

COST OF HEALTH SERVICES

10.1. COST OF HEALTH SERVICES UTILISATION IN THE IMSS

The total annual cost of the health services delivered to this group of people in the IMSS in the D.F. in 1996 was MX\$ 2,008,370,910 or nearly USD\$ 255 million (Table 10.1). The average annual cost of health services per elderly person in the IMSS in the D.F. was 3,398 Mexican Pesos^a (MX\$) or equivalent to 431 American Dollars (USD\$).^b If non-users are excluded the average cost was 4,839 MX\$ (USD\$614).

The lowest average and total cost were observed in the first level of care (FMUs), with a total cost of MX\$ 364,083,720 (USD\$ 46.2 million) and an average cost per person of MX\$ 616 (USD\$ 78).

The highest average and total cost was observed in CMNs, with 64% of the total annual cost being spent in this level of care. 78% of the total cost in medical centers (MX\$1,375,952,760 equivalent to USD\$ 174 million) was for external consultations and 22% for hospitalisations. However, the cost of hospitalisation per case at this level of care for users was the highest when comparing all the levels and services in IMSS.

Variables predicting the cost in the IMSS are a mixture of those that predicted the cost of each level of care. The cost was higher among pensioners, those who had liver cirrhosis, cancer, or diabetes; those who died or presented with a new chronic disease during the following-up period; those who had to stay in bed or at home because of health problems or had a higher number of chronic diseases (Table 10.2).

^a Mexican Pesos in 1996.

^b Exchange rate on 31st. December 1996 (13.39 Mexican Pesos per one Sterling Pound and 7.88 Mexican Pesos per USA Dollar). Source: Classic 164 Currency Converter. <http://www.oanda.com/converter/classic> (21/10/99).

Table 10.1
Annual cost in different health services in the IMSS in the DF in 1996
(591,045 cases)

<i>Services</i>	<i>Mean</i>	<i>Mean*</i>	<i>Mexican Pesos</i>	<i>USA-Dollars</i>
FMUs				
External consultation	396	796	234,053,820	29,702,261
Emergency services	220	766	130,029,900	16,501,256
Total cost	616	926	364,083,720	46,203,517
HGZs				
External consultation	317	1,136	187,361,265	23,776,810
Emergency services	131	1,290	77,426,895	9,825,748
Hospitalisation	270	7,746	159,582,150	20,251,542
Total cost	718	1,987	424,370,310	53,854,100
CMNs				
External consultation	1,829	13,234	1,081,021,305	137,185,445
Hospitalisation	499	15,545	294,931,455	37,427,850
Total cost	2,328	16,098	1,375,952,760	174,613,294
IMSS				
External consultation	2,487	3,886	1,469,928,915	186,539,202
Emergency services	142	1,233	83,928,390	10,650,811
Hospitalisation	769	11,795	454,513,605	57,679,391
Total cost	3,398	4,839	2,008,370,910	254,869,405

* Adjusted using only people who used health services.

10.2. COST OF HEALTH SERVICES UTILISATION FOR DIFFERENT HEALTH CONDITIONS

Figure 10.1 presents the average annual cost of health services delivered to elderly subjects. As given above, the average annual cost per elderly subject was MX\$3,398 (USD\$ 431). If they reported a chronic disease at their first interview independently of other characteristics the cost was MX\$3,802 (USD\$482) but it was MX\$1,555 (USD\$197) for no chronic disease. This differential was even more marked per number of chronic diseases. If they died during the follow-up period the cost increased to MX\$9,305 (USD\$1180), compared to MX\$3,544 (USD\$ 450), if they survived the period.

If the subjects presented one chronic disease, died during the period and presented at least an acute disease or a poisoning episode the cost increased to MX\$11,936 (USD\$1515) and MX\$24,612 (USD\$3123) respectively; three to six times the average cost for any subject within the population.

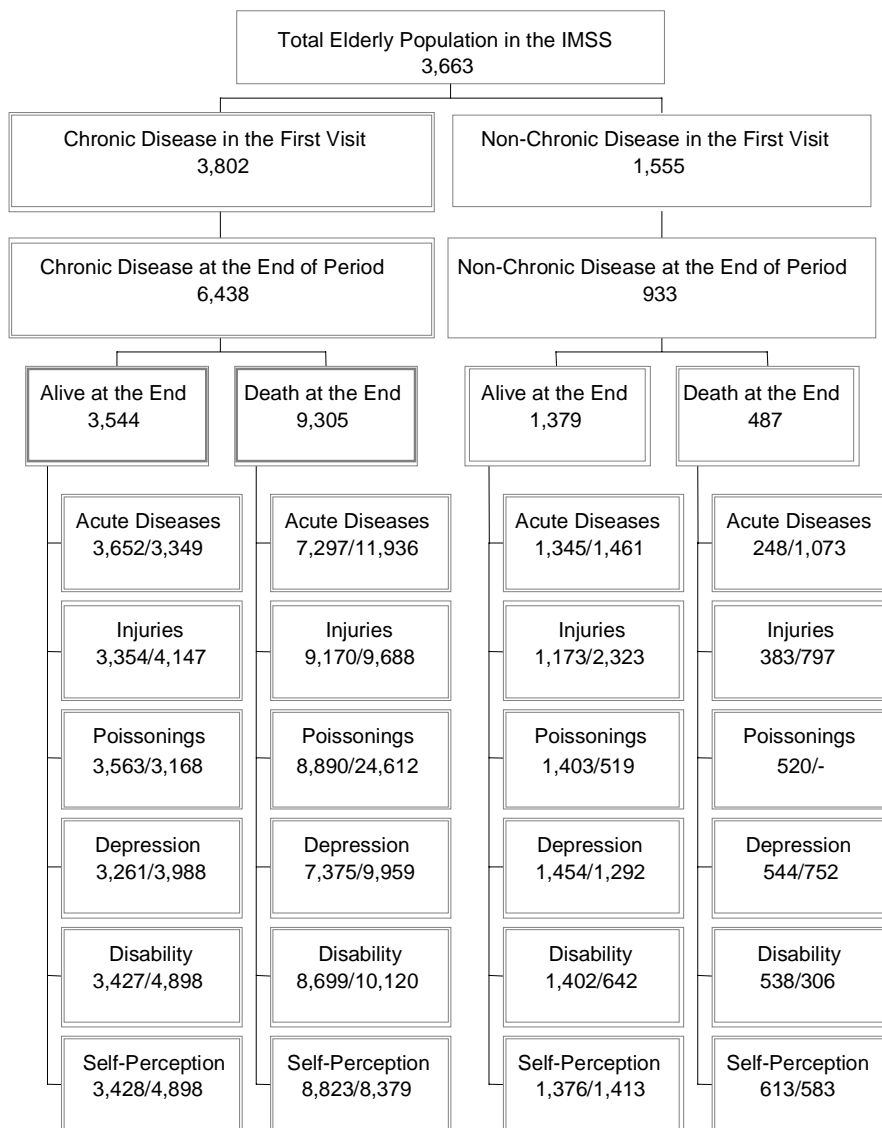
Table 10.2
Multiple linear regression of variables predicting the annual total cost

<i>Variables</i>	<i>Non-standardised Coefficients</i>		<i>Standardised Coefficients</i>		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
(Constant)	1127.032	491.523		2.293	.022
Liver cirrhosis diagnosed	6741.286	1947.438	.046	3.462	.001
Cancer diagnosed	6340.274	1316.830	.064	4.815	.000
Death during following up	4314.977	942.894	.062	4.576	.000
New chronic diseases	2490.953	548.777	.061	4.539	.000
Days in bed because of health problems	1970.857	477.747	.070	4.125	.000
Staying at home because of health problems	1388.058	465.672	.050	2.981	.003
Total number of chronic diseases	1093.147	307.727	.051	3.552	.000
Diabetes mellitus	944.151	436.590	.030	2.163	.031
Type of insurance	-260.168	111.839	-.031	-2.326	.020

The average annual cost was also higher if they had a chronic disease and were mentally depressed, independently if they had died in the following up period or not.

The cost of health services received by subjects with disability was higher among those with chronic diseases and especially those who died in the period. Interestingly there were no differences in the average annual cost according to self-perceptions of health among the elderly in any of the subgroups in Figure 10.1.

Figure 10.1
Average annual cost (Mexican Pesos) of health services used by the elderly population in IMSS in the Mexico City Delegations, 1996-97



Elderly subjects who did not present the characteristic/subjects who presented it

In general terms, the highest costs were observed for those subjects who were chronically ill and died during the following-up period. It was particularly high among those who also presented acute diseases and disability problems during the observation period.

10.3. COST OF HEALTH SERVICES FOR CHRONIC DISEASES

Table 10.3 presents the average annual cost per patient and the total cost (product of the annual average cost by number of elderly subjects with that diagnosis) in a year for the institution by diagnosis and level of care. Total figures cannot be added since one patient may be counted as having several diagnoses. In fact most subjects had more than one chronic disease.

The annual total average cost per person for was higher among patients with glaucoma, cancer and liver cirrhosis while the annual total cost was higher for those patients with HBP, diabetes mellitus, and arthritis. The same group of diseases had the highest cost in the third level of care (CMNs) and diabetes and HBP had the highest total annual cost in each level of care.

As an illustration of the added cost for multiple diagnoses, table 10.4 presents the average annual health services cost for patients with diabetes. Cost for patients without any other disease was MX\$3,838 while cost for patients also having HBP was MX\$ 4,067 and with other diseases the cost was MX\$ 5,157.

The cost for health services for diabetic elderly subjects increased according to the number of additional chronic diseases they reported. The cost for the same group of patients was also higher if they needed help to develop ADLs, (MX\$ 4,981 compared to MX\$ 6486 for no help versus help required).

If the diabetic patient died during the following-up period the cost was MX\$ 7,638 while if they survived the cost was MX\$ 4,969.

Finally if the elderly person was depressed in the last evaluation (GSD10) the cost was 5,432 MXP (407 SP) while it was 4,934 MXP (370 MP) if they were not.

Table 10.3
Annual average cost per patient and total annual cost (Mexican Pesos)
for chronic diseases at different levels in IMSS (1996)

<i>Diseases</i>	<i>UMFs</i>	<i>HGZs</i>	<i>CMNs</i>	<i>IMSS</i>
Angina Pectoris ^c	773	427	1,459	2,660
	8,111,862	4,480,938	15,310,746	27,914,040
Arthritis	667	658	3,200	4,525
	63,967,968	63,104,832	306,892,800	433,965,600
Asthma	1,025	2,321	2,927	6,273
	10,957,250	24,811,490	31,289,630	67,058,370
Biliary Calculi	663	891	2,602	4,156
	39,153,465	52,618,005	153,661,110	245,432,580
Cancer	470	1,042	7,654	9,166
	4,809,040	10,661,744	78,315,728	93,786,512
Cardiac Failure	834	950	4,300	6,083
	29,007,354	33,041,950	149,558,300	211,572,823
Cataracts	746	1,020	3,176	4,942
	52,930,402	69,843,480	217,473,424	338,398,508
Chronic Bronchitis	773	1,068	2,105	3,947
	34,813,601	48,099,516	94,802,885	177,761,039
Depression	861	1,074	5,666	7,600
	19,418,994	24,222,996	127,790,964	171,410,400
Diabetes mellitus	663	1,044	2,993	4,700
	87,201,738	137,313,144	393,657,318	618,172,200
Gastric ulcer	568	801	3,490	4,859
	11,481,552	16,191,414	70,546,860	98,219,826
Gastritis	639	800	2,435	3,874
	66,525,012	83,286,400	253,502,980	403,314,392
Glaucoma	856	1,029	9,569	11,454
	7,852,088	9,439,017	87,776,437	105,067,542
Gout	596	1,112	1,061	2,769
	9,673,080	18,047,760	17,220,030	44,940,870
Hemiplegia	594	568	1,306	2,468
	2,880,306	2,754,232	6,332,794	11,967,332
High Blood Pressure	545	854	2,403	3,801
	127,528,910	199,834,292	562,297,194	889,426,398
Hypercholesterolaemia	832	815	3,582	5,229
	51,024,064	49,981,505	219,673,314	320,678,883
Liver Cirrhosis	464	1,975	5,744	8,184
	10,965,712	46,675,175	135,747,952	193,412,472
Myocardial Infarct	854	1,208	4,663	6,725
	4,270,825	6,674,200	25,763,075	37,155,625
Other heart diseases	829	1,620	3,967	6,415
	28,397,395	55,493,100	135,889,585	219,745,825
Paraplegia	1074	1,554	1,336	3,963
	3,188,625	6,410,250	5,511,000	16,347,375
Parkinson's Disease	871	520	4,042	5,433
	4,836,663	2,887,560	22,445,226	30,169,449
Prostatic Hypertrophy	625	1,060	3,658	5,342
	23,936,875	40,596,940	140,097,742	204,593,258
Pulmonary Emphysema	749	1,745	4,229	6,723
	14,063,224	32,764,120	79,403,704	126,231,048
Renal failure	615	1,587	3,858	6,059
	5,617,410	14,495,658	35,238,972	55,342,906
Thrombosis	767	849	2,901	4,517
	30,105,517	33,324,099	113,867,151	177,296,767
Urinary Calculi	761	1,087	1,854	3,701
	11,967,486	17,094,162	29,156,004	58,201,926
Varicose ulcers in legs	720	1,161	3,415	5,296
	16,545,600	26,679,780	78,476,700	121,702,080
TOTAL	781,232,018	1,130,827,759	3,587,699,625	5,499,286,046

^c The first row for each diagnosis is the average cost per case and the second row is the total annual cost in MX\$.

Table 10.4
 Cost of health care for patients with Diabetes mellitus and
 other characteristics in Mexican Pesos

<i>Characteristics</i>	<i>FMUs</i>	<i>HGZs</i>	<i>CMNs</i>	<i>IMSS</i>
Other chronic diseases				
No	1,071	466	2,301	3,838
With HTA	1,003	1,240	1,824	4,067
With any other (s)	1,120	1,044	2,993	5,157
Number of chronic diseases				
1-3	1,078	669	2,005	3,753
4-6	1,160	1,468	3,533	6,160
7 or more	1,461	3,702	13,588	18,752
ADL				
Without help	1,124	961	2,895	4,981
With help	1,089	1,668	3,729	6,486
Died in the period				
No	1,147	971	2,851	4,969
Yes	760	2,005	4,873	7,638
Depression				
No	1,094	872	2,968	4,934
Yes	1,169	1,197	3,066	5,432

10.4. SUMMARY

1. The highest total cost of health services in IMSS was observed in Medical Centers.
2. More than three quarters of the cost was generated in the external consultation services with two thirds of them being spent in the third level of care.
3. The average per capita cost of health services was higher in the external consultation in the third level. Although this cost has two components: the cost per encounter and the number of them, the latter is the most important considering the results in the utilisation chapter (45 encounters in average per person per year in this level of care).

4. Considering only those who used health care facilities the per capita average annual cost of hospitalisation was higher than other services in the second level of care. The gap between the cost of hospitalisation and the cost of external consultation in the third level of care practically disappeared.
5. Health conditions such as diabetes, cancer and liver cirrhosis, the severity of the chronic conditions and the death in the follow-up period increased the total annual cost of health services.
6. The cost of chronic diseases increased if other conditions (depression, disability, acute diseases, injuries, poor self-perception of health, or death) were added to the original problem.
7. Although the cost of health services used by elderly people who died during the follow-up period was higher, the maximum cost was observed only in those with a chronic disease diagnosed before or during the follow-up period.
8. Diabetes mellitus and HBP were the diseases with the highest total annual cost in the three levels of care.
9. Cancer and glaucoma were the chronic conditions with the highest average annual per capita cost.
10. The cost of the health services was higher when any type of co-morbidity was present .
11. The cost did not increase in family medicine units when people died during the follow-up period, but it was almost double in the second and third levels.