485
Tabouk	3,452	169	0	0	443	159	1,919	910	43	311	3,846	331	304	0	11,887
Ha`il	4,914	312	1	26	642	286	1,972	1,212	374	495	4,855	882	158	219	16,348
Northern	3,459	260	48	15	362	494	989	482	11	611	4,167	257	123	4	11,282
Jazan	4,986	224	75	12	700	219	3,283	968	72	257	6,035	1,584	216	316	18,947
Najran	3,123	153	0	63	814	524	1,970	1,066	183	657	5,364	962	235	0	15,114
Al-Bahah	2,820	101	0	23	1,418	425	1,360	904	189	302	3,526	751	171	155	12,145
Al-Jouf	4,995	234	0	12	742	107	1,328	544	293	484	4,493	401	114	239	13,986
Total	120,087	5,647	1,203	1,218	17,939	9,345	53,384	28,675	12,208	18,833	113,662	54,266	7,042	7,671	451,180

Table 18.1: Surgeries at the MOH hospitals by region and specialty, 2012

Total	9, 291	8,862	10,375	4,708	72,010	30,690	9,738	13,310	3,928	6,402	17,110	186,424	
Others	ı	I	595	366	715	1,334	I	1,380	I	28	34	4,452	
Faciodental	ı	120	158	66	3,135	783	326	248	85	32	1,602	6,588	<b>FMS:</b> Armed nter, Jeddah;
Pediatrics	ı	651	804	188	2,904	1,559	617	131	435	1,014	3,810	12,113	lospital, Khobar; <b>A</b> tal & Research Cei
OBS/GYN	ı	1,506	2,284	367	18,949	4,323	1,801	1,007	604	1,833	1,360	33,839	<sup>-</sup> ahed University H al Specialist Hospi
Neurosurgery		364	459	221	1,437	917	56	597	464	94	1,067	5,676	ah; <b>KFUHK:</b> King I <b>KFSHJ:</b> King Fais
Plastic surgery		1,036	250	301	2,211	2,117	1,246	749	137	224	289	8,560	sity Hospital, Jeddi ch Center, Riyadh;
Chest	ı	346	345	361	3,013	166	15	1,484	590	19	151	6,490	l Abdulaziz Univer Hospital & Researc
Orthopedics	ı	1,784	811	747	6,895	4,293	776	1,198	282	978	2,178	20,143	adh; <b>KAUHJ:</b> King g Faisal Specialist I
Urology	ı	1,260	976	343	4,860	2,503	943	1,449	438	310	952	14,034	ersity Hospital, Riy itals; <b>KFSHR:</b> King
ENT	2,427	I	1,054	514	9,349	3,702	1,377	1,234	358	513	776	21,505	King Khaled Unive curity Forces Hosp ospitals;
)phthalmology	5,061	ı	588	431	5,304	2,586	666	471	101	158	1,745	17,111	l, Riyadh; KKUHR: łospitals; SFH: Sec COHs: ARAMCO Ho
General surgery	1,803	1,795	2,051	770	13,238	6,407	1,714	3,362	629	1,199	2,945	35,913	University Hospital National Guards H Hospitals; <b>ARAMC</b>
Hospital	K.A.U.H.,R	К.К.Ս.Н., R	К.А.И.Н.,Ј*	K.F.U.H.,K	A.F.M.S*	N.G.Hs.	S.F.H.**	K.F.S.H.,R	K.F.S.H.,J	R.C.Hs.	ARAMCO Hs.	Total	KAUHR: King Abdulaziz University Hospital, Riyadh; KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KEUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGHs: National Guards Hospitals; SFH: Security Forces Hospitals; KFSHR: King Faisal Specialist Hospital & Research Center, Riyadh; KFSHJ: King Faisal Specialist Hospital & Research Center, Jeddah; RCHS: Royal Commission Hospitals; ARAMCOHs: ARAMCO Hospitals; KFSHR: King Faisal Specialist Hospital & Research Center, Riyadh; KFSHJ: King Faisal Specialist Hospital & Research Center, Jeddah;

NotationNotationNotationRiyadh $22,092$ $5,863$ $1,929$ $5,539$ $7,691$ $437$ Makkah $22,092$ $5,863$ $12,926$ $3,946$ $1,067$ Makkah $35,108$ $2,3661$ $16,060$ $8,668$ $3,946$ $1,067$ Makkah $948$ $2,297$ $2,302$ $2,637$ $3,296$ $1,863$ Mation $948$ $2,297$ $2,302$ $2,637$ $3,296$ $1,863$ Medinah $948$ $2,209$ $2,302$ $2,703$ $2,637$ $2,936$ $1,863$ Medinah $20,006$ $5,309$ $7,135$ $5,936$ $1,914$ $0$ Medinah $20,006$ $5,309$ $7,135$ $5,936$ $1,926$ $1,863$ Medinah $20,006$ $5,309$ $7,135$ $5,936$ $1,914$ $0$ Medinah $20,006$ $5,309$ $7,135$ $5,936$ $1,926$ $1,863$ Medinah $20,006$ $5,309$ $7,135$ $5,936$ $1,926$ $1,963$ Medinah $20,006$ $5,309$ $7,135$ $5,936$ $1,926$ $1,926$ Medinah $20,006$ $2,149$ $20,014$ $20,014$ $20,014$ $20,014$ Medinah $20,006$ $2,193$ $2,149$ $1,106$ $1,126$ $1,126$ Medinah $120$ $122$ $120$ $122$ $1,206$ $1,206$ $1,206$ Medinah $202$ $202$ $202$ $202$ $202$ $1,206$ $1,206$ Medinah $123$ <	t opedic	leurosurge lastic surg	BS/GYN	ediatrics	aciodenta	Others	otal
22,0925,86311,9295,5197,69135,10823,66116,0608,66813,94635,10823,66116,0608,66813,94619482,2972,3022,6373,29611,4645221,0695,59378122,0065,3097,1355,93610,914220,0065,3097,1355,93610,914220,0065,3097,1355,9361,326225694692,7491,4061,326225691983842621,32621230122124123012121224123012121224126015613512241360161212241360151544233601615152436016151524360161515243601615153601615153601615153601615153601615153601615153601615153601615153601615153601615153601	S				1		
35,108         23,661         16,060         8,668         13,946         14,946 </th <th>7,691</th> <th>8,504 711</th> <th>25,849</th> <th>820</th> <th>1,136</th> <th>0</th> <th>90,551</th>	7,691	8,504 711	25,849	820	1,136	0	90,551
048         2,297         2,637         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,296         3,295         3	13,946	3,328 1,094	37,986	1,368	3,372	119	145,777
1,464         522         1,069         595         781           20,006         5,309         7,135         5,936         10,914           20,569         469         7,135         5,936         10,914           2,569         469         2,749         1,406         1,326           2,569         198         384         262         445           595         198         384         262         445           123         0         123         0         24           123         0         12         262         445           123         0         12         262         136           123         0         12         26         145           123         0         12         12         24           136         12         12         12         24           1360         15         12         24         24           1360         15         12         24         24	3,296	1,434 0	6,154	296	066	792	23,009
20,006         5,309         7,135         5,936         10,914           2,569         469         2,749         1,406         1,326           595         198         384         262         445           595         198         384         262         445           123         0         12         26         445           123         0         12         26         13           176         0         12         12         24           176         0         12         12         24           360         112         44         23         23           360         16         155         44         23	781	14.2 71	3,269	0	149	350	8,412
2,569         469         2,749         1,406         1,326           595         198         384         262         445           132         0         13         262         445           133         0         12         26         445           133         0         12         26         145           133         0         12         12         24           136         12         12         12         11           360         16         155         44         23	10,914	1,726 1,852	15,216	4,875 3	3,948	1,627	79,049
595         198         384         262         445         465           123         0         12         12         24         24           123         0         12         12         24         24           176         0         112         44         11         24           360         16         112         44         23         24	1,326	413 155	2,312	136	216	0	11,762
123     0     12     24       176     0     112     4     11       176     0     112     4     11       1     360     16     155     44     23	445	0	642	o	64	0	2,590
176     0     112     4     11       1     360     16     155     44     23		0	514	0	0	0	685
360 16 155 44 23		16 0	153	0	0	o	472
	23	0	358	0	0	239	1,195
Al-Bahah 331 7 156 433 41 0	41	0	360	0	38	0	1,368
Total 83,772 38,342 42,063 25,516 38,498 3,883	38,498	15,563 3,885	92,813	7,495 5	9,913	3,127	364,870

Note: Data not reported for the following regions: Northern Province, Al-Jouf Province, and Bishah region (within Aseer province); the only hospital in Qunfudah is closed Data of Riyadh are those of 2009 due to the absence of 2011-2012 data Data of Aseer are those of 2010 due to absence of 2011-2012 data

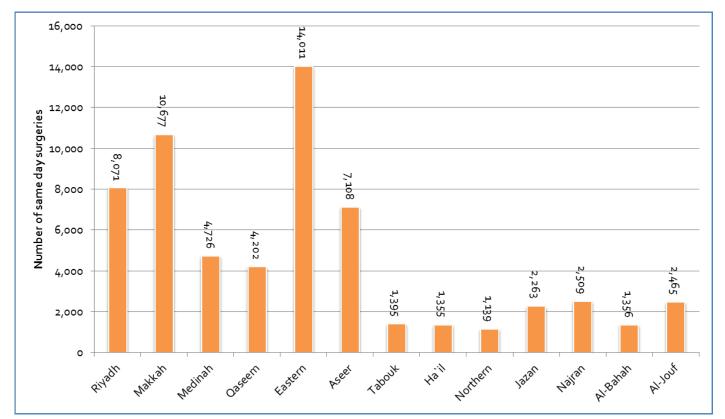


Figure 18.4: Number of same day surgeries at the MOH hospitals by region, 2012

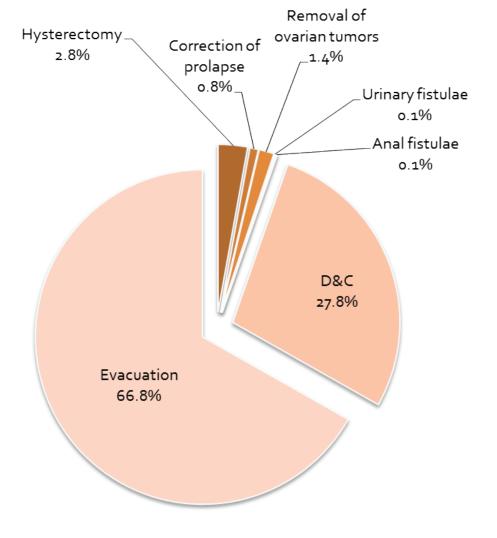


Figure 18.5: Proportion of selected GYN procedures, 2012

### Table 18.4: Selected GYN procedures at the MOH hospitals by region, 2012

	P		-		-			
Region	Hysterectomy	Correction of prolapse	Removal of ovarian tumors	Urinary fistulae	Anal fistulae	Dilation & Curettage	Evacuation	Total
Riyadh	237	137	122	6	5	1,084	2,266	3,857
Makkah	194	50	122	20	1	1,282	3,606	5,275
Medinah	27	3	25	0	0	2,273	2,506	4,834
Qaseem	72	7	49	2	8	408	1,031	1,577
Eastern	133	28	59	5	1	891	6,005	7,122
Aseer	71	16	16	5	7	766	1,129	2,010
Tabouk	3	1	15	0	2	353	684	1,058
Ha`il	34	3	2	0	0	185	249	473
Northern	6	2	3	0	0	319	463	793
Jazan	34	0	9	0	0	473	954	1,470
Najran	21	1	17	0	0	189	1,117	1,345
Al-Bahah	52	8	18	2	0	284	432	796
Al-Jouf	16	5	2	5	5	316	731	1,080
Total	900	261	459	45	29	8,823	21,173	31,690



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 19: Deliveries and births

## 19. Deliveries and births

## **DELIVERIES AT THE MOH HOSPITALS**

During the year 2012, a total of 256,299 deliveries have been performed at the MOH hospitals across the Kingdom. Those are divided into normal deliveries (189,505), constituting 73.9% of total deliveries, and abnormal deliveries (66,794), constituting 26.1% of total deliveries (Figure 19.1). Abnormal deliveries mainly involve Caesarean Sections (22.3% of total deliveries). Table 19.1 shows the distribution of total deliveries performed at the MOH hospitals across the Kingdom in the year 2012, by type of delivery and region.

Figure 19.2 further displays the distribution of total deliveries performed at the MOH hospitals in year 2012 across the regions of the Kingdom, while highlighting the proportion of abnormal deliveries for each region. Ha'il had the highest percentage of abnormal deliveries (34%), while Jazan had the lowest (17%).

Figure 19.3 displays the number of live births delivered at the MOH hospitals of the Kingdom, with representation of the yearly proportion of pre-term births, for the time period of 2008-2012. In the year 2012, 266,788 live births are recorded, with pre-term births constituting 4% of the total live births delivered.

Figure 19.4 displays the number of total births at the MOH hospitals of the Kingdom, with representation of the yearly still birth ratio, for the time period of 2008-2012. In the year 2012, 269,998 births are recorded in total, with a still birth ratio of 12.0 per 1,000 live births.

## DELIVERIES AT THE OTHER GOVERNMENTAL SECTOR HOSPITALS

During the year 2012, a total of 86,325 deliveries have been performed at the other governmental sector hospitals across the Kingdom. Those are divided into normal deliveries (62,205), constituting 72.1% of total deliveries, and abnormal deliveries (24,120), constituting 27.9% of total deliveries (Figure 19.5). Abnormal deliveries mainly involve Caesarean Sections (23.1% of total deliveries). Table 19.2 shows the distribution of total deliveries performed at the other governmental sector hospitals across the Kingdom in the year 2012, by type of delivery and hospital.

#### **TREND OVER TIME...**

Between the years 2008 and 2012, the number of live births delivered at the MOH hospitals across the Kingdom increased by 3.5%, from 257,697 to 266,788 live births, while those delivered at the other governmental sector hospitals decreased by 3.8%, from 90,184 to 86,742 live births.

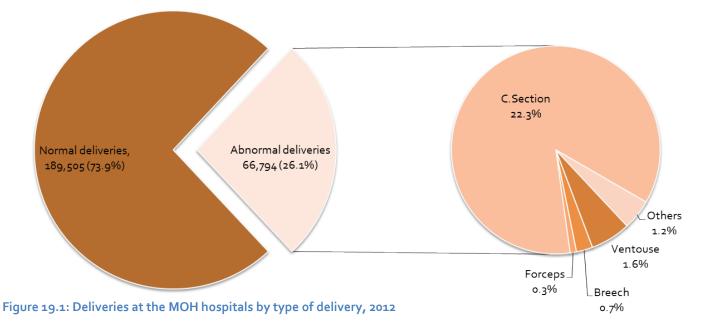
Figure 19.6 further displays the distribution of total deliveries performed at the other governmental sector hospitals in year 2012 across the hospitals, while highlighting the proportion of abnormal deliveries for each hospital. King Faisal Specialist Hospital & Research Center, Jeddah had the highest percentage of abnormal deliveries (55%) while the Armed Forces Medical Services had the lowest percentage (26%).

Table 19.3 describes the births that took place at the various other governmental sector hospitals in year 2012. A total of 86,742 live births and 760 still births are recorded this year, amounting to a total of 87,502 births. There are 11,314 cases of low birth weight babies, representing a ratio of 130 low birth weight babies per 1,000 live births. Moreover, the number of neonatal deaths during the first week of birth for this year is 258 deaths.

#### **KEY ACHIEVEMENTS** ...

Between the years 2008 and 2012, the ratio of still births per 1,000 live births that occurred at the MOH hospitals of the Kingdom dropped from 14.1 to 12.0 (15 % drop).

## A. DELIVERIES AND BIRTHS AT THE MOH HOSPITALS



Desien	Normal			Abnormal	deliveries		
Region	deliveries	Ventouse	Breech	Forceps	C.S.	Others	Total
Riyadh	27,579	805	303	75	9,680	301	11,164
Makkah	29,118	1,055	260	128	9,506	975	11,924
Medinah	16,266	164	88	76	5,691	50	6,069
Qaseem	13,215	194	100	6	5,048	145	5,493
Eastern	24,896	423	199	69	4,306	310	5,307
Aseer	17,537	260	167	46	6,418	214	7,105
Tabouk	6,202	165	28	17	2,198	15	2,423
Ha`il	7,626	170	77	10	3,360	380	3,997
Northern	4,690	52	10	41	2,146	21	2,270
Jazan	19,027	327	256	16	3,274	141	4,014
Najran	7,267	142	76	6	2,095	53	2,372
Al-Bahah	6,000	151	38	84	1,478	19	1,770
Al-Jouf	10,082	263	96	84	1,937	506	2,886
Total	189,505	4,171	1,698	658	57,137	3,130	66,794





Figure 19.2: Deliveries at the MOH hospitals by region (showing % Abnormal Deliveries), 2012

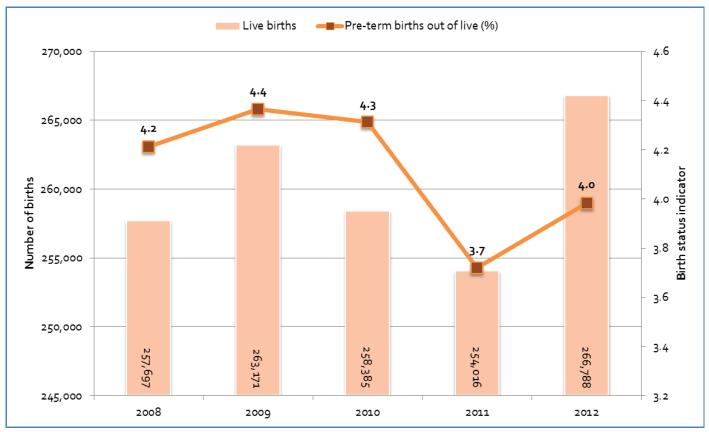


Figure 19.3: Number of live births at the MOH hospitals (showing %pre-term birth), 2008-2012

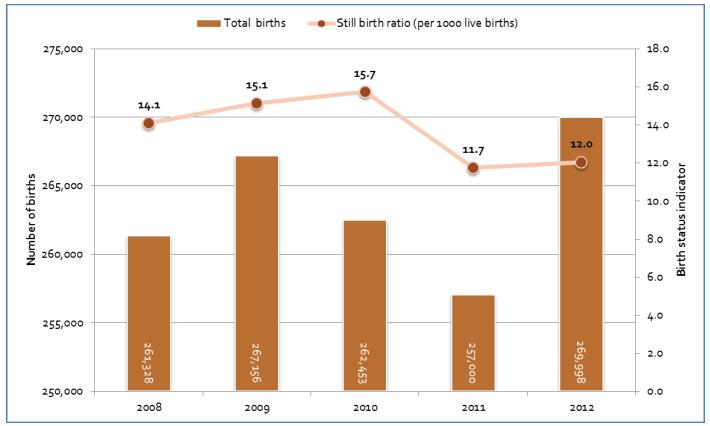


Figure 19.4: Number of total births at the MOH hospitals (showing still birth ratio), 2008-2012

### **B. DELIVERIES AND BIRTHS AT THE OTHER GOVERNMENTAL SECTOR HOSPITALS**

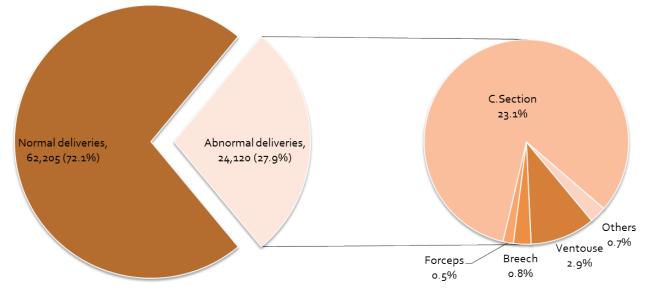


Figure 19.5: Deliveries at the other governmental sector hospitals by type of delivery, 2012

_			-				
Hospital	Normal			Abnormal	deliveries		
nospital	deliveries	Ventouse	Breech	Forceps	C.S	Others	Total
K.K.U.H.,R	2,506	288	38	2	806	0	1,134
K.A.U.H.,J*	3,458	133	38	3	1,122	0	1,296
K.F.U.H.,K	829	49	12	0	298	0	359
A.F.M.S*	35,576	1,058	325	290	10,422	622	12,717
N.G.Hs	10,869	537	162	88	3,708	22	4,517
S.F.H**	3,780	200	65	2	1,168	0	1,435
K.F.S.H.,R	798	78	9	1	530	0	618
K.F.S.H.,J	180	32	3	1	188	0	224
R.C.Hs	3,069	83	16	1	1,292	0	1,392
ARAMCO Hs	1,140	23	4	8	393	0	428
Total	62,205	2,481	672	396	19,927	644	24,120

Table 19.2: Deliveries at the other governmental sector hospitals by type of delivery and region, 2012

KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KFUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGHs: National Guards Hospitals; SFH: Security Forces Hospitals; KFSHR: King Faisal Specialist Hospital & Research Center, Riyadh; KFSHJ: King Faisal Specialist Hospital & Research Center, Jeddah; RCHS: Royal Commission Hospitals; ARAMCOHs: ARAMCO Hospitals;

\* Represent data from year 2011 due to the absence of data for the year 2012 \*\*Represent data from year 2010 due to the absence of data for the year 2011 and 2012

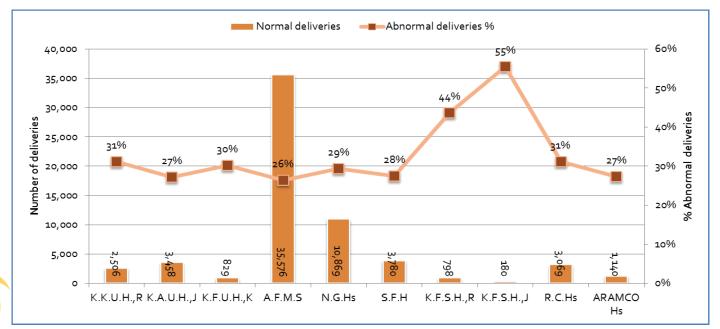


Figure 19.6: Deliveries at the other governmental sector hospitals by region (showing % Abnormal Deliveries), 2012

Table 19.3: Births at the other governmental sector hospitals, 2012

		Live births				Still birth	-	Low birth	# of Neonatal
Hospital	Saudi	Non-Saudi	Total	Still births	Total births	ratio (per 1000 live births)	Low birth weight	weignt ratio (per 1000 live births)	deaths during 1st week
К.К.Ս.Н., R	3,265	378	3,643	43	3,686	12	368	101	18
К.А.И.Н.,Ј*	2,318	2,603	4,921	72	4,993	15	527	107	o
K.F.U.H.,K	961	233	1,194	13	1,207	11	175	147	4
A.F.M.S.*	48,093	236	48,329	349	48,678	7	7,152	148	102
N.G.Hs.	÷	:	15,484	112	15,596	7	1,698	011	59
S.F.H.**	5,092	71	5,163	52	5,215	10	488	95	22
K.F.S.H.,R	1,389	83	1,472	30	1,502	20	327	222	0
K.F.S.H.,J	423	37	460	13	473	28	177	385	o
R.C.Hs.	4'00	491	4,494	6†	4,543	11	361	80	25
ARAMCO Hs.	1,442	140	1,582	27	1,609	17	41	26	28
Total	66,986	4,272	86,742	760	87,502	Ø	11,314	130	258
KAUHR: King Abdulaziz I Forces Hospitals; NGHs:	University Hospital, Riv National Guards Hosp	yadh; KKUHR: King Kh itals; SFH: Security Fo.	aled University Hospit rces Hospitals; KFSHR	tal, Riyadh; KAUHJ: King Ab R: King Faisal Specialist Hos	dulaziz University Hospital, J oital & Research Center, Riy.	KAUHR: King Abdulaziz University Hospital, Riyadh; KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KFUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGHs: National Guards Hospitals, 5FH: Security Forces Hospitals, KFSHR: King Faisal Specialist Hospital & Research Center, Riyadh; KFSHJ: King Faisal Specialist Hospital & Research Center, Jeddah;	University Hospital, Khobar; cialist Hospital & Research C	: AFMS: Armed Center, Jeddah;	

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SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 20: Ophthalmology

# 20. Ophthalmology

Preventive and curative services are provided at ophthalmic departments of most hospitals across the Kingdom and at hospitals which are specialized in Ophthalmology, such as King Khaled Eye Specialist Hospital and Jeddah Specialist Hospital.

Table 20.1 displays the main activities and services that have been provided at King Khaled Eye Specialist Hospital throughout the time period of 2008-2012. A total of 158,492 outpatient visits were made during the year 2012, representing a daily average of 607 visits per day. The total number of cases attended to at the emergency department during the year 2012 is 30,663, representing a daily average of 117 cases per day. The total number of inpatients admitted during the year 2012 is 13,548. This hospital contains a cornea bank that serves a vital role in cornea transplantation procedures performed at the hospital and at other hospitals. During this year, 1,104 cornea transplantations have been performed in this hospital.

Figure 20.1 portrays the trend for outpatient visits at King Khaled Eye Specialist Hospital for the time period 2008-2012.

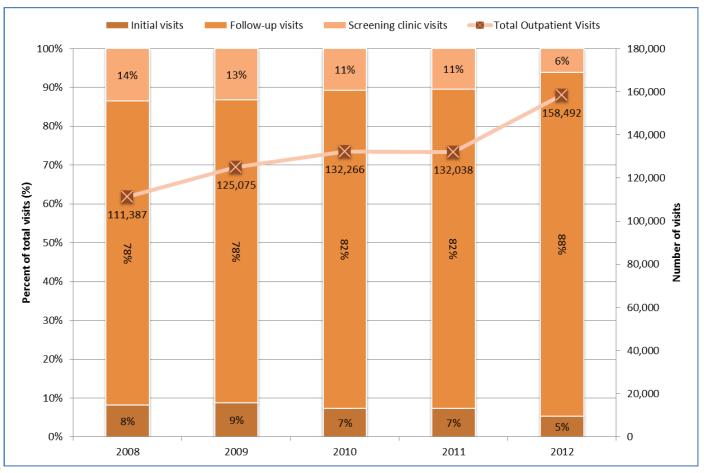
#### **KEY ACHIEVEMENTS** ...

Between the years 2008 and 2012, King Khaled Eye Specialist Hospital markedly expanded its outpatient services. Most noticeable is the increase in the total number of outpatient visits observed from year 2011 to 2012 (20% increase from 132,038 to 158,492 visits).

#### 2012 Health Statistics Annual Book

	ltem	2008	2009	2010	2011	2012
	Initial visits	9,016	10,916	9,708	9,604	8,462
Outratiant	Follow-up visits	87,283	97,632	108,323	108,540	140,260
Outpatient	Screening clinic visits	15,088	16,527	14,235	13,894	9,770
	Total	111,387	125,075	132,266	132,038	158,492
	Cases from screening clinic	502	464	636	482	280
_	Follow-up	7,908	8,442	7,946	8,772	6,300
Emergency	Inpatient	1,947	1,669	1,356		1,283
	Others	21,404	1,315	22,522	21,512	22,800
	Total	31,761	11,890	32,460	30,766	30,663
Innotiont	Admissions	15,974	13,348	9,710	10,038	13,548
Inpatient	Average length of stay	4	4	5	5	5
Surgery	Surgery procedures	26,455	19,171	10,239	11,006	22,513
Surgery	Surgery cases	19,910	10,733	9,924	10,267	9,779
	Laboratory tests	514,239	482,113	453,516	468,413	484,495
Investigations	Radiology procedures	81,124	81,213	94,035	122,020	104,106
	Respiratory therapy pro- cedures	16,287	15,250	15,399	12,940	14,247
	Ophthalmic photography	28,621	29,981	33,630	29,696	32,166
Eye Bank	Surgeries	1,497	1,199	692	896	1,104
	Waiting list	385	287	330	477	538

Table 20.1: Main activities and services at King Khaled Eye Specialist Hospital, 2008-2012







SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 21: Psychiatric and social health

## 21. PSYCHIATRIC AND SOCIAL HEALTH

During the year 2012, psychiatric and social health services have been provided at 25 psychiatric and convalescent hospitals, as well as 69 psychiatric clinics that are subsidiaries to hospitals. These services, both outpatient and inpatient, are demonstrated in Figures 21.1 and 21.2, according to the main disease groups identified by the International Classification of Diseases (ICD-10). The total number of outpatients at these departments/hospitals is 495,484 for this year, while the total number of inpatients is 18,747.

Figures 21.3 and 21.4 further display the outpatient and inpatient psychiatric services by region of the Kingdom for the year 2012.

Trends in the number of outpatient and inpatient psychiatric visits for the time period of 2008-2012 are represented in Figure 21.5. The trends are further detailed in Table 21.1 by region of the Kingdom. In year 2012, the highest number of outpatients is recorded in Riyadh (20.8% of total), while the highest number of inpatients is recorded in Makkah (40.4% of total).

Figure 21.6 exhibits the distribution of referrals that were made from the Social Service Department at the MOH hospitals to other medical and non-medical institutions during the year 2012. These cases are transferred for more comprehensive treatment and/or complementary non-medical treatment. The total number of referred patients is 152,260. The cases referred to other hospitals and to the social security office, each, constitute 16% of all referrals; while those referred to governmental social agencies constitute 8% of all referrals.

Table 21.2 displays the distribution of referrals made in year 2012 by region of the Kingdom. The highest number of referrals is recorded in Makkah (35.2% of total).

#### **KEY ACHIEVEMENTS ...**

Between the years 2008 and 2012, the total number of outpatients seeking psychiatric services at MOH hospitals of the Kingdom increased by 13.5% (from 436,497 to 495,484 cases), while the total number of inpatients witnessed an overall decrease of 6.7%, with fluctuation throughout the years.

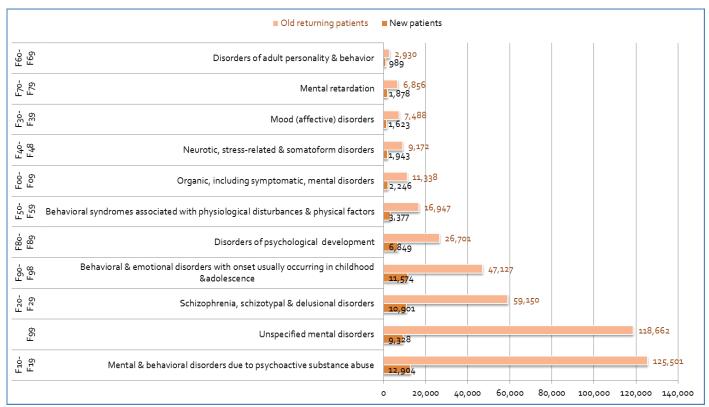


Figure 21.1: Outpatients of the Psychiatric Departments at the MOH according to main disease groups of ICD-10, 2012

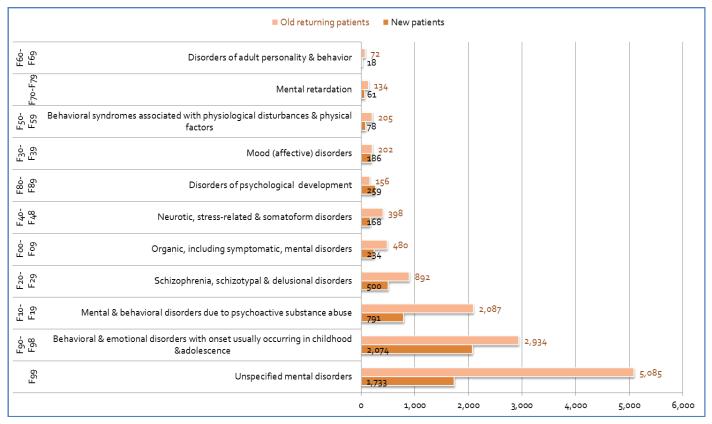
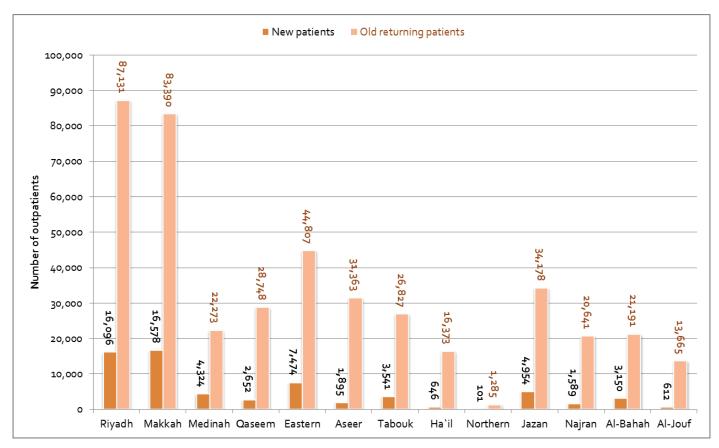


Figure 21.2: Inpatients of the Psychiatric Departments at the MOH according to main disease groups of ICD-10, 2012



#### Figure 21.3: Outpatients of the Psychiatric Department at the MOH hospitals by region, 2012

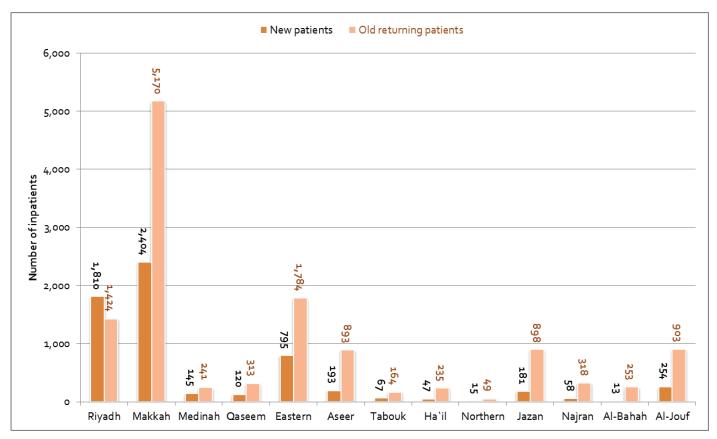


Figure 21.4: Inpatients of the Psychiatric Department at the MOH hospitals by region, 2012

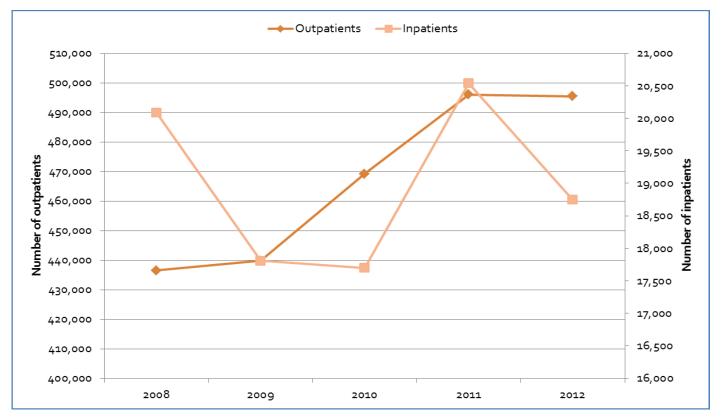


Figure 21.5: Patients of the Psychiatric Department at the MOH hospitals, 2008-2012

	20	08	20	09	20	10	20	11	20	12
Region	Outpatients	Inpatients								
Riyadh	63,890	2,136	70,538	2,295	78,790	2,166	93,972	4,136	103,227	3,234
Makkah	96,574	9,830	86,735	6,305	87,428	7,890	94,953	5,978	99,968	7,574
Medinah	19,526	717	27,184	528	26,025	387	25,079	301	26,597	386
Qaseem	30,368	499	35,035	497	34,666	411	35,999	389	31,400	433
Eastern	57,142	1,720	52,924	3,026	61,851	1,499	53,528	4,852	52,281	2,579
Aseer	32,345	1,269	35,146	1,338	34,956	1,383	35,937	1,116	33,258	1,086
Tabouk	17,198	575	18,717	154	23,233		31,550	269	30,368	231
Ha`il	12,617	736	13,235	536	14,617	389	15,029	273	17,019	282
Northern	5,896	485	4,884	417	9,658	658	6,586	298	1,386	64
Jazan	41,223	932	40,794	1,041	35,612	1,029	41,657	1,224	39,132	1,079
Najran	22,582	456	20,853	456	21,326	438	20,760	326	22,230	376
Al-Bahah	25,922	107	22,688	353	25,265	405	24,275	270	24,341	266
Al-Jouf	11,214	623	11,029	865	15,829	1,044	16,711	1,108	14,277	1,157
Total	436,497	20,085	439,762	17,811	469,256	17,699	496,036	20,540	495,484	18,747

#### Table 21.1: Patients of the Psychiatric Department at the MOH hospitals by region, 2008-2012

... Data not available

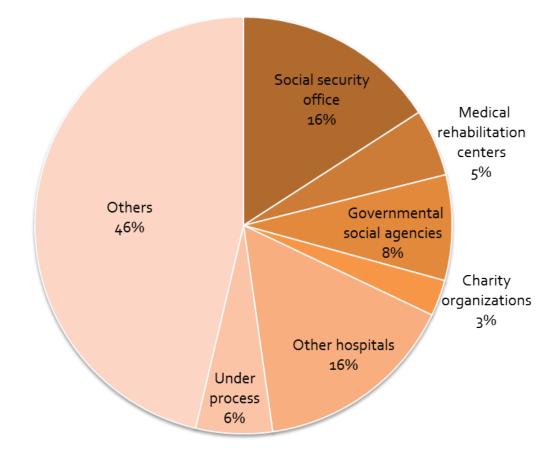


Figure 21.6: Categories of referrals from the Social Service Department at the MOH hospitals, 2012

Region	Social security office	Medical rehabili- tation centers	Governmental social agencies	Charity organiza- tions	Other hospitals	Under process	Others	Total
Riyadh	2,469	344	324	207	689	550	1,347	5,930
Makkah	1,936	942	5,792	1,621	1,193	3,170	38,968	53,622
Medinah	1,208	544	518	598	29	429	1,324	4,650
Qaseem	1,005	971	374	183	655	995	216	4,399
Eastern	746	7 <sup>8</sup> 3	188	44	2,399	1,407	10,046	15,613
Aseer	5,555	1,168	1,290	101	6,985	137	7,217	22,453
Tabouk	1,375	123	245	88	5,004	1,024	170	8,029
Ha`il	3,100	796	366	364	3,715	283	7 <sup>8</sup> 3	9,407
Northern	195	263	18	22	15	89	0	602
Jazan	2,774	1,323	1,603	867	1,720	330	8,647	17,264
Najran	526	494	796	83	241	33	578	2,751
Al-Bahah	2,366	42	564	47	810	120	845	4,794
Al jouf	917	135	382	50	438	467	357	2,746
Total	24,172	7,928	12,460	4,275	23,893	9,034	70,498	152,260

Table 21.2: Cases of referrals from the Social Service Department at the MOH hospitals by region, 2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 22: Dental services

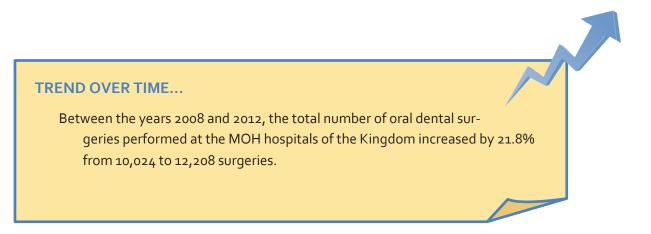
# 22. DENTAL SERVICES



Dental preventive and curative services are provided at dental clinics across the Kingdom. In year 2011, there were a total of 2,408 clinics classified as follows: 1,405 clinics within health centers, 468 clinics within hospitals, and 535 clinics within specialized centers. This is in addition to 104 portable dental clinics. The total number of specialized dental centers was 31, which were covering all health districts.

Specialized dental centers provide various preventive and curative services. Table 22.1 summarizes the visits made to the dental centers at the MOH during the year 2012. In total, 1,338,884 visits are recorded. The largest number of visits recorded is to the X-ray clinics (357,025 visits).

Figure 22.1 shows the trend in number of oral surgeries performed at the MOH hospitals during the time period of 2008-2012. The trend is further detailed in Table 22.2 by region of the Kingdom.



X-ray	External	35,610	20,926	11,933	3,573	9,538	6,806	2,141	6,373	1,890	944	5, 596	5,272	9,547	120,149
	Internal	36,725	39,941	18,740	7,378	23,218	24,406	3,386	11,652	10,861	3,876	3,367	11,990	41,336	236,876
Prosthodontics	Fixed	7,981	11,733	6,834	4,538	11,371	11,867	119	8,011	1,369	132	3,487	6,179	8,550	82,171
Prostho	Removable	7,429	7,732	4,006	1,162	4,904	5,043	104	3,504	640	862	2,029	1,136	3,322	41,873
Conservative treatment	Filling	14,055	46,767	7,839	10,138	17,383	12,156	4,645	13,997	21,550	1,507	4,638	10,664	48,067	213,406
Consel treat	Root canal treat- ment	10,936	24,869	4,058	3,924	13,245	9,375	415	6,110	3,486	2,244	3,478	8,047	11,277	101,464
	Orthodontics	11,251	21,354	8,369	5,232	19,386	8,613	1,603	7,266	2,552	5,704	6,832	4,144	14,949	117,255
	Pedodontics	10,043	21,063	9/6/6	193	13,093	9,192	1,066	2,219	6,937	1,225	402	4,670	6,166	86,245
Ora	l and maxillofacial surgery	1,940	2,172	1,324	493	1,725	0	125	1,125	1,767	0	450	0	478	11,599
Mir	nor oral surgery & extraction	9,648	19,944	5,787	2,917	12,439	6,959	2,304	3,609	5,856	677	1,804	2,483	8,193	82,722
	Periodontics	15,576	17,110	13,241	m	4,612	8,478	1,225	4,654	3,706	1,032	1,151	295	7,016	78,099
	Oral hygiene	6,172	69,858	2,934	17,096	4,104	10,309	2,754	3,945	31,294	655	8,851	1,350	2,703	167,025
	Region	Riyadh*	Makkah	Medinah	Qaseem	Eastern	Aseer	Tabouk	Ha`il	Northern	Jazan	Najran	Al-Bahah	Al-Jouf	Total

\* Represents the data of 2011

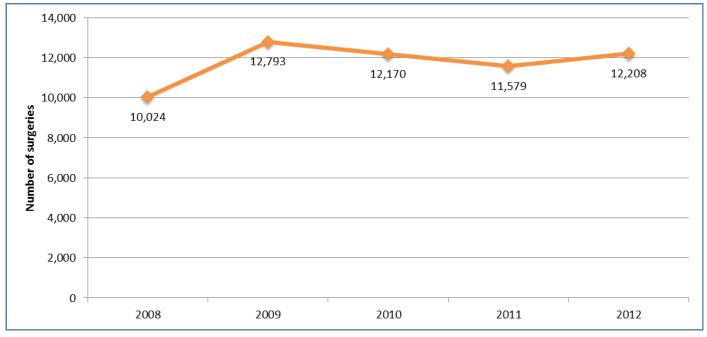


Figure 22.1: Oral surgeries at the MOH hospitals, 2008-2012

#### Table 22.2: Oral surgeries at the MOH hospitals by region, 2008-2012

Region	2008	2009	2010	2011	2012
Riyadh	4,576	4,960	4,299	3,624	3,505
Makkah	1,127	2,233	2,707	2,333	2,891
Medinah	120	137	211	309	279
Qaseem	692	493	393	471	541
Eastern	1,814**	1,939	2,205	2,089	2,260
Aseer	2,644	2,346	1,572	1,620	1,567
Tabouk	137	54	45	122	43
Ha`il	172	174	169	266	374
Northern	19	29	38	39	11
Jazan	65	49	78	95	72
Najran	124	120	118	136	183
Al-Bahah	168	138	167	223	189
Al-Jouf	180	121	168	252	293
Total	10,024	12,793	12,170	11,579	12,208

\*\* There is no surgeon of oral surgery in Hafr Al-Baten in 2008



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 23: Hemodialysis and organ transplantations

## 23. HEMODIALYSIS AND ORGAN TRANSPLANTATIONS

The Saudi Center for Organ Transplantation plays an essential role in coordination and continuation of care related to organ transplantations performed in various hospitals across the Kingdom.

Figure 23.1 displays the distribution of artificial kidney centers and dialysis patients by health sector for the year 2012. There are 206 artificial kidney centers in total, 69.4% of which are within the jurisdiction of the MOH. There are 5,029 hemodialysis machines in total, 68.6% of which are within MOH facilities. A total of 12,964 patients undergo hemodialysis (66.2% of which attend to MOH facilities), while 1,326 patients undergo peritoneal dialysis (55.5% of which attend to the other governmental sector facilities). Additionally, a total of 8,354 patients attend follow-ups at kidney transplant clinics, the majority of which attend to the other governmental sector facilities (62.8%).

Figure 23.2 shows the proportions of hemodialysis patients across the health sectors by gender and by nationality during the year 2012.

There has been marked development in the field of organ transplantation in the Kingdom up to the year 2010. Significant figures recorded are as follow:

The total number of liver transplantation from 1990 to 2010 is 930.

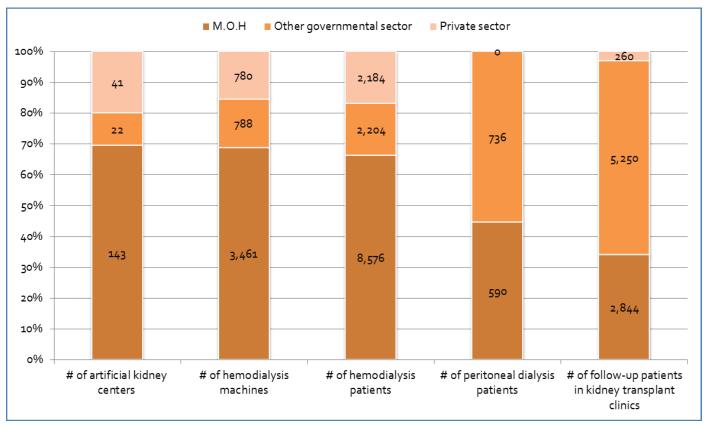
The total number of heart transplantation from 1986 to 2010 is 187.

The total number of valve transplantation and replacement from 1986 to 2010 is 517.

The total number of kidney transplantation from 1979 to 2010 is 6,648.

The total number of cornea transplantation from 1983 to 2010 is 21,513.

The total number of lung transplantations is 51.





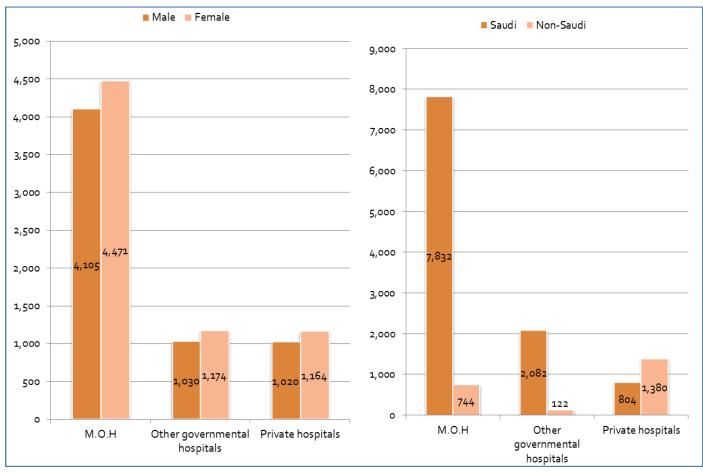


Figure 23.2: Hemodialysis patients across health sector by gender (left) & nationality (right), 2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 24: Laboratory & radiology investigations and blood bank

## 24. LABORATORY & RADIOLOGY INVESTIGATIONS AND BLOOD BANK

## LABORATORY AND RADIOLOGY INVESTIGATIONS AT THE MOH

## **MOH Health Centers**

Figure 24.1 displays the number of laboratory investigations that were conducted at the MOH health centers by region of the Kingdom during the year 2012. The total number of laboratory investigations in this year is 6,255,785. The highest number of investigations is recorded in Makkah (21%).

Figure 24.2 displays the number of radiology patients examined and radiology films used at the MOH health centers by region of the Kingdom during the year 2012. The total number of radiology patients in this year is 192,213, with the majority of the patients examined in Eastern Province (28%). The total number of radiology films uses for this year is 217,527, with the majority of the films used in Eastern Province (29%). The overall average number of films used per patient is 1.13. The highest ratio per region is recorded in Qaseem (1.22 films per patient).

## **MOH Hospitals**

Figure 24.3 displays the number of laboratory investigations that were conducted at the MOH hospitals by region of the Kingdom during the year 2012. The total number of laboratory investigations in this year is 149,404,465. The highest number of investigations is recorded in Makkah (20%).

Figure 24.4 displays the number of radiology patients examined at the MOH hospitals by region of the Kingdom during the year of 2012. The total number of patients examined in this year is 6,189,589, with the majority of the patients examined in Makkah (20%).

Figure 24.5 displays the number of physiotherapy patients seen at the MOH hospitals by region of the Kingdom during the year of 2012. The total number of patients seen in this year is 757,777, with the majority of the patients seen in Makkah (23%).

The total number of laboratory investigations conducted at the MOH hospitals during the year 2012 is further displayed by type of investigation in Figure 24.6. The majority of investigations are under Biochemistry (58%). Table 24.1 provides more detail on the type of investigations conducted by region of the Kingdom.

## **All MOH Facilities**

Figures 24.7-24.9 portray the trends observed for laboratory investigations, radiology patients and physiotherapy patients seen at MOH facilities during the time period of 2008-2012.

## **Other Governmental Sector Facilities**

Table 24.2 displays the number of laboratory investigations and radiology patients at the other governmental sector facilities across the Kingdom during the year 2012. The total number of laboratory investigations conducted is 96,924,258 and the total number of radiology patients examined is 3,054,157 in this year.

## **Private Sector Facilities**

Table 24.3 displays the number of laboratory and radiology investigations conducted at the private hospitals and dispensaries across the Kingdom during the year 2012. The total number of laboratory investigations conducted is 42,500,217 in this year. A total of 6,735,491 radiology patients were examined with the use of 8,533,166 films. The average number of films used per patient is 1.27.

## MOH POISON CONTROL AND FORENSIC CHEMISTRY CENTERS

Figure 24.10 displays the number of samples and tests conducted at the MOH Poison Control and Forensic Chemistry Centers by region of the Kingdom during the year 2012.

### **BLOOD BANK ACTIVITIES**

### **Blood Banks at the MOH**

Table 24.4 summarizes the activities of the blood banks at the MOH by region of the Kingdom during the year 2012. The trend observed for the activities of the MOH blood banks during the time period of 2008-2012 is displayed in Figure 24.11.

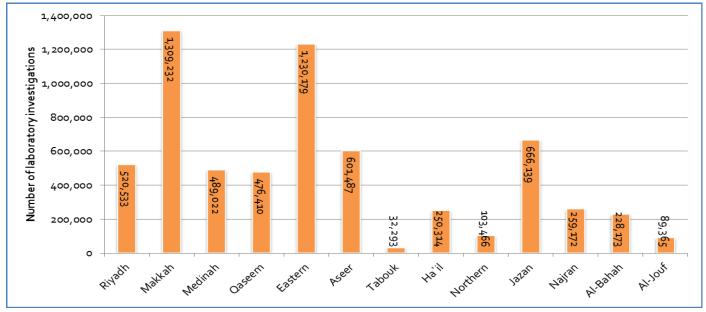
## Blood Banks at the other Governmental Sector Facilities

Table 24.5 summarizes the activities of the blood banks at the other governmental sectors by region of the Kingdom during the year 2012.

#### TREND OVER TIME...

Between the years 2008 and 2012, the total number of laboratory investigations conducted at the MOH health centers across the Kingdom decreased by 17% (from 7.6 million to 6.3 million), while the total number of laboratory investigations conducted at the MOH hospitals and central laboratories across the Kingdom increased by 30% (from 114 million to 149 million).

Between the years 2008 and 2012, the total number of radiology patients examined at the MOH facilities across the Kingdom increased by 24% (from 5.2 million to 6.4 million).





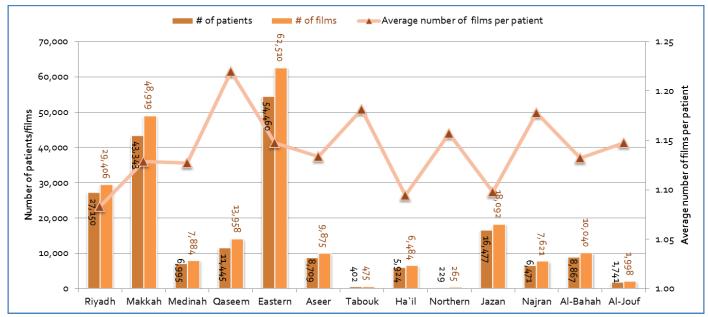


Figure 24.2: Number of radiology patients and films at the MOH health centers by region, 2012

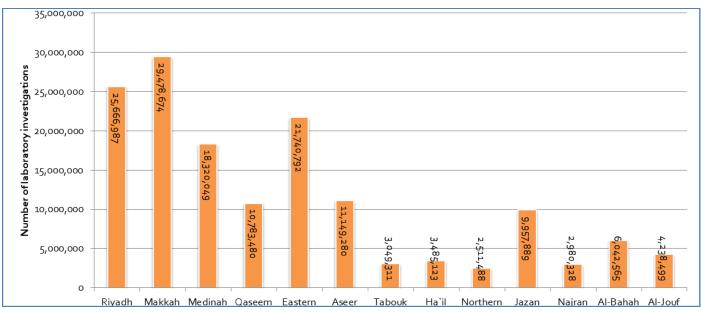
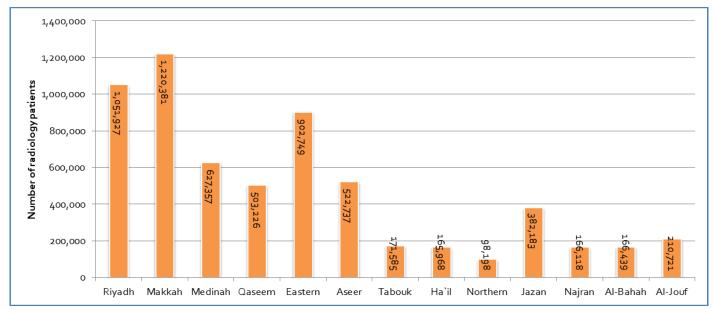
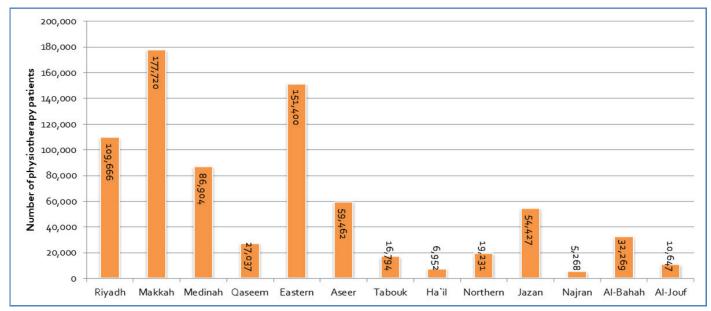


Figure 24.3: Number of laboratory investigations at the MOH hospitals by region, 2012









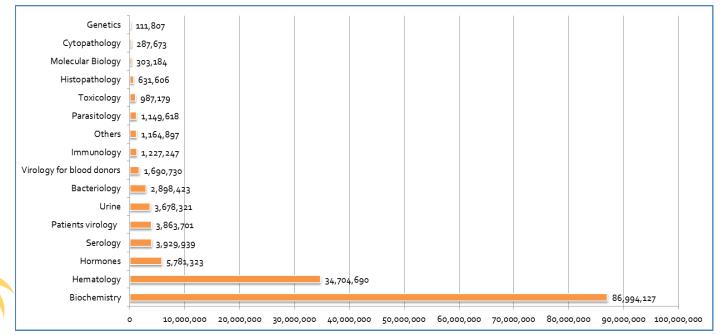
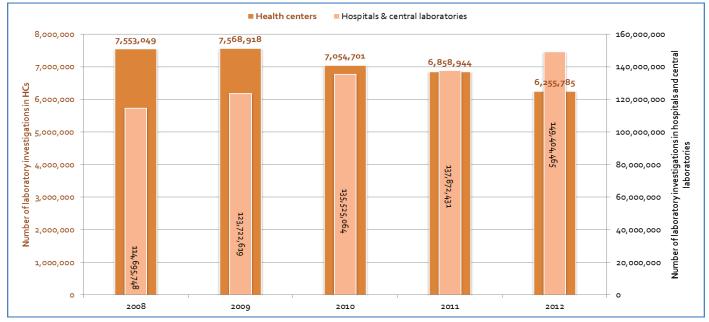


Figure 24.6: Total number of laboratory investigations at the MOH hospitals by type of investigation, 2012

Table 24.1: Number of laboratory investigations at the MOH hospitals by type of investigation and region, 2012

Region	Immunology	Patients virology	Virology for blood donors	Parasitology	Urine	Bacteriology	Hormones	Biochemistry	Toxicology
Riyadh	60,045	861,519	580,161	200,480	782,164	553,994	1,082,448	14,446,838	356,520
Makkah	254,432	421,547	327,777	331,845	539,073	555,998	1,858,612	17,392,920	338,893
Medinah	424,790	66,778	49,315	120,791	315,680	296,993	662,565	10,062,489	5,824
Qaseem	56,572	271,723	166,297	45,559	239,967	189,545	247,241	6,183,031	1,655
Eastern	108,366	825,710	127,163	77,635	427,687	712,308	721,977	15,011,620	213,774
Aseer	23,985	418,691	60,764	212,492	355,649	136,096	454,535	6,028,922	9,007
Tabouk	5,558	89,951	73,918	19,569	89,479	33,514	53,390	1,475,338	2,137
Ha`il	2,300	82,535	38,892	19,476	66,702	130,792	178,706	2,402,767	1,537
Northern	4,730	134,256	26,649	13,826	71,113	30,049	101,196	1,754,263	5,436
Jazan	262,953	373,811	137,430	55,385	378,199	86,382	179,811	5,177,002	8,135
Najran	0	19,783	45,794	9,196	62,174	50,624	43,720	1,928,104	37
Al-Bahah	17,104	152,145	27,471	15,558	118,200	68,255	72,039	2,597,128	3,577
Al-Jouf	6,412	145,252	29,099	27,806	232,234	53,873	125,083	2,533,705	40,647
Total	1,227,247	3,863,701	1,690,730	1,149,618	3,678,321	2,898,423	5,781,323	86,994,127	987,179

Region	Serology	Genetics	Histopathology	Hematology	Molecular Biology	Cytopathology	Others	Total
Riyadh	634,277	4,797	172,210	5,420,444	65,122	12,242	433,726	25,666,987
Makkah	1,295,058	23,623	59,833	5,885,019	40,000	8,000	146,044	29,478,674
Medinah	214,705	73,762	21,915	5,810,198	73,523	11,709	109,012	18,320,049
Qaseem	313,971	320	61,361	2,854,157	0	10,901	141,180	10,783,480
Eastern	404,675	3,271	48,915	2,924,519	23,027	8,810	101,335	21,740,792
Aseer	438,654	1,174	168,615	2,752,920	18,393	3,735	65,648	11,149,280
Tabouk	46,727	387	3,135	1,047,567	11,401	60,386	36,854	3,049,311
Ha`il	87,640	0	15,149	436,729	0	318	21,580	3,485,123
Northern	113,617	0	6,258	242,049	38	511	7,497	2,511,488
Jazan	71,218	2,563	6,316	2,973,790	55,186	164,279	25,429	9,957,889
Najran	113,979	1,614	4,294	676,369	12,749	801	11,090	2,980,328
Al-Bahah	98,418	115	8,988	2,822,770	0	4,378	36,419	6,042,565
Al-Jouf	97,000	181	54,617	858,159	3,745	1,603	29,083	4,238,499
Total	3,929,939	111,807	631,606	34,704,690	303,184	287,673	1,164,897	149,404,465





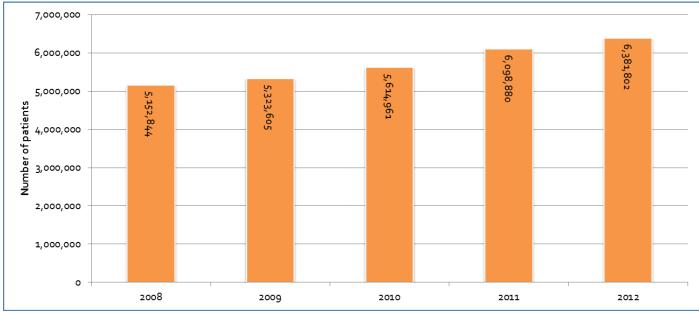


Figure 24.8: Number of radiology patients served at the MOH facilities, 2008-2012

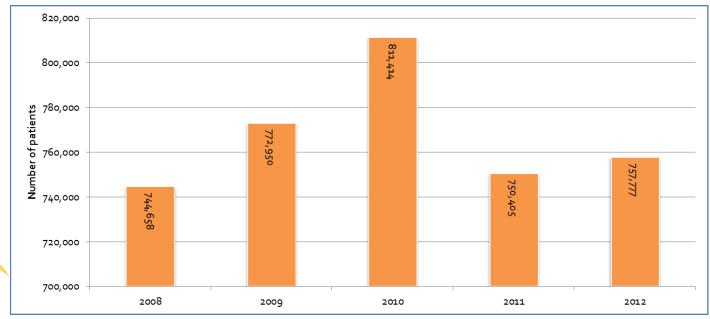


Figure 24.9: Number of physiotherapy patients served at the MOH facilities, 2008-2012

Table 24.2: Number of laboratory investigations and radiology patients at the other governmental sector facilities, 2012

Facility	Laboratory investigations	Radiology patients
K.A.U.H.,R	99,981	14,731
K.K.U.H.,R	4,879,522	122,040
K.A.U.H.,J*	5,612,547	100,285
K.F.U.H.,K	1,612,016	74,517
A.F.M.S.*	31,615,433	1,450,550
N.G.M.S.	30,425,134	501,305
M.I.M.S.**	5,313,063	308,633
K.F.S.H.,R	9,790,128	211,884
K.F.S.H.,J	2,280,975	72,347
R.C.Hs	1,238,452	67,178
ARAMCO Hs	3,271,675	103,428
S.H.U.(M.O.E.)	42,343	
Y.W.H.	121,298	8,362
S.W.C.C.M.U.	74,636	3,892
I.P.A.M. Cl.	22,317	
M.I.U.M.Cl.	55,404	
K.K.M. Cl. Abha	4,606	
I.M.U.M.U.	132,080	6,339
K.Fd.U.P.& M.M.U.	14,485	7,765
Omm Al-Qurra U.	318,163	901
Total	96,924,258	3,054,157

KAUHR: King Abdulaziz University Hospital, Riyadh; KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KFUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGHS: National Guards Hospitals; MIMS: Ministry of Interior Medical Services; KFSHR: King Faisal Specialist Hospital School Health Units of the Ministry of Education; YWH: Youth Welfare; SWCCMU: Saline Water Conversion Corporation Medical Units; IPAMCL: Institute of Public Administra-tion Clinics at Riyadh; MIUMCI: Medinah Islamic University Clinics; KKMCI Abha: King Khaled University Medical Clinics at Abha; IMUMU: Imam Muhammad bin Saud Islamic University; KFdUP&MMU: King Fahd University of Petroleum & Minerals Medical Units; OmmAl-Qurra U: Omm Alqurra University.

\* Represent data from year 2011 due to the absence of data for the year 2012 \*\*Represent data from year 2010 due to the absence of data for the year 2011 and 2012

#### Table 24.3: Number of laboratory and radiology investigations at the private hospitals and dispensaries, 2012

Region	Laboratory Investigations		Radiology Investigations	i
	investigations	Patients	Films	Average # of films per patient
Riyadh	6,294,763	820,861	1,218,536	1.48
Makkah	10,762,208	2,019,153	2,639,739	1.31
Medinah	1,052,120	170,378	329,971	1.94
Qaseem	7,797,034	566,617	761,737	1.34
Eastern	12,002,628	2,307,851	2,456,147	1.06
Aseer	670,771	122,261	208,412	1.70
Tabouk	1,836,950	173,420	214,305	1.24
Ha`il	544,213	106,397	115,596	1.09
Northern	124,370	21,416	29,630	1.38
Jazan	475,388	235,232	309,272	1.31
Najran	47 <sup>8</sup> ,544	86,605	127,026	1.47
Al-Bahah	193,253	62,865	73,110	1.16
Al-Jouf	267,975	42,435	49,685	1.17
Total	42,500,217	6,735,491	8,533,166	1.27

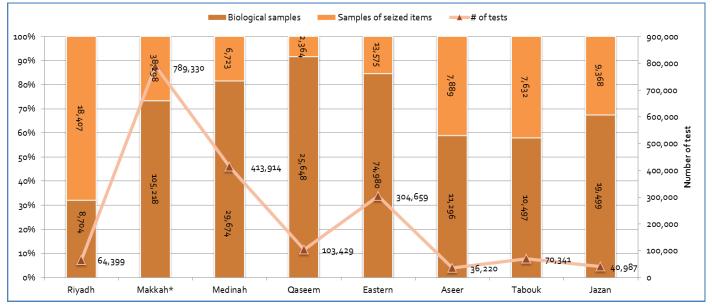


Figure 24.10: Number of samples and tests conducted at the MOH Poison Control and Forensic Chemistry Centers by region, 2012

\* Makkah includes Jeddah

### Table 24.4: Activities of the blood banks at the MOH by region, 2012

Region	Investigations for blood transfu- sions	Investigations for infectious diseases	Total Investigations	Collected blood units	Transfused blood units
Riyadh	622,491	409,610	1,032,101	38,078	63,358
Makkah	787,228	182,717	969,945	61,725	96,918
Medinah	330,474	16,290	346,764	9,947	16,921
Qaseem	356,494	187,019	543,513	16,556	18,411
Eastern	930,989	141,231	1,072,220	67,254	75,945
Aseer	514,727	94,906	609,633	87,737	40,302
Tabouk	314,237	99,057	413,294	8,180	6,142
Ha`il	99,989	34,742	134,731	12,199	9,195
Northern	65,454	21,327	86,781	5,443	5,764
Jazan	258,851	161,821	420,672	29,081	31,536
Najran	155,314	60,277	215,591	6,236	5,827
Al-Bahah	102,600	20,825	123,425	8,304	11,214
Al-Jouf	101,345	35,999	137,344	7,464	6,164
Total	4,640,193	1,465,821	6,106,014	358,204	387,697

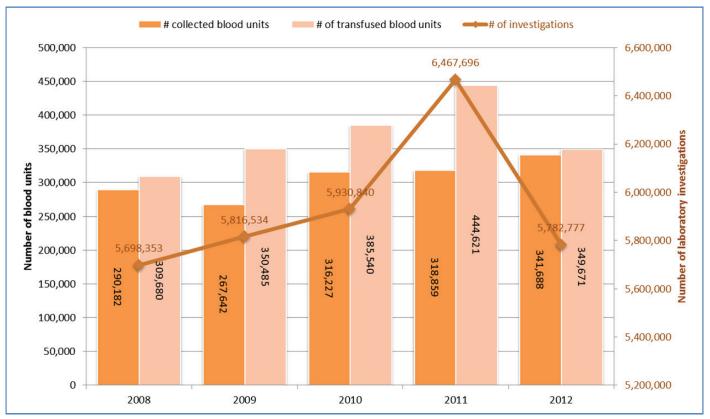


Figure 24.11: Trend of MOH Blood Banks activities, 2008-2012

Facility	# of Blood Banks	# of investigations	# of blood donors	# of transfusion requests
King Abdulaziz University Hospital, Riyadh	1	870	490	40
King Khaled University Hospital, Riyadh	1	177,064	13,922	28,704
King Abdulaziz University Hospital, Jeddah*	1	222,006	12,195	13,538
King Fahed University Hospital, Khobar	1	113,989	4,396	12,331
Armed Forces Medical Services*	16		71,043	61,669
National Guards Hospitals	4	921,220	40,239	84,926
Security Forces Hospitals**	1	164,068	5,255	9,518
King Faisal Specialist Hospital & Research Center, Riyadh	1	228,210	24,787	56,466
King Faisal Specialist Hospital & Research Center, Jeddah	1	66,183	19,474	24,668
Royal Commission Hospitals	2	54,298	3,338	9,019
ARAMCO Hospitals	1	288,118	4,904	6,150
Total	30	2,236,026	200,043	307,029

### Table 24.5: Blood bank activities at the other governmental sector facilities, 2012

\* Represent data from year 2011 due to the absence of data for the year 2012 \*\*Represent data from year 2010 due to the absence of data for the year 2011 and 2012

... Data not reported



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 25: Medical rehabilitation

# 25. MEDICAL REHABILITATION

Across the Kingdom, rehabilitation centers of the MOH, other governmental sector and the private sector offer rehabilitation services to the handicapped who are victims of road accidents or who have been disabled due to disease-related injury.

Figure 25.1 portrays the proportions for the various causes of amputation cases at the medical rehabilitation centers of the MOH during the year 2012. The major cause of amputation recorded is diabetesrelated gangrene (41.2% of cases), followed by car accidents (31.8% of cases).

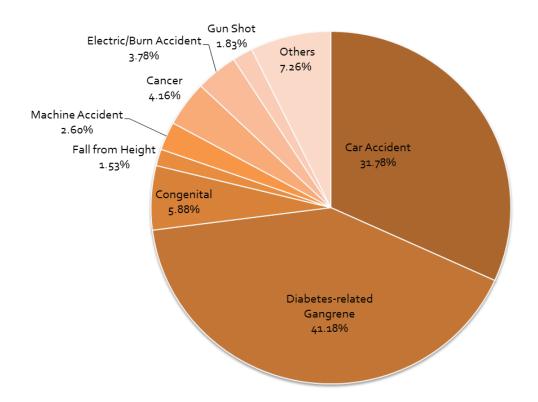
Table 25.1 displays the amputation cases receiving treatment at the medical rehabilitation centers of the MOH by cause of injury and region of the Kingdom for the year 2012. The total number of amputation cases recorded during the year 2012 is 2,638.

Cases attending to the medial rehabilitation centers of the other governmental sector during the year 2012 are displayed in Table 25.2. A total of 1,369,273 cases are recorded during this year, with 43,851 new cases. The majority of cases are referred to these centers for physiotherapy (93.4% of cases).

The number of disabled children receiving rehabilitation services during the year 2012 is shown by age group in Figure 25.2. The highest numbers of cases are recorded for ages from 3 to 8 years, whereas the highest average numbers of sessions per child are recorded for ages between 5 and 1 1 years.

Figure 25.3 portrays the proportions for the sessions of rehabilitation services provided to disabled children during the year 2012. The highest number of sessions is related to services provided in schools (44.3%)

In Table 25.3, sessions of rehabilitation services provided to disabled children during the year 2012 are displayed by age group. The total number of sessions recorded during this year is 392,135, with an average of 90 sessions per child.



### Figure 25.1: Causes of amputation cases at the medical rehabilitation centers of the MOH, 2012

	Car Accident	Diabetic Gangrene	Congenital	Fall from Height	Machine Accident	Cancer	Electric/Burn Accident	Gun Shot	Others	Total
Riyadh	6	9	0	1	2	О	1	0	0	19
Makkah**	116	282	28	12	14	32	6	5	17	532
Medinah	128	248	38	9	13	13	18	0	28	495
Qaseem	135	27	10	3		29	28	5	44	281
Eastern	71	98	8	1	12	12	10	3	53	268
Aseer	122	103	24	6	7	12	24	21	29	348
Tabouk	6	22	0	о	О	6	о	о	0	34
Ha`il	25	42	3	6	13	о	3	2	О	94
Northern	22	4	0	о	0	1	4	1	0	32
Jazan	132	213	8	2	3	1	4	11	7	381
Najran	10	6	2	о	о	1	о	о	0	19
Al-Bahah	1	4	О	о	0	О	0	0	0	5
Al-Jouf	58	20	33	о	4	2	1	о	12	130
Total	832	1,078	154	40	68	109	99	48	190	2,638

Table 25.1: Amputation cases at the medical rehabilitation centers of the MOH by cause of injury and region, 2012

\*\* Data not reported for Ta'if in Makkah

Hospital	New cases	Physiotherapy	Repair	Speech- hearing therapy	Others	Total
K.A.U.H.R	0	6,781	0	8,897	0	15,678
K.A.U.H.,J*	0	30,307	0	2,846	0	33,153
K.K.U.H.,R	3,434	23,528	269	156	0	27,387
K.F.U.H.,K	0	6,655	0	5,168	0	11,823
A.F.M.S*	NR	767,652	NR	NR	NR	767,652
N.G.M.S.	35,093	184,063	2,544	0	0	221,700
S.F.H**	0	138,498	0	1,727	0	140,225
K.F.S.H.,J	2,920	21,438	0	0	0	24,358
R.C.Hs	2,404	43,858	0	972	0	47,234
ARAMCO Hs	0	56,025	0	11,467	12,571	80,063
Total	43,851	1,278,805	2,813	31,233	0	1,369,273

#### Table 25.2: Cases at the medical rehabilitation centers of the other governmental sector, 2012

KAUHR: King Abdulaziz University Hospital, Riyadh; KKUHR: King Khaled University Hospital, Riyadh; KAUHJ: King Abdulaziz University Hospital, Jeddah; KFUHK: King Fahed University Hospital, Khobar; AFMS: Armed Forces Hospitals; NGMS: National Guards Medical Services; SFH: Security Forces Hospitals; KFSHJ: King Faisal Specialist Hospital & Research Center, Jeddah; RCHS: Royal Commission Hospitals; ARAMCOHs: ARAMCO Hospitals; \* Represent data from year 2011 due to the absence of data for the year 2012

\*\*Represent data from year 2010 due to the absence of data for the year 2011 and 2012

NR: Not Reported

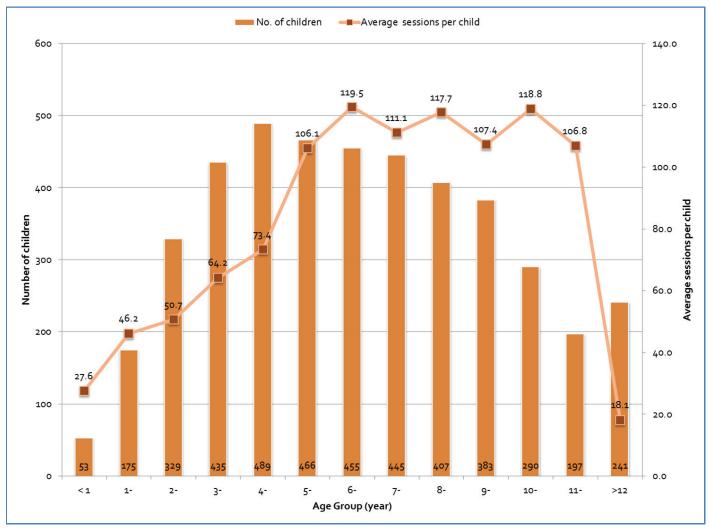


Figure 25.2: Number of disabled children receiving rehabilitation services by age group, 2012

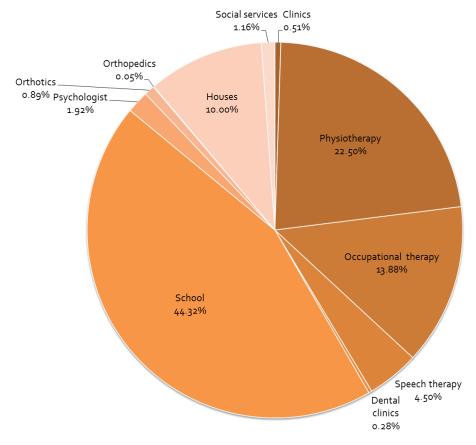


Figure 25.3: Sessions of rehabilitation services for disabled children, 2012

Age group (year)	Clinics	Physiotherapy	Occupational ther- apy	Speech therapy	Dental clinics	School	Psychologist	Orthotics	Orthopedics	Houses	Social services	Total
< 1	82	451	321	304	2	0	34	12	1	210	44	1,461
1-	177	2,674	2,106	1,420	28	0	233	134	5	1,146	157	8,080
2-	280	5,194	4,547	2,601	42	0	605	216	10	2,857	317	16,669
3-	309	6,700	6,345	2,682	96	2,723	1,958	577	31	5,995	524	27,940
4-	244	8,617	6,486	2,835	115	9,920	918	364	25	5,926	441	35,891
5-	212	11,724	6,111	1,889	119	22,230	1,035	327	18	5,185	583	49,433
6-	176	11,437	6,217	1,620	144	28,946	710	274	19	4,255	552	54,350
7-	143	10,184	5,113	1,166	103	27,813	604	229	16	3,494	576	49,441
8-	121	10,730	5,967	932	147	24,610	588	198	19	4,053	526	47,891
9-	110	9,430	4,826	775	139	21,832	452	246	14	2,936	367	41,127
10-	64	6,502	3,731	761	121	20,320	220	548	13	1,906	256	34,442
11-	32	3,597	1,623	480	28	13,994	116	140	9	931	93	21,043
>12	43	990	1,026	172	15	1,389	56	229	6	317	124	4,367
Total	1,993	88,230	54,419	17,637	1,099	173,777	7,529	3,494	186	39,211	4,560	392,135

Table 25.3: Sessions of rehabilitation services for disabled children by age group, 2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 26: Medical commissions

# 26. MEDICAL COMMISSIONS

The accessibility and availability of organ transplantations, cardiovascular surgeries, and medical treatment for medical cases of subspecialties at the specialized hospitals of the Kingdom has allowed for the provision of medical treatment within the Kingdom and has limited the need to transfer patients to medical facilities abroad.

Figure 26.1 displays the number of cases referred by the medical commissions to governmental general and specialist hospitals by region during the year 2012, with representation of the proportion of cases who are Saudi nationals. The total number of cases recorded for this year is 47,980. The highest number of cases is recorded in Riyadh (26.0%). The vast majority of cases across all regions are Saudi nationals.

Figure 26.2 further portrays the cases referred by the medical commissions during the year 2012 but by medical diagnosis. Most cases were of the ophthalmic type (17%), followed by malignant neoplasms (12%) and cardiac (12%).

Table 26.1 displays the number of cases referred by the medical commissions to governmental general or specialist hospitals according to diagnosis by region of the Kingdom.

Displayed in Figure 26.3 are the proportions of cases by medical specialty that were transferred abroad for medical treatment during the year 2012. The majority of transferred cases were within the special-ty of malignant tumors (22%). The transferred cases for this year are further shown in Table 26.2 by medical specialty and region of the Kingdom. The total number of cases transferred abroad is 897.

Figure 26.4 shows the number of cases transferred abroad for treatment by region of the Kingdom and recipient country during the year 2012. The majority of cases were transferred to the United States (44.6%), followed by Germany (33.4%).

Figure 26.5 summarizes the cases transferred abroad for treatment by region of the Kingdom and by type of decree issued for the transfer process.

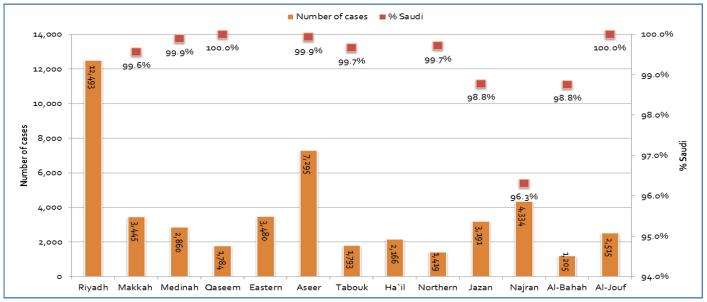


Figure 26.1: Number of cases referred by the medical commissions to governmental general and specialist hospitals (showing % Saudis), by region, 2012<sup>\*</sup>

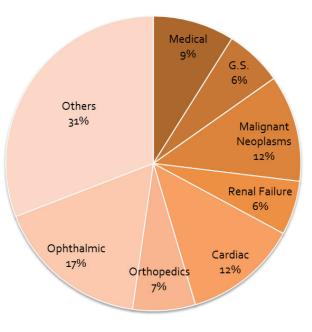


Figure 26.2: Proportions of cases referred by the medical commissions to governmental general or specialist hospitals by medical diagnosis, 2012

Table 26.1: Number of cases referred by the medical commissions to governmental general or specialist hospitals according to the diagnosis by region, 2012

Region	Medical	General Surgery	Malignant Neoplasms	Renal Failure	Cardiac	Orthopedics	Ophthalmic	Others
Riyadh*	311	193	1,534	1,912	800	405	822	6,516
Makkah	571	198	386	73	476	343	639	759
Medinah	692	30	530	97	322	178	594	417
Qaseem	46	96	475	99	171	69	421	407
Eastern	207	249	604	107	536	133	434	1,210
Aseer	924	1,524	794	253	645	451	1,714	990
Tabouk	68	44	324	36	248	103	516	454
Ha`il	176	62	174	77	331	218	515	613
Northern	73	41	72	19	296	125	313	480
Jazan	246	171	395	66	648	303	603	759
Najran	577	109	198	54	854	674	948	920
Al-Bahah	79	36	66	33	210	54	230	497
Al-Jouf	314	262	74	25	465	240	350	785
Total	4,284	3,015	5,626	2,851	6,002	3,296	8,099	14,807

\*Riyadh data represents that of 2011 due to absence of 2012 data

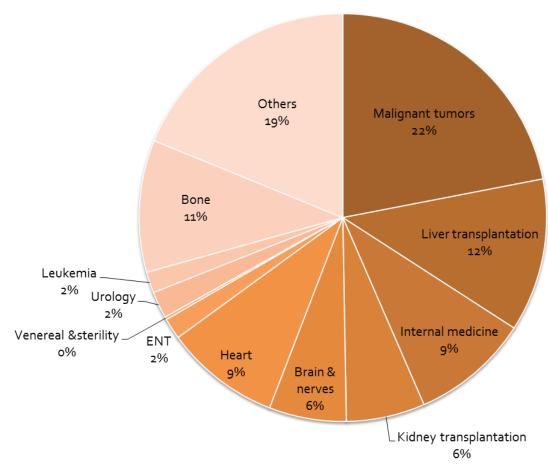


Figure 26.3: Proportion of transferred abroad for treatment by medical specialty, 2012

Commission	Malignant tumors	Liver transplantation	Internal medicine	Kidney transplanta- tion	Brain & nerves	Heart	ENT	Venereal &sterility	Urology	Leukemia	Bone	Others	Total
Riyadh*	104	68	34	25	32	42	8	0	16	0	43	136	508
Jeddah	48	20	45	26	14	28	6	2	1	6	39	5	240
Eastern	25	4	2	2	3	10	1	0	2	7	4	8	68
Aseer	20	17	3	3	6	2	ο	ο	ο	2	8	20	81
Total	197	109	84	56	55	82	15	2	19	15	94	169	897

### Table 26.2: Number of cases transferred abroad for treatment by medical specialty and region, 2012

\*Riyadh data represents that of 2011 due to absence of 2012 data

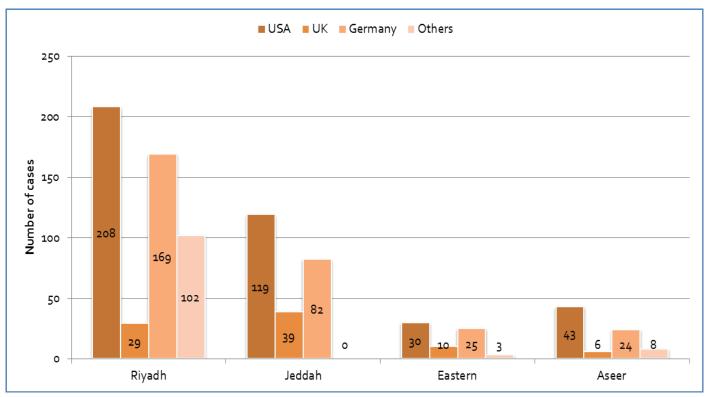


Figure 26.4: Number of cases transferred abroad for treatment by region and receiving country, 2012

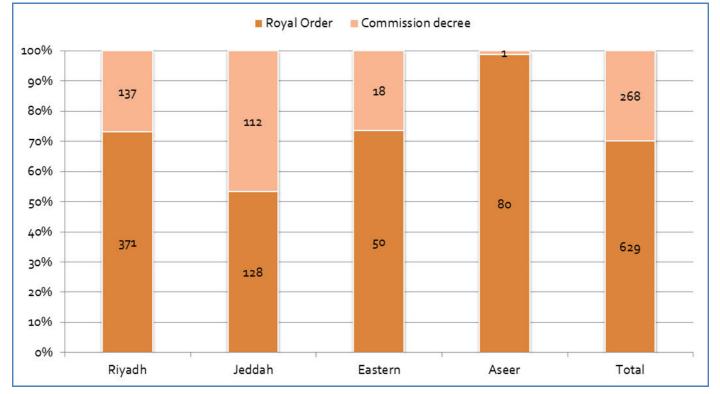


Figure 26.5: Number of cases transferred abroad for treatment by region and type of decree, 2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 27: Nutrition

# 27. NUTRITION

Table 27.1 provides the approximate number of meals served at MOH hospitals, along with selected indicators related to meals served, by region of the Kingdom for the year 2012. The total number of meals served at all MOH hospitals during this year is 20.2 million, which includes 10.1 million meals for nursing staff and on-duty staff members, 7.1 million meals for patients, and 3.0 million meals for patients' accompaniments. On average, 57,230 patient meals are served daily. Patient meals constitute 35.14% of the total meals served at MOH hospitals. With the 35, 828 patient beds available at MOH hospitals, an average of 199 patient meals are served per bed yearly.

In Figure 27.1, the approximate number of meals served at MOH hospitals is further displayed by region, with representation of the average number of patient meals served per bed yearly for each region. The highest number of meals served at MOH hospitals during this year is recorded in Makkah (4.4 million meals).

Region	# of beds	Patient meals	Nurse and on-duty staff meals	Accompaniment meals	Total # of meals	Daily average # of patient meals	% of patient meals from total meals	Average # of patient meals / bed per year
Riyadh	7,473	1,176,138	1,704,508	420,434	3,301,080	3,322	35.63%	157
Makkah	6,933	1,685,981	2,161,388	556,691	4,404,060	4,763	38.28%	243
Medinah	2,647	528,102	790,513	291,614	1,610,229	1,492	32.80%	200
Qaseem	2,409	529,950	1,022,581	246,873	1,799,404	1,497	29.45%	220
Eastern	5,111	1,123,617	1,293,717	321,829	2,739,163	3,174	41.02%	220
Aseer	2,870	579,680	769,484	358,880	1,708,044	1,638	33.94%	202
Tabouk	1,125	214,273	177,844	80,342	472,459	605	45.35%	190
Ha`il	1,095	194,523	385,257	94,997	674,777	550	28.83%	178
Northern	910	151,916	276,424	85,244	513,584	429	29.58%	167
Jazan	1,800	378,845	468,719	243,562	1,091,126	1,070	34.72%	210
Najran	1,070	197,777	408,177	117,937	723,891	559	27.32%	185
Al-Bahah	1,035	206,334	469,721	114,037	790,092	583	26.12%	199
Al-Jouf	1,350	151,982	184,034	95,407	431,423	429	35.23%	113
Total	35,828	7,119,118	10,112,367	3,027,847	20,259,332	20,111	35.14%	199

#### Table 27.1: Approximate number of meals served at the MOH hospitals and selected indicators by region, 2012

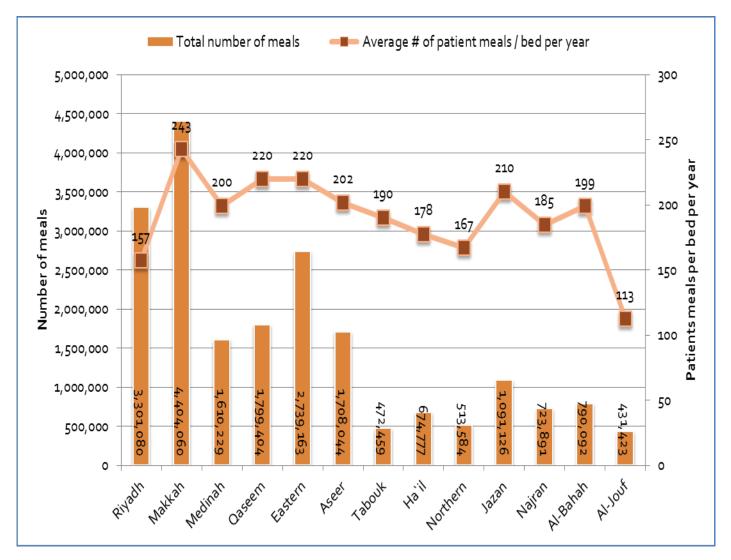


Figure 27.1: Approximate number of meals served in MOH hospitals (showing average number of patient meals / bed per year) by region, 2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 28: Other activities

# 28. OTHER ACTIVITIES

## **Forensic Medicine Services**

Table 28.1 displays the cases presented to the Forensic Medicine Centers of KSA by region of the Kingdom for year 2011. The total number of cases in this year was 3,626, from which 2,534 were related to examination of dead cases (70%), 1,035 were related to examination of living cases (28%), and 57 required expert opinion (2%). The majority of cases were presented to the Forensic Medicine Centers of Makkah (27%). Figure 28.1 represents the distribution of the Medical Legal Committees across the regions of the Kingdom during the year 2011. In total, there were 18 committees distributed in 7 provinces. The majority was in Riyadh (4 committees). Figure 28.2 displays the cases of medical malpractice, both new and deferred, that were referred to the Medical Legal Committees by region during the year 2011. In total, 1,777 cases were referred during this year, from which only 797 were new cases. The majority of referred cases were in Makkah (28%). Figure 28.3 displays the number of sessions and resolutions made by the Medical Legal Committees by region during the year 2011, with representation of the ratio of sessions needed per resolution made in each region. The total number of sessions in this year was 2,441, the majority of which took place in Riyadh (26%). The total number of resolutions in this year was 734, the majority of which took place in Makkah (27%) and Riyadh (26%). The highest ratio of sessions needed per resolution made was in Medinah (10.3 sessions per resolution). Figure 28.4 shows the distribution of resolutions of medical malpractice related to examination of dead cases that were made by the Medical Legal Committees (a total of 302 cases) according to the presence or absence of convictions by region during the year 2011. The total number of resolutions related to dead cases that were made with conviction was 160 (53%), while the total number of resolutions made related to dead cases without conviction was 142 (47%).

### Home Health Care Program

Figure 28.5 displays the number of MOH hospitals implementing the Home Health Care Program by region during the year 2012, with representation of the number of manpower and beneficiaries. The total number of hospitals is 163, with 1,295 manpower and 12,729 beneficiaries involved.

		Dead Cases			Expert	Grand
Region	External Examination	Autopsy	Total	Living Cases	Opinion	Total
Riyadh	66	245	311	288	1	600
Makkah	435	213	648	338	6	992
Medinah	150	58	208	88	30	326
Qaseem	96	28	124	2	0	126
Eastern	243	132	375	60	0	435
Aseer	220	107	327	153	2	482
Tabouk	75	26	101	46	2	149
Ha`il	81	8	89	6	1	96
Northern	20	10	30	10	1	41
Jazan	4	175	179	5	0	184
Najran	32	15	47	6	0	53
Al-Bahah	49	3	52	13	14	79
Al-Jouf	30	13	43	20	0	6 <sub>3</sub>
Total	1,501	1,033	2,534	1,035	57	3,626

### Table 28.1: Cases presented to the Forensic Medicine Centers of the Kingdom by region, 2011 \*

\* Data was not reported for 2012

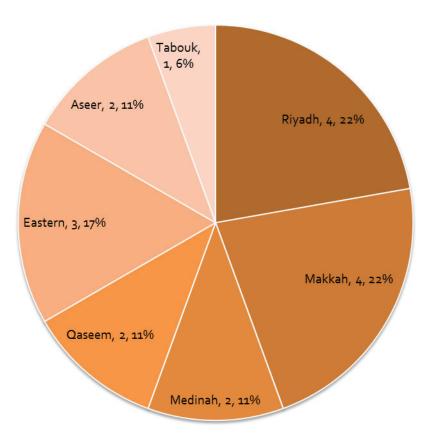


Figure 28.1: Distribution of the Medical Legal Committees across the regions of the Kingdom, 2011\*

\* Data was not reported for 2012

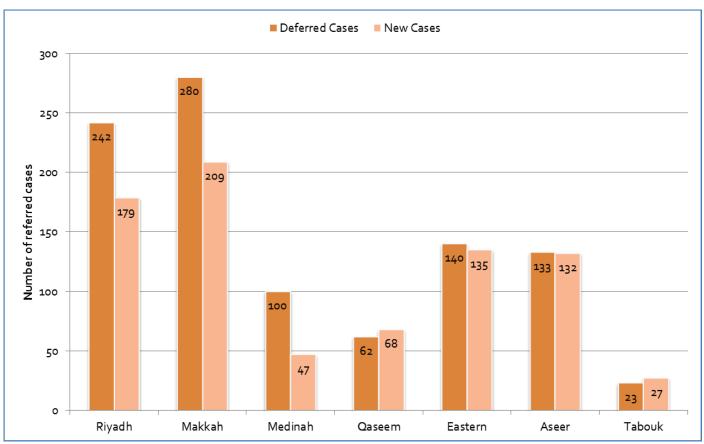


Figure 28.2: Cases of medical malpractice referred to the Medical Legal committees by region, 2011 \*

\* Data was not reported for 2012

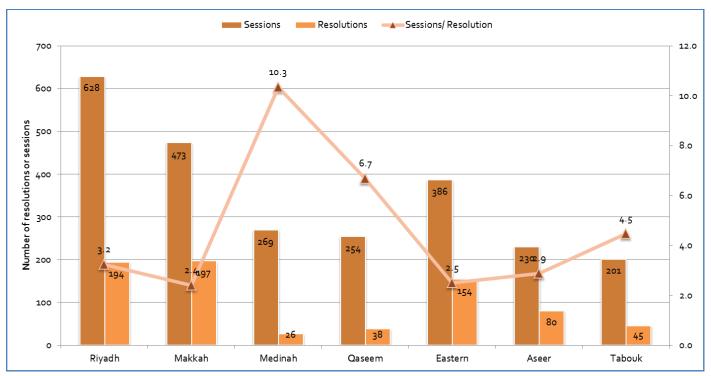


Figure 28.3: Number of sessions and resolutions of the Medical Legal committees by region, 2011\*

\* Data was not reported for 2012

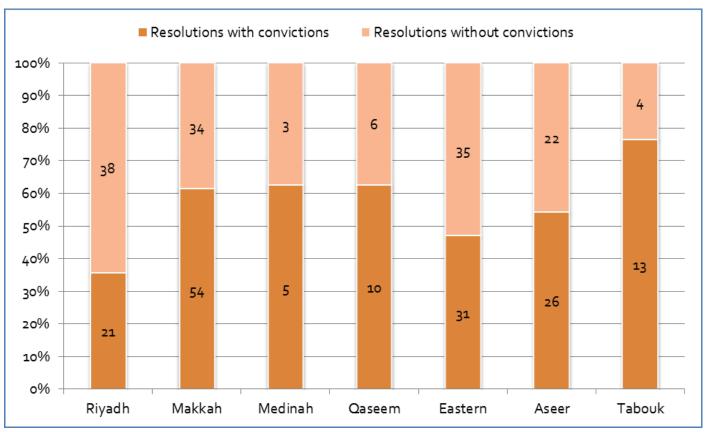


Figure 28.4: Distribution of resolutions of medical malpractice death cases issued by the Medico Legal committees according to conviction and by region, 2011 \*

\* Data was not reported for 2012

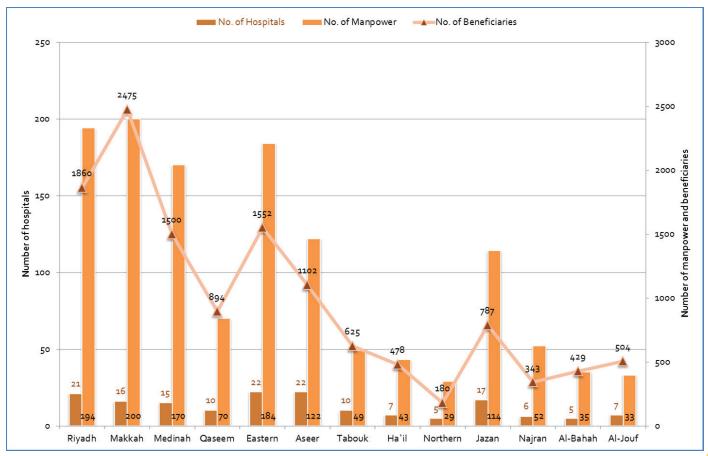


Figure 28.5: Number of MOH hospitals implementing the Home Health Care Program (showing number of manpower and beneficiaries) by region, 2012



SECTION IV.

HEALTH SERVICES AND ACTIVITIES

Chapter 29: Deaths registered at MOH hospitals

# 29. DEATHS REGISTERED AT MOH HOSPITALS

The national death registry operates based on a comprehensive surveying of all deaths occurring inside the MOH hospitals, in addition to those occurring outside the hospitals. The death statistics are then notified to the Statistics Department at the MOH, where they are coded in accordance with the International Classification of Diseases (ICD)-10. In total, 49,103 deaths were registered in the MOH in the year 2012, of which 31,116 are Saudi nationals (63.4%) and 17,987 are Non-Saudis (36.6%).

Figure 29.1 shows the distribution of deaths registered among Saudis in the hospitals of the MOH according to different disease groups and gender for the year 2012. The total number of deaths among Saudi nationals is 31,116, of which 19,236 are males (61.8%) and 11,880 are females (38.2%). Among the disease groups, the highest number of deaths registered is under the group of 'ill-defined symptoms and conditions' (7,968 deaths), which represents 25.6% of total deaths registered for Saudi nationals.

Figure 29.2 shows the distribution of deaths registered among Non-Saudis in the hospitals of the MOH according to different disease groups and gender for the year 2012. The total number of deaths among Non-Saudis is 17,987, of which 12,938 are males (71.9%) and 5,049 are females (28.1%). Among the disease groups, the highest number of deaths registered is under the group of 'ill-defined symptoms and conditions' (6,642 deaths), which represents 36.9% of total deaths registered for Non-Saudis.

Table 29.1 displays the trend in number of deaths by disease groups during the time period of 2008-2012.



TREND OVER TIME...

Between the years 2008 and 2012, the total number of deaths registered at the MOH hospitals decreased by 5.1% (46,720 to 49,103 deaths).

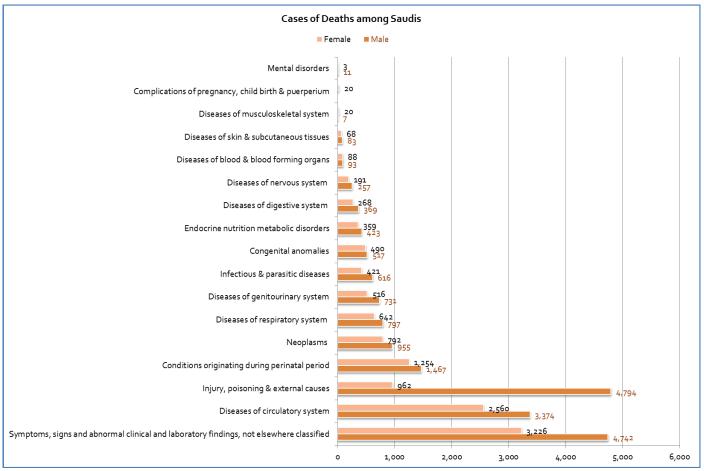


Figure 29.1: Deaths among Saudis registered at the MOH hospitals by disease group and gender, 2012

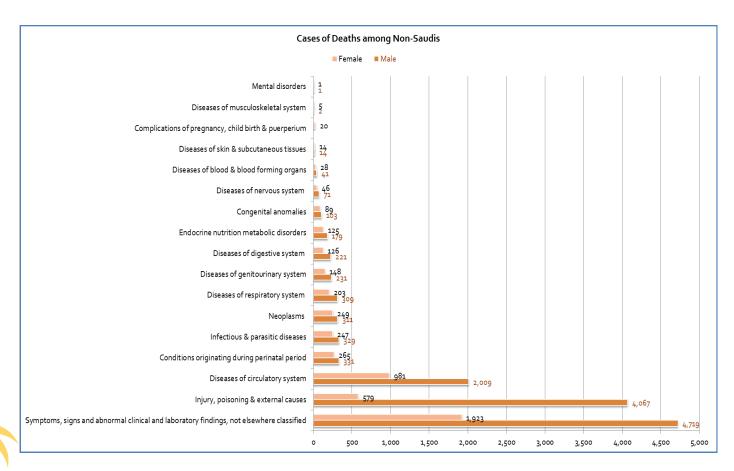


Figure 29.2: Deaths among non-Saudis registered at the MOH hospitals by disease group and gender, 2012

Table 29.1: Mortality trends by diseases groups, 2008-2012\*

Dicease drawn		20	2008	20	2009	2010	10	20	2011	202	2012*
	01	Cases	%								
III-defined symptoms & conditions	(Roo-R99)	13,452	28.8%	13,693	30.9%	14,622	31.6%	13,640	30.5%	14,610	29.8%
Diseases of circulatory system	(100-199)	8,403	18.0%	7,705	17.4%	7,748	16.7%	8,607	19.2%	8,924	18.2%
Injury, poisoning & external causes	(Soo-Y89)	8,761	18.8%	8,130	18.3%	8,355	18.0%	7,702	17.2%	10,402	21.2%
Conditions originating during perinatal period	(Poo-P96)	4,486	9.6%	3,773	8.5%	4,190	9.1%	3,729	8.3%	3,317	6.8%
Neoplasms	(Coo-D48)	2,254	4.8%	2,034	4.6%	2,198	4.7%	2,028	4.5%	2,307	4.7%
Diseases of respiratory system	(66r-oor)	1,854	4.0%	2,068	4.7%	1,892	4.1%	1,824	4.1%	1,951	4.0%
Congenital anomalies	(Qoo-Q99)	1,216	2.6%	1,095	2.5%	1,233	2.7%	1,214	2.7%	1,199	2.4%
Endocrine nutrition metabolic disorders	(Eoo-Ego)	1,021	2.2%	1,012	2.3%	1,140	2.5%	1,193	2.7%	1,086	2.2%
Infectious & parasitic diseases	(Aoo-B99)	1,624	3.5%	1,446	3.3%	1,533	3.3%	1,427	3.2%	1,613	3.3%
Diseases of digestive system	(Koo-K93)	966	2.1%	853	1.9%	892	1.9%	833	1.9%	984	2.0%
Diseases of genitourinary system	(66N-00N)	1,468	3.1%	1,437	3.2%	1,430	3.1%	1,559	3.5%	1,626	3.3%
Diseases of nervous system	(Goo-G99)	614	1.3%	504	1.1%	525	1.1%	514	1.1%	565	1.2%
Diseases of skin & subcutaneous tissues	(Loo-L99)	269	0.6%	223	0.5%	231	o.5%	181	0.4%	179	0.4%
Diseases of blood & blood forming organs	(D50-D89)	205	0.4%	244	0.6%	223	o.5%	268	0.6%	250	o.5%
Diseases of musculoskeletal system	(66M-ooM)	41	0.1%	32	0.1%	24	0.1%	24	%T.0	34	0.1%
Complications of pregnancy, child birth & puer- perium	(660-000)	49	0.1%	57	0.1%	52	0.1%	47	0.1%	40	0.1%
Mental & behavior disorders	(F06.9)	7	0.0%	2	0.0%	4	0.0%	ĸ	0.0%	16	0.0%
Total		46,720	100.0%	44,308	100.0%	46,292	100.0%	44,793	100.0%	44,670	100.0%

 $\star$  560 death cases were uncategorized and were not included in the table

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SECTION V.

# HEALTH SERVICES DURING HAJJ SEASON

Chapter 31: Health Services During Hajj Season

# 30. HEALTH SERVICES DURING HAJJ SEASON

The MOH in the Kingdom is honored to provide all the necessary health preventive and curative services to pilgrims. There are special requirements for visitors to the Hajj concerning vaccinations against selected diseases such as meningococcal meningitis, polio and yellow fever. This chapter displays the services provided to pilgrims by the MOH in that regards.

## 1. Pilgrims numbers

As shown in Figure 30.1, the number of pilgrims during the year 1433H was 3,161,573, with an almost equal proportion of those coming from outside and those coming from inside the Kingdom. There was an observed increase in the total number of pilgrims of 8% in comparison to the previous year.

# 2. Health facilities and beds

Table 30.1 shows the following: the MOH equipped 23 hospitals to serve the pilgrims of which 8 hospitals were seasonal. A total of 4,326 hospital beds were available, representing a rate of one bed per 731 pilgrims. Additionally, there were 110 emergency beds. The MOH, as well, provided 154 health centers for the pilgrims of which 112 were seasonal. On average, each health center served 20,530 pilgrims.

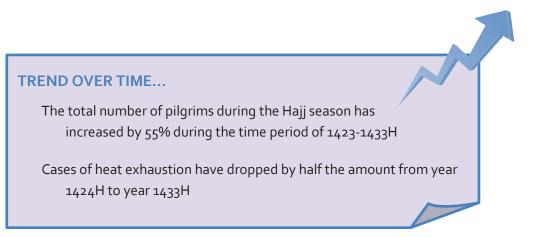
## 3. Manpower

Figure 30.2 shows the number and distribution of manpower recruited to work in the pilgrimage season of 1433H. The total number of personnel was 20,057, of which 74.8% were physicians, nurses and allied health professionals. On average, each physician served 870 pilgrims, each nurse 496 pilgrims, and each allied health professional 634 pilgrims.

# 4. Activities of Quarantines

The number of health control centers at entry points was 25 distributed at airport, seaports and land ports; 15 centers of which are serving the pilgrims. As displayed in Table 30.2, the total number of pilgrims coming from outside and who were registered at points of entry was 1,732,983. Chemoprophylaxis was provided to 427,942 pilgrims as a preventive measure for some infectious diseases. Vaccination against poliomyelitis was given to 516,495 pilgrims.





### 5. Outpatients and Inpatients

The total number of outpatient visits to hospitals and health centers in this year was 806,956, representing a decrease of 12.7% from the previous year. Furthermore, the rate of outpatients' visits to health centers and hospitals in relation to pilgrims' number was around 26 visits/ 100 pilgrims. The total number of hospital emergency visits in this year was 139,723. On average, the rate of first aid cases/100 pilgrims was found to be 5 cases/100 pilgrims. The total number of hospital this season was 7,745, representing a rate of 25/10,000 pilgrims.

## 6. Sun Stroke and Heat Exhaustion

No cases of sun stroke have been recorded in year 1433H. However, 31 cases of heat exhaustion were recorded in total.

### 7. Deaths

The total number of deaths among pilgrims registered in the hospitals of MOH, during this pilgrim season 1433 H in Makkah, sacred places and Medinah, was 585. 92.5% (541 cases) of the total number of deaths registered in Makkah and sacred places. Additionally, 71.8% of deaths occurred outside hospitals. Table 30.5 and Figure 30.6 show the number of cases of death by region, place and nationality; 64.4% of deaths have been registered in Makkah hospitals and 99% of deaths occurred among pilgrims were recorded among Non-Saudis. Table 30.6 displays the distribution of occurred deaths among pilgrims by cause and region.

### **KEY ACHIEVEMENTS** ...

The number of deaths among pilgrims during the pilgrim season of 1433H was almost half the number recorded the year before. Furthermore, during the time period of 1429-1433H, the number of deaths decreased by 50% from 1,165 death cases among pilgrims in 1429 to 585 death cases in 1433H.

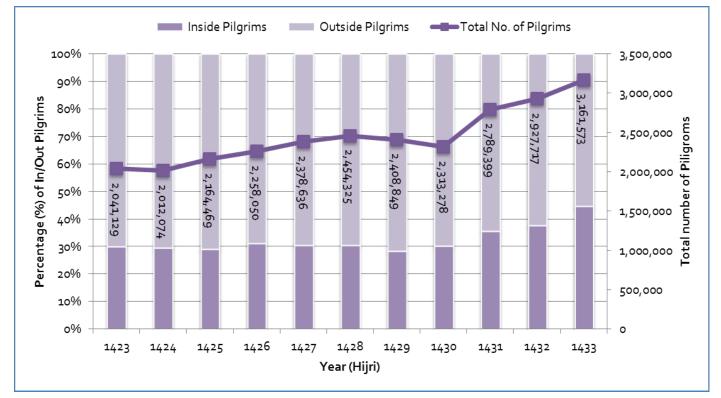
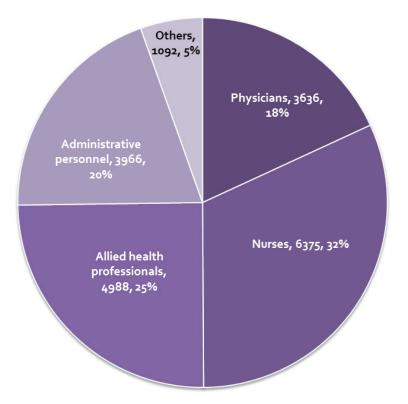


Figure 30.1: Pilgrims from inside and outside of the Kingdom, 1423-1433H

Data	Makkah	Sacred places	Medinah	Total
Permanent hospitals	8	0	7	15
Seasonal hospitals	0	8	0	8
Permanent Health Centers	31	0	11	42
Seasonal Health Centers	12	96	4	112
Hospital beds	2,068	1,447	811	4,326
Emergency beds	0	0	110	110
Heat exhaustion beds	0	0	12	12
Cooling units	0	2	10	12

### Figure 30.2: MOH health manpower devoted to Hajj season, 1433H



### Table 30.2: Activities of health centers control at entry points (preventive care) during Hajj season, 1433H

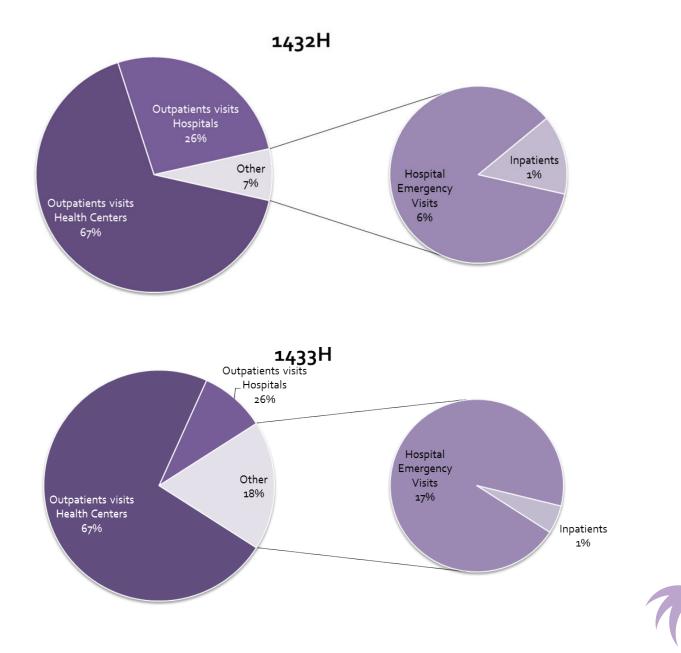
Health quarantines	Registered Pilgrims	Prophylactic	Poliomyelitis vaccine*
Airports	1,592,467	366,942	516,123
Seaports	119,414	18,948	0
Land ports	21,102	42,052	372
Total	1,732,983	427,942	516,495

\* Given to children and pilgrims coming from endemic areas

Data	Region	Makkah		Sacred	places	Medinah		Total	
		1432	1433	1432	1433	1432	1433	1432	1433
Outpatients visits	Health Centers	148,065	164,333	286,057	341,420	187,063	86,521	621,185	592,274
VISIUS	Hospitals	49,547	45,891	86,805	9,256	110,600	19,812	246,952	74,959
Hospital Emergency visits		35,016	33,645	6,893	79,888	14,292	26,190	56,201	139,723
Total		232,628	243,869	379,755	430,564	311,955	132,523	924,338	806,956
Inpatients		4,610	3,789	2,154	2,805	2,756	1,151	9,520	7,745

Table 30.3: Outpatient visits and admissions to permanent and seasonal hospitals and health centers during the period 1-15/12 in Makkah and Sacred places and during the period 15/11-15/12 in Medinah, in seasons, 1432&1433H

### Figure 30.3: Outpatient visits, hospital emergency visits and inpatients during Hajj season, 1432&1433H



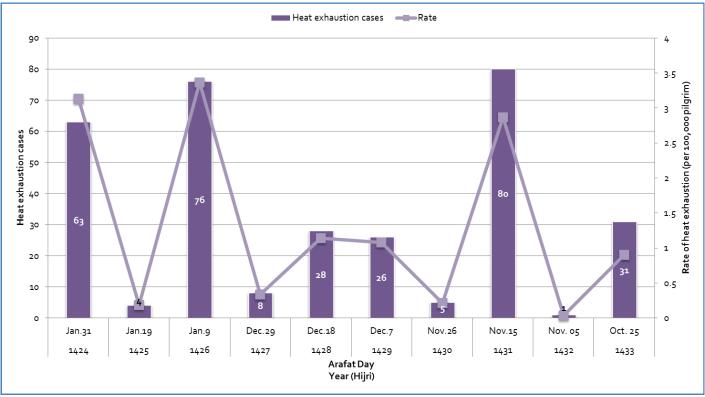


Figure 30.4: Cases and incidence rate of heat exhaustion (per 100,000 pilgrims) during the period 1-15/12, 1424-1433H

Place of Death		Makkal	h & sacreo	lplaces		Medinah					
	1429	1430	1431	1432	1433	1429 <sup>*</sup>	1430 <sup>*</sup>	1431 <sup>*</sup>	1432*	1433	
Inside hospital	259	249	242	242	145	143	130	103	94	20	
Outside hospital	573	397	475	630	396	190	143	224	177	24	
Total	832	646	717	872	541	333	273	327	271	44	
% Deaths inside hospital	31.1	38.5	33.8	27.8	26.8	42.9	47.6	31.5	34.7	45.5	
Inpatients	6584	5963	7217	6764	6594	2984	2782	2457	2756	1151	
Deaths As % of Inpatients	3.9	4.2	3.4	3.6	2.2	4.8	4.7	4.2	3.4	1.7	

\* In 1429-1433 H, the period is during 15/11-15/12

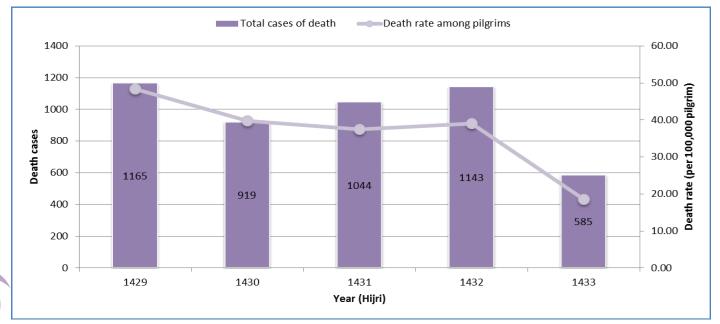


Figure 30.5: Total deaths inside & outside hospitals during the period 1-15/12, Hajj Seasons 1429-1433H

# Table 30.5: Cases of death by place of death and nationality during the period 1-15/12 in Makkah and Sacred places and during the period 15/11-15/12 in Medinah, 1433H

	Makkah			Sacred places			Medinah			Total		
Place of death	Saudi	Non- Saudi	Total	Saudi	Non- Saudi	Total	Saudi	Non- Saudi	Total	Saudi	Non- Saudi	Total
Inside hospital	0	86	86	0	59	59	0	20	20	0	165	165
Outside hospital	0	290	290	5	101	106	0	24	24	5	415	420
Total	0	376	376	5	160	165	0	44	44	5	580	585
% Deaths of Pilgrims	0	100	64.3	3	97	28.2	0	100	7.5	0.85	99.15	100

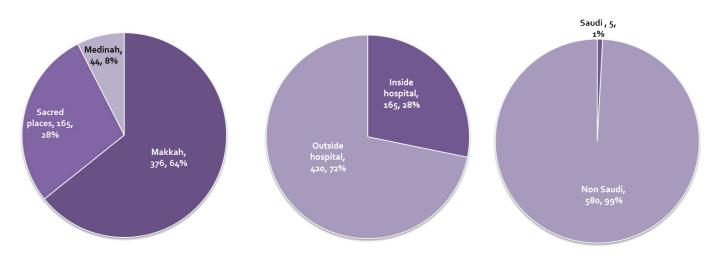


Figure 30.6: Total death by region (*right*), place of death (*middle*) and nationality (*left*), 1433H

Table 30.6: Pilgrims deaths by cause and region during 1-15/12 in Makkah and Sacred places and during the period 15/11-15/12 in Medinah, 1433H

Cause of deaths	Makkah & Sacred places	Medinah	Total	% of total deaths
Diarrhea & gastroenteritis	2	0	2	0.34%
Infectious & Parasitic Dis.	3	2	5	0.85%
Septicemia	5	1	6	1.03%
Pulmonary T.B.	3	0	3	0.51%
Diabetes mellitus	6		6	1.03%
Heart & BL. Vessels Dis.	134	5	139	23.76%
Hypertension	4	2	6	1.03%
Cerebrovascular Dis.	10	1	11	1.88%
Pneumonia, Asthma &Bronchitis	60	6	66	11.28%
Other dis. of Respiratory Syst.	35		35	5.98%
Dis. of Digestive System	17	3	20	3.42%
Renal failure	9		9	1.54%
Cardiorespiratory failure	123		123	21.03%
Senility	6	6	12	2.05%
Fractures, Injuries, Falls, Poisoning and Burns	5	1	6	1.03%
Traffic accidents	22	5	27	4.62%
Sun stroke		0	0	0.00%
III-Defined Cause	84	11	95	16.24%
Other causes	13	1	14	2.39%
Total	541	44	585	100.00%