

The Forecasting Demand of Hospital Pharmacist Workforce in Eleven-Year (2006-2016) and future Fifteen-Years (2016-2030) at Ministry of Health in Saudi Arabia

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Abstract

Objective: The workforce of hospital pharmacist is one the elements of pharmacy strategic plan in Saudi Arabia. The purpose of this study is to explore the demand for hospital pharmacist's workforce in past eleven years (2006-2016) and future fifteen years (2016-2030) at Ministry of Health in Saudi Arabia. **Methods:** It is a retrospective analysis of eleven years (2006-2016) and projection for fifteen years in the future (2016-2030) of MOH hospital pharmacist workforce. All data derived from Ministry of Health statistical year books. It included demand pharmacist or clinical pharmacist's workforces at MOH hospitals. The type of hospital included having bed capacity 50-1500 beds with Adults public hospitals, pediatrics and maternity hospitals, Psychiatric hospitals, Diabetic centers, Cardiology centers, Oncology Centers, Renal Dialysis Centers, and Medical cities. All calculations were based on MOH workforce standards of hospitals. All calculations were done using Microsoft Excel version ten. The calculations were per each region for a total of twenty-one regions, the hospital beds distribution numbers, the ratio of pharmacist per bed, total number of demand pharmacist per each sector, the expected number of pharmacist requirement in the coming years 2016-2030 per each region across Saudi Arabia. **Result:** The total numbers of hospitals were 276 hospitals, 2,325 primary care centers, and 20 administration regions. The total numbers of pharmacists were 3,520, distributed at hospital 2,760 (78.41 %), at primary care centers 430 (12.2 %) while administration regions 330 (9.37 %). The average numbers of hospital beds were (35,940) with a range number of (31,877-41,835), and the total number was (41,835). The average numbers of pharmacists per hospital were (6.28) with a range number of (2.89-10.07). The average numbers of beds were (35,940) with a range number of (31,877-41,835), and the total number was (41,835). The average numbers of pharmacist per bed (0.071) with a range number of (0.020-0.062). The total average demand hospitals were (5,662.98) with range (5739.40-5607.00) with total number demand was (5607.00) hospital pharmacist. The total demand pharmacists for primary care centers by year 2030 will be (11,887.11) with range (8,367.00- 11,887.11). **Conclusion:** The total number of hospital pharmacists is indigent at MOH hospitals and not meet excepted recruitment standard. Targeting of the increasing number of hospital pharmacists through opening new jobs at MOH hospitals with complete pharmacist Saudisation is required.

Key words: Hospital Pharmacist, Workforce, Manpower, Ministry of Health, Saudi Arabia.

INTRODUCTION

The minimum standards of hospital pharmacies are explored by American Society of Health Systems Pharmacists.^[1] The Corner Stone of the standard was pharmacy Human Resources both Pharmacist and clinical pharmacist. Several studies reported the standard requirements of pharmacy staff for hospitals in different countries.^[2-13] The others studies reported the calculation of hospital pharmacist requirements.^[4,14] The two studies discussed the pharmacist projection for the year 2020 in United States of American in the early 2000s, but there are not updated studies in the USA or other countries in the world. Also, the authors are not familiar with any studies in Kingdom of Saudi Arabia or Gulf countries and Middle East countries about pharmacy workforce requirements or standard or demand for pharmacist in the futures. The objective of this study is to explore the hospital pharmacist's demand in past eleven years (2006-2016) and future fifteen years (2016-2030) at Ministry of Health in Saudi Arabia.

METHODS

It is a retrospective analysis of eleven years (2006-2016) and projection for fifteen years in the future (2016-2030) of MOH hospital pharmacist workforce. All data were derived from Ministry of Health Statistical Year Books.^[15-25] It included demand pharmacist or clinical pharmacist's workforces at MOH hospitals. The type of hospital included having bed capacity of 50-1500 beds with Adults public hospitals, pediatrics and maternity hospitals, Psychiatric hospitals, Diabetic centers, Cardiology centers, Oncology Centers, Renal Dialysis Centers, and Medical cities. All pharmacists were expected to provide pharmaceutical according to ASHP definition and requirements. All type of pharmacy services were based on Saudi Central Board of hospital accreditation, a joint commission of hospital accreditation, ASHP best practice standards, and general administration of the pharmaceutical care strategic plan.^[26-30] All Pharmacist works at MOH administration or non-MOH government hospitals and primary care

centers were excluded from the studies. All private hospitals or community pharmacists were excluded from the study. All pharmacy technicians were excluded from the study. All calculations were based on MOH workforce standards of hospitals. All calculation were done using Microsoft Excel version ten. The calculations were per each region for a total twenty-one regions, the hospital beds distribution numbers, the ratio of pharmacists per bed, total number of demand pharmacists per each sector, the expected number of pharmacist requirement in the coming years 2016-2030 Pharmacist per each region across Saudi Arabia.

RESULTS

The total numbers of hospitals were 276 hospitals, 2,325 primary care centers, and 20 administration regions. The total numbers of small hospitals were 140 (50.72%), medium hospitals 95 (34.42%), small hospitals 18 (6.52%), Large hospitals 21 (7.61%), and medical cities 2 (0.72 %). The total number of pharmacists distributed at hospital were 3,520 2,760 (78.41 %), at primary care centers 430 (12.2 %) while administration regions 330 (9.37 %) the last update information October 2016 as explored in Table 1. The average numbers of hospital beds were (35,940) with a range number of (31,877-41,835), and the total number was (41,835). The highest region had a number of hospital bed was Riyadh (7,139.45) followed by East Province (3,094.09) and Jeddah regions (2,850.80) as explored in Table 2. The average numbers of pharmacists per hospital were (6.28) with a range number of (2.89-10.07). The highest region had a number of pharmacists per each hospital, Makkah (12.91) followed by Riyadh (8.70) and Jeddah regions (8.65) as explore in Table 3. The average numbers of beds were (35,940) with a range number of (31,877-41,835), and the total number was (41,835). The average number of pharmacist per bed was (0.071) with a range number of (0.020-0.062). The highest region had a number of pharmacist per each bed was Makkah (0.138) followed by Aljouf (0.103) and Najran regions (0.111) as explored in Table 4. The total average demands hospital were (5,662.98) with range (5739.40-5607.00) with total number demand was (5607.00) hospital pharmacist. The high demand for hospital pharmacists were in Riyadh regions (1,055.16), followed by East Province region (477.18) and Jeddah region (463.76). The total demand pharmacists for primary care centers by year 2030 will be (11,887.11) with range (8,367.00- 11,887.11) as explored in Table 5 and Table 6.

DISCUSSION

The general administrations of pharmaceutical Care have released six pharmacy strategic goals as part of the pharmaceutical care plan. The pharmacy Human Resources department and implementation was part of them.^[30] The pharmacy staff requirements of Ministry of health hospitals and primary care centers established in the mid-2000s then updated during the new pharmacy strategic plan. The requirements increased the number of pharmacists fivefold with incremental of clinical pharmacist ten times.^[31] The difference between actual pharmacy workforce and the new standards is the demand of pharmacy staff. The author explored the actual pharmacist demand based on this calculation. The calculation is done for all twenty regions. The finding showed that, over the past several years there were cumulative increasing shortage and demand of pharmacist, and it was increasing by consecutive years. The number of hospitals and related beds were increasing while the workforces number of pharmacist did not so. Huge massive shortage of hospital pharmacist at MOH hospitals. Also, the ratio of pharmacist per bed was lower than MOH current standard over previous years. In the future, there will be a high requirement of hospital pharmacists with increasing of the entire population. The finding of demand pharmacist is lower than what reported by Bond CA *et al.* and Knapp DA, that is related to significant differences in term of populations between two countries.^[4,14] Several suggestions to resolve hospital pharmacist jobs availabilities for an instant; the implementation of Saudi Vision 2030 with a new concept of ambulatory care pharmacy services and apply the new program of Saudi Managed Care Pharmacy.^[32-33] It will decrease the economic burden on MOH healthcare system and will improve the pharmaceutical care services at all MOH hospital pharmacies in Kingdom of Saudi Arabia.

CONCLUSION

The number of hospitals and related staff increased over the past several years while the workforce's pharmacists were stagnant. Currently here is very high demand of hospital pharmacists at MOH institutions. The projection of pharmacist jobs in the future will increase the pharmacist requirements and demand. The implementations of Saudi vision 2030 with a new concept of pharmacy practice are highly recommended to all pharmacy workforces in the future.

Table 1: Total number of hospital overall regions in Kingdom of Saudi Arabia.

	Region	No of Hospitals	Small <100	Medium 100–299	Large 300–399	Large 400- > or = 600	Medical Cities
1	Riyadh	42	19	19	1	2	1
2	Makkah	10	3	2	2	2	1
3	Jeddah	13	2	7	1	3	0
4	Taif	13	9	1	0	3	0
5	Madina	20	12	6	0	2	0
6	Quseen	19	10	6	1	2	0
7	East Province	20	13	2	3	2	0
8	Alhasa	11	4	5	0	2	0
9	Heralbatin	7	4	1	2	0	0
10	Aseer	20	8	11	0	1	0
11	Bisha	7	4	2	1	0	0
12	Tabouk	11	3	7	0	1	0
13	Hail	13	10	3	0	0	0
14	North Boarder	9	3	4	2	0	0
15	Jazan	21	13	7	0	1	0
16	Najran	12	8	3	1	0	0
17	Albaha	10	7	1	2	0	0
18	Aljouf	9	3	4	2	0	0
19	Alqurayat	4	2	2	0	0	0
20	Qunfetha	5	3	2	0	0	0
	Total	276	140	95	18	21	2

Table 2: Total number of beds.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Riyadh	5,791	5,974	6,074	6,981	7,171	7,322	7,473	7,937	7,937	7,937	7,937	7,139.45
Makkah	2,024	2,024	2,074	2,174	1,862	1,875	6,933	2,522	2,622	2,664	2,664	2,676.18
Jeddah	3,003	2,650	2,650	2,650	2,865	2,410	Missing Data	2,993	2,993	3,203	3,091	2,850.80
Taif	1,972	1,926	1,926	1,976	1,975	2,025	Missing Data	2,415	2,415	2,240	2,240	2,111.00
Madina	2,129	2,158	2,158	2,308	2,357	2,580	2,647	2,768	2,768	2,818	2,818	2,500.82
Quseen	2,338	2,118	2,168	2,168	2,243	2,330	2,409	2,664	2,754	2,809	2,809	2,437.27
East Province	2,753	2,620	2,620	2,620	2,744	2,743	5,111	3,056	3,256	3,256	3,256	3,094.09
Alhasa	1,269	1,339	1,339	1,389	1,545	1,560	Missing Data	1,555	1,855	1,905	1,905	1,566.10
Heralbatin	428	439	439	489	514	500	Missing Data	1,000	1,000	1,000	1,000	680.90
Aseer	2,244	2,000	2,050	1,890	2,009	1,950	2,870	2,400	2,280	2,280	2,330	2,209.36
Bisha	445	465	465	675	805	770	Missing Data	770	770	770	770	670.50
Tabouk	944	951	951	1,001	1,122	1,125	1,125	1,170	1,170	1,220	1,770	1,140.82
Hail	903	939	939	939	1,062	1,095	1,095	1,125	1,175	1,175	1,175	1,056.55
North Boarder	633	750	750	750	950	910	910	1,010	1,010	1,310	1,310	935.73
Jazan	1,888	1,796	1,796	1,846	1,714	1,765	1,800	1,850	2,050	2,225	2,225	1,905.00
Najran	882	910	910	910	1,070	1,120	1,070	1,100	1,150	1,200	1,200	1,047.45
Albaha	1,053	1,119	1,119	1,119	1,030	1,045	1,035	1,085	1,125	1,165	1,165	1,096.36
Aljouf	695	742	792	842	842	785	1,350	860	1,280	1,280	1,330	981.64
Alqurayat	333	350	350	400	340	340	Missing Data	490	490	490	490	407.30
Qunfetha	150	150	150	150	150	200	Missing Data	200	200	350	350	205.00
TOTAL	31,877	31,420	31,720	33,277	34,370	34,450	35,828	38,970	40,300	41,297	41,835	35,940
Average per city	1,593.85	1,571.00	1,586.00	1,663.85	1,718.50	1,722.50	2,756.00	1,948.50	2,015.00	2,064.85	2,091.75	1,884.71

Table 3: Total number of hospital pharmacist/hospital.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Riyadh	3.43	6.075	7.76	7.57	8.34	8.978	8.565	9.340	10.57	10.72	14.36	8.70
Makkah	7.75	7.500	7.67	9.10	10.50	7.500	8.351	12.100	23.00	24.10	24.40	12.91
Jeddah	4.00	3.250	6.25	8.67	9.17	8.500	Missing Data	8.077	10.92	12.93	14.69	8.65
Taif	2.73	2.455	3.18	3.50	4.42	3.846	Missing Data	5.857	6.43	8.85	9.08	5.03
Madina	2.19	2.235	2.53	4.30	4.70	4.150	5.000	5.900	6.85	6.85	7.45	4.74
Quseen	2.38	3.688	4.41	4.82	6.35	5.706	4.611	6.333	7.56	7.50	9.06	5.67
East Province	2.94	4.778	5.11	5.74	8.67	8.500	8.625	9.111	9.39	10.61	10.94	7.67
Alhasa	5.25	3.375	4.25	5.11	6.56	6.000	Missing Data	6.333	6.20	8.20	9.10	6.04
Heralbatin	1.75	2.000	2.75	5.20	6.40	5.200	Missing Data	3.714	4.57	5.00	6.57	4.32
Aseer	1.11	2.278	2.79	4.50	6.94	6.875	6.074	7.333	8.15	9.05	9.50	5.87
Bisha	4.00	3.000	7.00	1.86	2.86	2.714	Missing Data	3.571	6.00	4.00	5.71	4.07
Tabouk	2.00	2.600	2.80	4.00	3.36	2.636	3.182	4.818	6.00	6.91	9.00	4.30
Hail	3.11	2.667	3.00	3.44	3.09	2.091	2.273	3.455	4.42	4.83	5.42	3.44
North Boarder	1.00	1.000	1.86	5.57	5.29	4.286	4.000	4.625	5.00	4.44	6.78	3.99
Jazan	2.73	2.933	3.33	5.81	6.33	5.278	5.474	5.300	6.10	6.43	7.19	5.17
Najran	0.70	3.111	5.78	5.89	6.27	5.091	5.900	6.400	7.90	9.00	10.09	6.01
Albaha	2.56	1.000	3.00	4.70	4.00	3.500	4.200	4.818	5.60	5.20	6.30	4.08
Aljouf	3.40	3.000	2.57	5.17	5.50	4.333	3.818	4.429	4.75	6.25	6.00	4.47
Alqurayat	5.50	2.667	2.00	4.50	5.00	4.000	Missing Data	4.500	5.50	6.25	7.00	4.69
Qunfetha	2.00	2.000	7.00	4.00	3.50	4.000	Missing Data	7.500	12.00	6.00	6.00	5.40
TOTAL	2.89	3.573	4.61	5.59	6.43	5.924	6.413	6.791	8.17	8.72	10.07	6.28
Average per city	3.03	3.08	4.25	5.17	5.86	5.16	5.39	6.18	7.85	8.16	9.23	5.76

Table 4: Total number of hospital pharmacist/bed.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Riyadh	0.024	0.041	0.054	0.048	0.051	0.055	0.323	0.055	0.063	0.064	0.085	0.078
Makkah	0.031	0.030	0.033	0.042	0.056	0.040	0.969	0.048	0.088	0.090	0.092	0.138
Jeddah	0.016	0.015	0.028	0.039	0.038	0.042	Missing Data	0.035	0.047	0.057	0.062	0.038
Taif	0.015	0.014	0.018	0.021	0.027	0.025	Missing Data	0.034	0.037	0.051	0.053	0.030
Madina	0.016	0.018	0.020	0.037	0.040	0.032	0.314	0.043	0.049	0.049	0.053	0.061
Quseen	0.016	0.028	0.035	0.038	0.048	0.042	0.382	0.043	0.049	0.048	0.058	0.072
East Province	0.018	0.033	0.035	0.042	0.057	0.056	0.611	0.054	0.052	0.059	0.061	0.098
Alhasa	0.033	0.020	0.025	0.033	0.038	0.035	Missing Data	0.037	0.033	0.043	0.048	0.035
Heralbatin	0.016	0.018	0.025	0.053	0.062	0.052	Missing Data	0.026	0.032	0.035	0.046	0.037
Aseer	0.009	0.021	0.026	0.038	0.055	0.056	0.526	0.064	0.071	0.079	0.082	0.093
Bisha	0.027	0.019	0.045	0.019	0.025	0.025	Missing Data	0.032	0.055	0.036	0.052	0.034
Tabouk	0.021	0.027	0.029	0.044	0.033	0.026	0.248	0.045	0.056	0.062	0.056	0.059
Hail	0.031	0.026	0.029	0.033	0.032	0.021	0.235	0.034	0.045	0.049	0.055	0.054
North Boarder	0.009	0.009	0.017	0.052	0.039	0.033	0.491	0.037	0.040	0.031	0.047	0.073
Jazan	0.022	0.024	0.028	0.050	0.067	0.054	0.427	0.057	0.062	0.061	0.068	0.084
Najran	0.008	0.031	0.057	0.058	0.064	0.050	0.654	0.058	0.069	0.083	0.093	0.111
Albaha	0.022	0.009	0.027	0.042	0.039	0.033	0.573	0.049	0.050	0.045	0.054	0.086
Aljouf	0.024	0.024	0.023	0.037	0.039	0.033	0.804	0.036	0.030	0.039	0.041	0.103
Alqurayat	0.033	0.023	0.017	0.045	0.044	0.035	Missing Data	0.037	0.045	0.051	0.057	0.039
Qunfetha	0.013	0.013	0.047	0.027	0.047	0.040	Missing Data	0.075	0.120	0.069	0.069	0.052
TOTAL	0.020	0.026	0.034	0.041	0.047	0.043	0.341	0.047	0.055	0.058	0.066	0.071
Average	0.020	0.022	0.031	0.040	0.045	0.039	0.504	0.045	0.055	0.055	0.062	0.083

Table 5: Total number of hospital pharmacist demand or required.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Average
Riyadh	1021.20	1041.80	1017.80	1063.20	1067.20	1060.40	1100.60	1148.40	1090.40	1083.40	912.40	1,055.16
Makkah	342.80	369.80	378.80	343.80	267.40	300.00	1077.60	383.40	294.40	291.80	288.80	394.42
Jeddah	552.60	501.00	478.00	426.00	463.00	380.00	Missing Data	493.60	456.60	459.60	427.20	463.76
Taif	364.40	378.20	373.20	353.20	342.00	355.00	Missing Data	401.00	393.00	333.00	330.00	362.30
Madina	390.80	420.60	416.60	375.60	377.40	433.00	429.40	435.60	416.60	426.60	414.60	412.44
Quseen	429.60	409.60	419.60	351.60	340.60	369.00	398.80	418.80	414.80	426.80	398.80	398.00
East Province	500.60	477.00	478.00	415.00	392.80	395.60	746.20	447.20	482.20	460.20	454.20	477.18
Alhasa	211.80	260.80	259.80	231.80	250.00	258.00	Missing Data	254.00	309.00	299.00	290.00	262.42
Heralbatin	78.60	86.80	82.80	71.80	70.80	74.00	Missing Data	174.00	168.00	165.00	154.00	112.58
Aseer	428.80	386.00	395.00	306.00	290.80	280.00	410.00	326.00	293.00	275.00	276.00	333.33
Bisha	77.00	88.00	82.00	122.00	141.00	135.00	Missing Data	129.00	112.00	126.00	114.00	112.60
Tabouk	168.80	179.20	179.20	156.20	187.40	196.00	190.00	181.00	168.00	168.00	255.00	184.44
Hail	152.60	181.80	181.80	156.80	178.40	196.00	194.00	187.00	182.00	177.00	170.00	177.95
North Boarder	120.60	149.00	145.00	111.00	153.00	152.00	154.00	165.00	162.00	222.00	201.00	157.69
Jazan	336.60	351.20	349.20	276.20	228.80	258.00	256.00	264.00	282.00	310.00	294.00	291.45
Najran	169.40	171.00	167.00	129.00	145.00	168.00	155.00	156.00	151.00	141.00	129.00	152.85
Albaha	187.60	220.80	211.80	176.80	166.00	174.00	165.00	164.00	169.00	181.00	170.00	180.55
Aljouf	122.00	139.40	148.40	137.40	135.40	131.00	228.00	141.00	218.00	206.00	212.00	165.33
Alqurayat	55.60	70.00	70.00	62.00	53.00	56.00	Missing Data	80.00	76.00	73.00	70.00	66.56
Qunfetha	28.00	30.00	30.00	26.00	23.00	32.00	Missing Data	25.00	16.00	46.00	46.00	30.20
TOTAL	5739.40	5912.00	5864.00	5291.40	5273.00	5403.00	5504.60	5974.00	5854.00	5870.40	5607.00	5,662.98
Average per city	286.97	295.60	293.20	264.57	263.65	270.15	423.43	298.70	292.70	293.52	280.35	296.62

Table 6: Hospital Pharmacist for demand of years 2016-2030.															
Region	Years														
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Riyadh	1,587.40	1,627.72	1,669.06	1,711.46	1,754.93	1,799.50	1,845.21	1,892.08	1,940.14	1,989.42	2,039.95	2,091.76	2,144.90	2,199.38	2,255.24
Makkah	532.8	546.33	560.21	574.44	589.03	603.99	619.33	635.06	651.19	667.73	684.70	702.09	719.92	738.21	756.96
Jeddah	618.2	633.90	650.00	666.51	683.44	700.80	718.60	736.86	755.57	774.76	794.44	814.62	835.31	856.53	878.28
Taif	448	459.38	471.05	483.01	495.28	507.86	520.76	533.99	547.55	561.46	575.72	590.34	605.34	620.71	636.48
Madina	563.6	577.92	592.59	607.65	623.08	638.91	655.14	671.78	688.84	706.34	724.28	742.67	761.54	780.88	800.71
Quseen	561.8	576.07	590.70	605.71	621.09	636.87	653.04	669.63	686.64	704.08	721.96	740.30	759.10	778.39	798.16
East Province	651.2	667.74	684.70	702.09	719.93	738.21	756.96	776.19	795.90	816.12	836.85	858.11	879.90	902.25	925.17
Alhasa	381	390.68	400.60	410.78	421.21	431.91	442.88	454.13	465.66	477.49	489.62	502.06	514.81	527.88	541.29
Heralbatin	200	205.08	210.29	215.63	221.11	226.72	232.48	238.39	244.44	250.65	257.02	263.55	270.24	277.10	284.14
Aseer	466	477.84	489.97	502.42	515.18	528.27	541.68	555.44	569.55	584.02	598.85	614.06	629.66	645.65	662.05
Bisha	154	157.91	161.92	166.04	170.25	174.58	179.01	183.56	188.22	193.00	197.90	202.93	208.08	213.37	218.79
Tabouk	354	362.99	372.21	381.67	391.36	401.30	411.49	421.95	432.66	443.65	454.92	466.48	478.32	490.47	502.93
Hail	235	240.97	247.09	253.37	259.80	266.40	273.17	280.11	287.22	294.52	302.00	309.67	317.53	325.60	333.87
North Boarder	262	268.65	275.48	282.48	289.65	297.01	304.55	312.29	320.22	328.35	336.69	345.25	354.01	363.01	372.23
Jazan	445	456.30	467.89	479.78	491.96	504.46	517.27	530.41	543.88	557.70	571.86	586.39	601.28	616.56	632.22
Nejran	240	246.10	252.35	258.76	265.33	272.07	278.98	286.06	293.33	300.78	308.42	316.26	324.29	332.53	340.97
Albaha	233	238.92	244.99	251.21	257.59	264.13	270.84	277.72	284.78	292.01	299.43	307.03	314.83	322.83	331.03
Aljouf	266	272.76	279.68	286.79	294.07	301.54	309.20	317.06	325.11	333.37	341.83	350.52	359.42	368.55	377.91
Alqurayat	98	100.49	103.04	105.66	108.34	111.09	113.92	116.81	119.78	122.82	125.94	129.14	132.42	135.78	139.23
Qunfetha	70	71.78	73.60	75.47	77.39	79.35	81.37	83.44	85.55	87.73	89.96	92.24	94.58	96.99	99.45
TOTAL	8,367.00	8,579.52	8,797.44	9,020.90	9,250.03	9,484.98	9,725.90	9,972.93	10,226.25	10,485.99	10,752.34	11,025.45	11,305.49	11,592.65	11,887.11

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CONFLICT OF INTEREST

None.

ABBREVIATION USED

KSA: Kingdom of Saudi Arabia; MOH: Ministry of Health;

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