Changes in Drug Economy in Israel's Health Maintenace Organizations in the Wake of the National Health Insurance Law

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Abstract

Background: It is not clear to what extent the drug economy in Israel's health maintenance organizations is responsive to major healthcare reforms.

Objective: To provide information on how drug expenditures, revenues, net costs and drug utilization have changed in the wake of the 1995 National Health Insurance Law in Israel.

Methods: This study compares trends in aggregate sick fund expenditures, revenues (patient co-payment) and net costs (expenditures less revenues) in Israel's four health maintenance organizations for the 3 year period 1992–1994 prior to the introduction in 1995 of the NHI Law, with that of the 4 year period 1995–1998 following its introduction. This analysis is similarly carried out for Israel's largest HMO, Clalit Health Services, and for the three smaller HMOs combined.

Results: The pace of growth in the pre-NHI era in drug expenditures and particularly in drug revenues was drastically reduced in the NHI era – whether measured as totals or as per insured person (age-adjusted) or in real terms at constant medicine prices. These trends were mirrored to a large extent in Clalit and in the other HMOs, with some important differences noted between the HMOs. Despite declining growth rates in drug expenditures and net costs, the proportion of these measures of the total HMO economy actually increased in the NHI era, reversing the trend seen in the pre-NHI era.

Conclusions: The impact of the NHI Law on the HMO drug economy has been substantial. The evidence suggests a decline in both the qualitative (basket of drugs consumed) and quantitative (volume of drugs consumed) elements of growth. These changes in expenditure and revenue trends are discussed in the light of the evolving involvement of the Israel Ministry of Health in drug policy within the framework of the NHI, with emphasis on the basket of drugs reimbursed and co-payments for prescriptions.

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Policy makers need information on how drug expenditures, revenues, net costs and drug utilization have changed in the wake of the National Health Insurance Law and other recent reforms, in order to make informed decisions on a variety of policy levers, including modifications to budget ceilings, to the basket of drug products reimbursable under the NHI, and to prescription co-payments. In the absence of any other basic aggregate data (e.g., volume, value, and prices of prescriptions), this type of data – its analysis, and its interpretation in the context of reforms – is currently the only quantitative analytical tool at the disposal of policy analysts and policy makers.

At the time NHI was introduced, it was arguable whether drug expenditure in Israel could be reduced. According to international standards on the one hand, the per capita expenditure on drugs in Israel is not high, around the lower level of the range seen in Europe [1]. On the other hand, long-term trend analysis of drug expenditure data before NHI during the 1970s and 1980s clearly showed that Israel had a high rate of growth in per capita expenditure [1,2]. This growth was driven chiefly by qualitative changes in the mix of drugs consumed, i.e., from the introduction of new products and their ready acceptance by doctors, health maintenance organizations and patients [2].

The main emphasis of this study of trends during the 1990s in the HMO drug economy is a comparison of trends in growth rates in the NHI period (1995–98) with that of the pre-NHI period (1992–94). In interpreting these findings, consideration is given to whether the changes in expenditures can be attributed to the introduction of NHI. In this context, of particular significance is the fact that there was virtually no update (only one drug for multiple sclerosis) of the reimbursable drug basket in the first 3 years of operation of the NHI. In 1998 the update was mainly for drugs used in the hospital and not in the community, which is where most drug utilization and expenditure takes place [1,2] and the subject of this study. Another issue

NHI = National Health Insurance
HMO = health maintenance organization

addressed here is the extent to which the HMOs overall were able to adjust themselves to their changing finances (increasing health care expenditures, declining resources, or both) by raising more revenue from drugs. This will be examined both by analyzing trends in revenues and in net costs (drug expenditures less revenues) and by examining the ratio of drug revenues to drug expenditures.

One of the factors that led to the introduction of NHI was the continuously grave economic situation of Clalit, Israel's largest HMO and the dominant force in overall drug economy and drug utilization. Furthermore, during the 1990s, Clalit suffered a significant decline in its market share of the total number of insured persons. The introduction of NHI, with the more equitable allocation of financial resources between the HMOs, was of benefit to Clalit but detrimental to the others. This study also provides a sub-analysis of trends in the drug economy of both Clalit and the other HMOs combined (Meuhedet, Leumi, and Maccabi).

Lastly, with drugs representing only a minor part of the total HMO economy, this study also looks at whether the share of the drug economy in the total HMO economy changed in the era of NHI, in the aggregate, in Clalit and in the other HMOs.

Methods

The calculations and analyses presented here for the period 1992–98 are based on data whose source is the audited financial statements of the four HMOs, which are submitted to the Ministry of Health. A series of adjustments are then made by the Ministry and its appointed auditors in order to ensure a greater degree of comparability between different years and between HMOs [3–5]. However, in order to avoid the pitfalls associated with comparing data from different HMOs, this study analyzes only *trends* before and after the introduction of NHI.

The data and findings in this study relate to expenditures and revenues on drugs and disposable medical supplies in the community only, excluding hospitals. In the community, most of this item of expenditure is accounted for by drugs (>90%) [2]. Data on Clalit relate to its role as an insurer only (like the other HMOs), excluding drug expenditure incurred in the hospitals it owns.

The analysis is concerned with trends in the HMO drug economy in aggregate, in Clalit and in the three other HMOs combined. The analysis of trends is firstly carried out for total drug expenditures, total drug revenues, and total net costs (expenditures less revenues) on drugs. Per capita expenditures/revenues/net costs were then analyzed in terms of age-adjusted insured persons. In calculating this, the number of insured is corrected on the basis of weights used to calculate the capitation formula in the framework of the NHI law and used to allocate NHI revenues to each of the HMOs. In this formula the age of the insured is taken into account. A further analysis of trends in these measures was also carried out in real terms, i.e., at constant medicine prices. To convert nominal values into real terms, the values were deflated by the Drugs and Medical Supplies Consumer Index, published monthly by the Central Bureau of Statistics [6].

The average annual growth for changes in expenditures, revenues and net costs were calculated for two periods: 1992–94 and 1995–98. Other pre-versus post-NHI studies used 1994 as the base year for comparison [4,7]. However, 1994 was an exceptional year as both expenditures (mainly due to salary rises) and revenues (mainly due to a large subsidy to Clalit) were unusually high. The approach used here of calculating multi-year trends, smoothing out most of the year-by-year fluctuations before and after the introduction of NHI, is intended to give a clearer picture of the impact of this major health care reform on the drug economy. Furthermore, this method, based on comparing trends in 1992–94 vs. 1995–98, eliminates completely the abrupt and short-term changes seen in the immediate transition period 1994 to 1995 [4].

The data analyzed in this study relate to the total HMO drug economy including the relatively small part on the provision of drugs outside the framework of the NHI, which may or may not be linked to supplementary insurance. For instance, HMOs are free to include in their formularies drugs not included in the NHI drug basket. Usually, these involve an extra co-payment by the recipient and may be conditional upon the recipient having supplementary insurance. From these financial reports it is not possible to disaggregate drug expenditure and revenues derived from drugs outside the NHI basket and from supplementary health insurance.

Results

Changes in the number of insured (age adjusted): 1995–98 vs. 1992–94

The annual growth in the number of insured since the introduction of NHI (2.9% per annum) has been slightly less than half the growth prior to NHI (5.95% p.a.). Since the introduction of NHI, which facilitated the transfer of membership between HMOs, Clalit shows negligible growth in its number of insured (0.6 vs. 4.2% per year pre-NHI), whereas the other HMOs together showed steady and substantial growth in both periods (11.7% p.a. post-NHI, 10.6% p.a. pre-NHI).

Trends in the HMO drug economy: 1995–98 vs. 1992–94

- **Changes in gross expenditure** [Table 1]: The growth in aggregate expenditure post-NHI was just over half the growth rate seen pre-NHI. Likewise, the growth in expenditure per insured in real terms (i.e., at constant medicine prices) in the NHI era was far less than in the pre-NHI era. These trends were seen both in Clalit and in the three other HMOs combined. However, the decline in growth in expenditure per insured was particularly striking in the three HMOs, both in nominal and real terms. While these funds had a higher per capita growth

p.a. = per annum

Table 1. Trends in drug expenditure, revenue and net costs* in the HMOs: 1995–98 vs. 1992–94 (average annual growth, %)

	Total		Per standard insured		Per standard insured (real terms)	
	1992–94	1995–98	1992–94	1995–98	1992–94	1995–98
Changes in gross expenditure						
HMO aggregate	28.0	15.8	20.8	12.55	11.0	4.8
Clalit	24.4	13.4	19.5	12.8	9.8	5.15
3 HMOs	34.0	19.3	21.1	10.9	11.3	3.3
Changes in revenue	34.5	15.6	27.0	12.3	16.7	4.7
HMO aggregate	36.1	14.5	30.85	13.85	20.2	6.1
Clalit	31.2	17.85	18.6	9.5	9.0	2.0
3 HMOs						
Changes in net costs*						
HMO aggregate	25.5	15.9	18.5	12.7	8.85	5.0
Clalit	19.3	12.8	14.6	12.2	5.2	4.6
3 HMOs	35.1	19.8	22.1	11.3	12.1	3.8

* Net cost is gross drug expenditure less drug revenues.

Table 2. Ratio of drug revenues to drug expenditures (%)

	1992	1994	1995	1997	1998
HMO aggregate	27.2	30.1	32.8	30.7	32.6
Clalit	29.0	34.8	36.9	35.6	37.9
3 HMOs	24.1	23.1	26.4	23.8	25.4

Table 3. Share of drugs in total HMO economy (%)

	1992	1994	1995	1997	1998
Gross expenditure on drugs as % of HMO expenditure					
HMO aggregate	15.5	14.3	14.7	16.75	17.55
Clalit	13.95	12.6	13.35	15.4	15.0
3 HMOs	19.1	17.9	17.3	19.4	19.6
Net costs on drugs as % of HMO expenditure	11.3	10.0	9.9	11.6	11.8
HMO aggregate	9.3	8.2	8.4	9.9	9.3
Clalit	14.5	13.8	12.7	14.8	14.6
3 HMOs					

rate than Clalit in the pre-NHI era, this trend was reversed following the introduction of NHI.

- **Changes in revenue** [Table 1]**:** The growth in aggregate revenues and revenues per insured in the NHI era was less than half the pre-NHI growth rate. In real terms, the decline in the growth in revenues per insured was even more striking than the decline in expenditure. These trends were seen both in Clalit and in the three other HMOs combined. In the NHI era, the growth in revenues per insured in real terms in the latter was only one-third of that in Clalit. It is notable that the growth rates in revenues were almost identical to the growth rates in expenditures in the NHI era (both totals and per insured), unlike in the pre-NHI era when the growth in revenues exceeded that of expenditures, particularly in real terms. This applied both to the aggregate and to Clalit, but not to the three other HMOs whose growth rates in revenues have been consistently less than in expenditure, before and after the introduction of NHI [Table 1].
- **Changes in net costs** [Table 1]: The changes seen above for gross expenditures and revenues were repeated for net costs (gross expenditures less revenues) when comparing the NHI period and the pre-NHI period. The post-NHI decline in growth rates in net costs was more moderate. In the case of Clalit there was even a similar degree of growth in its per capita net costs in both periods. However, in the other HMOs the decline in per capita net costs was as drastic for per capita expenditure and revenue.

Ratio of drug revenues to drug expenditures

The ratio of drug revenues to drug expenditures was around 27–30% pre-NHI and 31–33% in the NHI era [Table 2]. Clalit's ratio was considerably higher than the ratio of the other HMOs: by 1998, almost 38% of Clalit's drug expenditures were being financed by drug revenues compared to just over 25% for the others combined.

Share of drugs in the total HMO economy

In the pre-NHI era, the share of total HMO expenditure accounted for by the gross expenditure on drugs was on the decline, reaching a low in 1994 [Table 3]. In the NHI era this trend was reversed so that by 1998 drug expenditure represented 17.6% of total HMO expenditures. The overall trend seen in the share accounted for by net costs on drugs out of total HMO expenditure was similar to that for gross expenditure except that the changes were more moderate [Table 3]. As a result, in 1998 the share of net costs (11.8%) had reverted to more or less the same proportion as in 1992 after reaching a low in 1994 and 1995.

These patterns were also seen in Clalit and the other HMOs, except that in 1998 Clalit's share declined slightly. As expected, the share of total expenditure at Clalit accounted for by drugs is lower than for the other HMOs – testimony to its size and its ability to get the lowest prices in the drug market. The low share of aggregate net costs both before and in the NHI era reflects mainly the particularly low share (about 9%) that drugs account for total expenditure in Clalit as compared to the other HMOs (about 14%) [Table 3].

Discussion

With the introduction of NHI, for the first time 250,000–300,000 people (about 5% of the population) had access to NHI and to associated drug benefits. The findings here show that the growth rate in drug expenditure declined in the NHI era. This

could be due to the fact that many of the newcomers to public health care services were new immigrants and from minorities (Israeli Arabs, East Jerusalem residents) who are relatively low consumers of health services, although some survey data suggest that these groups tend to increase their utilization with time [8,9].

The decline in the growth rate of aggregate drug expenditure in the NHI era was particularly steep when measured in terms of per insured person and at constant medicine prices, from 11% pre-NHI to 4.8% p.a. in the NHI era. An analysis of trends for 1998 vs. 1997 showed that the decline in the growth in expenditure even gathered pace in 1998 (1.4% p.a.) [10]. In contrast, earlier long-term studies covering the period mid-1970s to 1989/90 showed that this measure of growth was remarkably stable, similar to the rate of growth seen here for 1992–94 [1,2]. Clearly the NHI era is witness to a major and quite abrupt decline in this measure of per capita drug utilization in real terms. In effect, this means a decline in the combination of the qualitative (basket of drugs consumed) and quantitative (volume) elements of growth in individual drug utilization. The earlier studies showed that qualitative changes were the major driver of growth [1,2].

A significant contribution to this steep decline in individual utilization in real terms was most likely the virtual freeze in updating the reimbursable drug basket during 1995–98. The fact that the decline in growth continued to gain pace in 1998 [10] is indicative of the cumulative effects of 4 years of this policy. Some of the new drugs not added to the NHI drug basket were nevertheless included in some or all of the HMO formularies. However, access was affected by the imposition of higher co-payments and other administrative obstacles, and in some cases access to these drugs was subject to supplementary insurance.

The lack of essential data on volume utilization (e.g., prescription numbers) precludes a calculation of the relative contributions of these qualitative and quantitative elements of growth to the decline in growth rates seen in the NHI era. It is possible that the addition of low-utilizing newcomers to the ranks of the insured population may have contributed more to a decline in the quantitative element, i.e., a lowering of the average volume of drugs consumed. Furthermore, the steep rise in co-payments seen on the eve of the NHI Law (end-1994) and, to a lesser extent in late 1998, probably led to a lowering of individual drug utilization, particularly among weaker socio-economic groups. The assumption is that raising co-payments will have more impact on volume utilization (a patient's decision to forego a visit or prescription) than on qualitative utilization (a doctor's decision to forego a more expensive/newer form of treatment). Thus, changes both in co-payment and reimbursement (basket) policies may have contributed to a decline in both quantitative and qualitative elements of growth, respectively, in individual drug utilization.

The decline in the pace of growth in the drug economy during the NHI era was seen in Clalit as well as in the other HMOs. In terms of total expenditures, revenues and net costs, the smaller HMOs had higher growth rates than Clalit in the NHI era. Consequently, Clalit's share of total expenditures and revenues has declined, although as Table 4 shows, this is a continuation of the trend before NHI. However, when the growth rates are adjusted for the increases in membership, the growth rate in all three parameters during the NHI era was less than in Clalit (particularly for revenues). Thus, it would appear that the smaller HMOs responded well to the changing and challenging financial circumstances brought on by the NHI at the same time as their membership base continued to grow.

Clalit's relative position vis a vis the average *levels* of per capita expenditure and revenues is illustrated in Table 4. It can be seen that Clalit has closed the gap between it and the higher level of average per capita expenditure. On the other hand, on the per capita revenue side, Clalit had overtaken the average level by 1994 and continued to do so during the NHI era, a trend quite opposite to that seen for the other HMOs.

It is clear that the health maintenance organizations, both before NHI and in the NHI era, were looking to increase their revenues from drugs and that Clalit was particularly successful in this. On aggregate, the proportion of revenues out of expenditures (> 30%) is much higher than the typical co-payment of 10% (pre-1998) or 15% (from late 1998) of list prices levied by most of the HMOs. This is indicative of large discounts given to the HMOs, particularly Clalit, and that actual market prices in Israel are well below list prices. The important development in the NHI era is that HMOs require approval from the Ministry of Health and authorization from a Knesset parliamentary committee (which oversees functioning of the NHI) before they can increase co-payments.

Table 4. Israel's drug economy: breakdown by Clalit and the other HMOs (selected years)

	1992	1994	1998
Share of total (%) of:			
Insured (age-adjusted)			
Clalit	73.2	70.8	63.5
3 HMOs	26.8	29.2	36.5
Drug expenditure			
Clalit	63.3	59.8	57.1
3 HMOs	36.7	40.2	42.9
Drug revenue	67.5	72.2	66.6
Clalit	32.5	27.8	33.4
3 HMOs			
Comparison of levels (per age-adjusted insured, average 1.00) of:			
Drug expenditure	0.865	0.85	0.90
Clalit	1.23	1.22	1.13
3 HMOs			
Drug revenue	0.92	1.02	1.05
Clalit	1.17	0.95	0.90
3 HMOs			

Despite the virtual freeze in updating the NHI drug reimbursement basket and the significant decline in the growth pace of drug expenditures, the share of drug expenditure in the overall health insurance economy actually rose in the NHI era. This followed a dip in 1994–95, which presumably reflected the rise in salaries in the healthcare sector in 1994. The growth in the share of drugs in the NHI era is possibly an indirect result of capping in hospital expenditure and stability in salaries. However, this growing share of drugs in the public expenditure on health appears to be not only an Israeli trend. In the UK, for example, the National Health Service drug bill share was on the rise in the 1990s [11] and is possibly a reflection of a new era of drug and biotechnology discovery and development.

Notwithstanding that the share of drugs in the health economy is often a reflection of changes in the other main cost items – hospital expenditure and salaries – an implication of the more regular updating of the NHI basket after 1998 could be an increase in its share. Furthermore, regular updating may halt the decline in the growth of per capita utilization. The impact on net costs to the HMOs could be substantial (particularly for Maccabi) as inclusion in the basket limits co-payment to the "basic" NHI level (e.g., 15% in the three smaller HMOs), whereas beforehand, some of the drugs were nevertheless supplied by the HMOs but at a very substantial co-payment.

In conclusion, these findings raise the question as to how public agencies like the Ministry of Heath and the HMOs can achieve an acceptable balance between the conflicting goals of access and cost. The New Zealand experience shows that growth in pharmaceutical expenditure can be slowed (with a fall in expenditure in 1998/9) while increasing access [12]. The challenge for Israel's drug policy in the NHI era is to restrain growth in drug expenditure while access to new and improved forms of drug therapy is maintained and not restricted as it was in the first years of National Health Insurance.

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