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# Korea

# Health Insurance and the Health Sector

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ACRONYMS

HMOs	-	Health Maintenance Organizations
MOHSA	-	Ministry of Health and Social Affairs
OECD	-	Organization for Economic Cooperation and Development
WHO	-	World Health Organization

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HEALTH INSURANCE AND THE HEALTH SECTOR

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KOREA

HEALTH INSURANCE AND THE HEALTH SECTOR

EXECUTIVE SUMMARY

I. Recent Health Sector Developments

Health Insurance and Its Implications

1. A substantial change is occurring in the Korean health sector through the introduction of health insurance. Insurance coverage has been expanded gradually since 1977 and is scheduled to become universal by July 1989. Together with the expansion of insurance have come regulations with respect to the setting of fees, the expansion of medical schools and investments in health facilities. This set of insurance-related interventions is producing and will continue to produce substantial changes in the health sector especially in the following areas: the access to health care; the pricing of medical services; the training and allocation of medical manpower; the level and composition of investments in health care facilities; and the share of health expenditures in the GNP.

2. The Government's objective of ensuring access to health care for all citizens irrespective of income and location is laudable. It should be remembered, however, that most health insurance initiatives are launched with noble intentions but, because of insufficient attention to design, many flounder on issues of cost and effectiveness.

3. Insurance often leads to an acceleration of private investments in health facilities and personnel partly in response to a genuine increase in demand but partly also because the effective private returns to investment are increased by implicit or explicit subsidies available to providers through typical insurance mechanisms. While some level of subsidy may indeed be socially desirable, care must be exercised to ensure that the investments undertaken do not exceed socially desirable levels; the same concern is true with regard to the composition of investments.

4. The effectiveness of health expenditures must also be considered; it is widely accepted that returns decline after a point and few noticeable gains in health status result thereafter from continued increments in expenditures. While Korea may still be far from the onset of declining returns it should ensure that when it does arrive at that point there are sufficiently clear signals available to prompt appropriate action. Typically, poorly designed insurance systems obscure or dilute such signals and society loses because resources are spent in such a way that benefits are not commensurate with costs.

5. New regulatory interventions are desirable now because the structure of incentives is being radically altered and Government has assumed fiscal responsibility for a significant portion of health expenditures. Korea has taken a political decision to embark on the partial public funding of private

expenditures in this area. If appropriate modifications are not made to the regulatory structure governing the demand for and supply of health services it is possible that Korea will experience, as many industrialized countries have, substantial cost escalation and an inappropriate pattern of manpower and facility investments in the health sector.

6. The purpose of this report is to study the effects and implications of health insurance on the health sector, and to suggest reforms that would help Korea meet its health care objectives in a cost-effective and equitable manner. Reforms are suggested both in the organization and design of the insurance system and in the regulations governing public and private investments in medical manpower and facilities.

#### The Emerging Public Sector Role

7. The health care system of Korea is presently in a state of transition from private to public sector orientation. Until recently, most facilities were privately owned, most prices for medical services were set in market transactions between consumers and providers, and most investment decisions were privately taken without constraints imposed directly by Government. The historical private sector orientation of the Korean health care system has had two consequences which have engaged the attention of the authorities in recent years. First, most private medical facilities and staff have come to be located in urban areas. Second, access to medical care has been determined by income and not by need.

8. The concentration of private medical facilities in the urban areas is not difficult to explain. The urban areas have been growing the fastest both in population and income terms; hence the economic demand for medical services has been rising fastest in such areas and the returns to health facility investment have been higher here. Recognizing that the geographical imbalance of medical service availability could have undesirable economic and social consequences, Government has attempted, since the late 1970s, to increase availability in "under-served" areas through public investments as well as through the provision of incentives for private investments.

9. Concern about the consequences of providing medical care on the basis of income rather than need has led to the devising of special programs to cover the medical needs of various population groups. Since 1977, poor or otherwise handicapped people have been guaranteed access to subsidized medical care under a program called the Medical Aid Program. Also since 1977, mandatory health insurance has been progressively extended to various groups in the population, culminating in a recent decision to provide universal coverage by July 1989.

10. Since the onset of health insurance the character of transactions in the health system has been changing. While most facilities remain privately owned, the pricing and allocation of health care and of health care investments has come to be more and more heavily influenced by Government actions. For example, most medical services to the insured are covered by a fee schedule set by Government. Also, the expansion of hospitals in certain areas is subject to prior approval from Government. Finally, the supply of medical personnel is determined by Government decisions on medical school start-ups

and enrolments. The proposed universalization of health insurance will carry the transition even further since much fewer transactions will then take place directly between consumer and provider. Most transactions will pass through a third party, the insurance society. To the extent that the Government sets the rules for insurance coverage and payments as well as affects the supply of medical facilities and manpower, the health care business will in the future be influenced more extensively by Government actions than at any time in Korea's past.

11. Intervention in the health sector via insurance is presently being justified by reference to equity arguments. Access to affordable health care has been accepted as a basic need for all citizens and as a social goal. Insurance, circumscribed by government regulations, has been accepted as an appropriate mechanism for achieving this goal. In this respect, the evolution of societal objectives and approaches with respect to health care seems to be following the same path that has already been travelled in more developed countries. This path has pitfalls, mainly in the areas of cost and effectiveness, of which Korea should be mindful.

#### Health Status Trends and Implications

12. Korea's health status trends suggest that it will soon arrive at a stage where such dilemmas of cost and effectiveness will have to be tackled. This view is supported by two observations. First, there has been a dramatic improvement in health status in Korea and a corresponding decline in public health concerns. Second, there has been a pronounced trend towards an industrialized-country type of morbidity profile. These developments imply that, in the future, a greater proportion of medical expenditures will be spent on dealing with types of illnesses for which, the experience of developed countries shows, the linkage between problem, therapy and cure is highly uncertain and the best that can be achieved may be continuing maintenance in a state of more or less disability. If so, the prevalence of medical need will continue to grow with the "successful" application of medical technology. This tendency is exaggerated in "aging" societies where the elderly form a large proportion of the population; Korea's demographic trends suggest that the proportion of the elderly, while presently small compared to the developed countries, will continue to grow steadily. Finally, an increasing proportion of health expenditures will be devoted to dealing with the effects of personal lifestyle choices (with respect to diet and exercise, for example). This raises the question whether, in this case, it would not be more efficient to spend funds to affect lifestyle choices directly (via education, for example).

#### Health Expenditure Trends and Determinants

13. Expenditures on health have risen rapidly in Korea over the last twenty years. Measured as a proportion of GNP such expenditures have doubled from 2.5% in 1970 to just over 5% currently. Given that GNP itself grew extremely rapidly in Korea over this period, such an increase should generate concern among policymakers about the potential burden of health expenditures at some point in the future when GNP growth slows down.

14. In addition to rising medical needs two other factors will determine the rate at which health expenditures grow in Korea. One is per capita income and the other is the design of the health insurance system.

15. Rising income leads to greater expenditures on health in two ways, through an increase in the quantity of health services demanded as well as through a shift in preferences towards higher quality care. The strong connection between income and demand for health services has often been verified in quantitative studies of the experience of developed countries. It is confirmed also in the Korean case by a number of statistical studies. Given that Korea's per capita income is set to rise at a rapid rate over the medium-term, health expenditures should be expected to rise rapidly also. This might pose a problem if expenditures rise faster than income as is indeed suggested by the measurement of a high unadjusted income elasticity of the demand for health in Korea of about 1.6; this suggests that, if recent trends are maintained, health expenditures could be expected to rise at over one and a half times the rate of growth of GNP.

16. One reason why the income elasticity of the demand for health services has been so high in Korea in recent years is the growing availability of health insurance. Health expenditures show a clear break in trend around 1977 when health insurance was introduced; since then expenditures have grown at a much faster rate than in the pre-insurance period. This experience is consistent with that of other countries in which health insurance exists and with what might be expected from the changes in incentives for consumers and providers that health insurance typically brings about.

17. Typically, the availability of health insurance leads to an increase in utilization of health services by consumers because the effective cost of obtaining care is reduced for those who need care and the numbers who can obtain care are increased. Indeed, the principal cause of medical expenditure escalation in Korea in recent years has been an increase in utilization rather than an increase in fees for doctors or prices for medical services (Kwon, 1988). Research into utilization patterns in Korea suggests that insurance has led to an increase in utilization of almost 80%. Furthermore, the insured show a marked tendency to use large general hospitals even for primary care; these hospitals tend to have a higher proportion of specialists and advanced medical equipment and are accordingly more expensive.

18. The availability of insurance may also create incentives for providers of medical care to increase the quantity and quality of services to insured patients beyond medically necessary levels. This is most likely to happen in a system characterized by fee-for-service reimbursements to providers and low coinsurance rates for consumers. In such a system, doctors gain by over-prescribing and patients do not resist such overprescription because their out-of-pocket costs are low and they are typically not well enough informed to judge the appropriateness of the procedures for themselves. Several studies have found patterns of behavior in Korea that are consistent with such a conjecture. For example, the length of hospital stay has been found to be significantly longer for insured than for non-insured patients (Yu, 1983).

19. The above observations suggest that the design of insurance arrangements can have a substantial effect on the level and rate of increase of health expenditures. In addition, such arrangements can have substantial effects on the level and composition of investments in medical facilities and manpower.

## II. The Health Insurance System

20. On the whole the Korean health insurance system is well designed. It provides for mandatory universal coverage which has the benefit of spreading system risk and cost over a wide base. It is founded on equitable financing principles in that the poor are provided virtually free care while the nonpoor pay insurance premiums linked to income levels. Copayments and deductibles serve to prevent abuse of the system as well as to provide a potential mechanism for affecting the distribution of consumer demand among different types of health facilities. User contributions are set at levels such that the system has hitherto been virtually self-financing and large claims have not been made on the national budget. Insurance is provided by a large number of noncompeting, nonprofit societies organized at the firm, firm-group or county level. The system is administered in a decentralized manner that has not resulted in high administrative costs on average. Finally, while some societies tend to run deficits consistently, most operate profitably.

21. Nevertheless, there are some aspects of the system that may benefit from redesign. These are discussed in the sections that follow on coverage, financing and organization.

### The Insurance System: Coverage Issues

22. Mandatory Coverage and Participation. The health insurance system in Korea is distinguished by the fact that participation and coverage are mandatory. The assignment of beneficiaries to insurance societies and vice-versa is done without allowing a choice in the matter to either party.

23. A system of mandatory coverage and participation is desirable to the extent that it helps avoid adverse selection and may enhance equity. Insurers cannot screen out the unhealthy who may be most in need of care nor can healthy individuals opt out of the system. Ideally, those unfortunate enough to be afflicted by poor health are subsidized by those with good health, an arrangement generally thought to be equitable. The disadvantage of such coverage rules is that they prevent consumer choice from being used as one means of imposing cost and efficiency discipline on insurers.

24. Competition Among Insurers. Another way of describing the situation is to note that insurers need not compete with each other. While this is not presently a problem in Korea, as evidenced by the fact that administrative costs of insurance societies (around 5% on average) are reasonable by international standards, it may become one in the future. Over time it is possible that the equity advantage of mandatory coverage and participation may be offset by the inefficiency that tends to creep into the typical noncompetitive, regulated system. This possibility could be reduced if competition were allowed within say, each province. To preserve economies of scale and to prevent discrimination against certain population groups, such competition could be regulated as follows: first, only a few societies should be licensed in each province so that each society is able to start off with a reasonably large and diversified client base and second, it should be required of all insurers that they provide a "basic" health care package at a regulated price to all who choose to enroll; for coverage of supplementary health care

services beyond the basic package, however, insurers should be allowed to compete for clients and to charge a market-determined price.

25. Coverage of Poor. The poor are covered by a facility called the Medical Aid System in which no premiums are charged although there are copayments for various types of care. Eligibility for coverage under this system is nominally based on specific income and wealth standards but other characteristics are also used to guide eligibility decisions. As a practical matter, the poorest 10% in each county are judged eligible and local government officials are empowered to perform this identification. Some amount of subjectivity and imprecision, and perhaps even inequity, undoubtedly enters via the existing procedures to identify the poor. While the present arrangements might be defended as being a practical solution to a difficult problem, attempts should be made to make the identification of the poor more precise through the collection and analysis of more reliable income information. The ultimate objective should be to identify all those who fall below an accepted poverty line and not that of a subjective identification of the poorest 10% in each county.

26. On the whole, however, the existence of premium-free publicly financed coverage for the poor is a desirable feature of the Korean system which permits experimentation with various aspects of the premium-based insurance system for the non-poor without threatening the interests of the poor. This flexibility is potentially of great advantage and should help Korea avoid sterile controversies regarding the effects on the poor which have prevented many countries from making sensible adjustments to their health insurance and delivery systems.

#### The Insurance System: Financing Issues

27. The most prominent characteristics of the Korean system, as far as financing is concerned, are that the bulk of the financing is raised from private sources via premiums, copayments and deductibles, rather than from public sources and that all providers are reimbursed on a fee-for-service basis in accordance with a fee schedule negotiated and set occasionally by the government. Overall, the financing arrangements are sound and equitable but several potential dangers lurk. There is the possibility that consumers may not be as effective a source of cost discipline on the system as might be required under universal insurance. There is also the possibility that the fee setting system will eventually lose all receptivity to market signals; competition among doctors may decrease and they may devote their energies to political negotiation with government for reimbursements which may be out of keeping with the true social value of their services. Finally, there is the possibility that the public sector will eventually come to bear a substantial burden of financing if the principle of subsidizing premiums for the self-employed is widely established.

28. Private Financing. The "privateness" of the present health care financing arrangements may be judged from the fact that private expenditures form about 67% of total health expenditures in Korea whereas in most OECD countries they form only about 30%. Among private expenditures, about 77% is borne by individuals and the rest by employers. Clearly, the main burden of paying for health care still falls on consumers. This arrangement is equit-

able in several respects. First, those who receive care pay for much of it. Second, since premiums are proportionally linked to wages and incomes, those who earn more pay more. Third, a system based on premiums and user charges may be more equitable than a system based on tax financing to the extent that, in most developing countries, the tax system tends to be regressive. Furthermore, this arrangement has the potential advantage of making consumers a source of cost discipline in the system: they have the potential incentive to avoid overuse of the system and to resist overprescription of services by providers.

29. That such a role can be effectively performed by consumers is not, however, universally accepted. It is often argued that the informational asymmetry between doctors and patients that is inherent in the health care business makes consumers a relatively ineffective source of cost and efficiency discipline. Asymmetry of political power may contribute to this: consumers are generally poorly organized and lack a powerful and unified voice whereas provider groups are generally well organized and possess substantial lobbying power which is buttressed by their position as experts in their field. Consequently, it may be useful to consider controlling health care costs and utilization directly via regulation together with the present reliance on consumers. Some specific suggestions for appropriate regulations are offered in a later section.

30. The Fee For Service System. At present all providers are reimbursed according to a fee schedule set by Government in consultation with a representative body of providers. This system has not been working smoothly. Providers complain that most fees are set too low and it is well known that the non-insured are charged almost twice as much as the insured. Utilization data indicate that there is a growing tendency to increase the number of services provided; the frequency of repeat visits is rising and lengths of hospital stay are increasing (Yu, 1983).

31. The above tendencies may become worse once universal coverage is attained since there will then be no opportunity for a cross-subsidy from the non-insured and providers will negotiate harder to have fees increased as well as try harder to increase the number of services provided even beyond medically necessary levels. Cost containment will become more difficult as a result. A further issue in the Korean context is that the fee setting system will progressively lose all receptivity to market signals. The semblance of market evidence now available from the non-insured sector will disappear and, as time goes by, the only information available to the fee setting committee will be past fee levels and utilization data already distorted by the effects of third-party payment (i.e. by insurance).

32. Accordingly, it will be necessary to act on a number of fronts. First, it will be necessary to adopt utilization controls. Second, to guide negotiations on fee structure, data will have to be collected periodically on the nature and effectiveness of various medical procedures as well as on utilization norms. Third, to maintain competition and to compare costs, it may be necessary to allow different insurance societies to bargain with providers on fee schedules as well as to allow them to experiment with alternative reimbursement arrangements such as capitation. If providers are forced to compete with each other to gain insurance plan business they will

have an incentive to set service rates on the basis of marginal costs, an outcome approximating that of a market-signal-guided system.

33. Subsidies to the Self-employed. In a radical departure from the existing insurance arrangements for the employed, Government has agreed to contribute 50% of the premiums for the rural self-employed. It is likely that the same subsidy will eventually be extended to the urban self-employed. This subsidy is being justified on the grounds that since employers (including the Government) pay 50% of the premiums for the employed, it would be unfair for the self-employed to have to bear the entire burden of coverage themselves.

34. This justification is based on faulty logic. In a competitive labor market one must focus on the total compensation to workers and not on its composition between wage and non-wage parts: employees ultimately pay for all non-wage benefits in that the wage component is adjusted to bring the total compensation into line with that determined by the market. Therefore, it is inappropriate to think of non-wage benefits, such as employer contributions to insurance premiums, as a subsidy. Indeed, if the self-employed receive some premium contributions from tax funds, this would be tantamount to having the employed subsidize the self-employed, an arrangement that would be considered quite inequitable in most societies.

35. Still another argument that is heard is that the self-employed are poorer than the employed and, therefore, deserve special treatment. Moreover, the employed pay a premium based on wages or salaries and not on gross income (inclusive of non-wage benefits and non-work-related income) while the self-employed have to pay a premium based on gross income and wealth. These considerations, however, make a case not for arbitrary subsidies to a broadly defined group (such as the self-employed) but for better recording of gross income and wealth. If the purpose of subsidies is to improve income distribution they should be targeted on the basis of income (and wealth) rather than on the basis of location or employment.

36. Enhancing Equitable Aspects of Financing. The financing of the health insurance system could be made more equitable if the following guidelines were to be adopted: (i) premiums should be based on gross incomes for all and not, as is reportedly the case, on wages and salaries for the employed and gross income and wealth for the self-employed; (ii) premiums should be progressive like income taxes rather than proportional like indirect taxes; (iii) if a subsidy to the self-employed is unavoidable, it should be graduated by the gross income and wealth position of the recipient (like a progressive negative income tax) rather than be a flat 50% for all; such a scheme, apart from being more equitable, should also reduce the financial obligation of the Government which, under present arrangements, is anticipated to reach almost 2% of the budget once universal coverage is fully implemented.

#### The Insurance System: Organization Issues

37. The Korean medical insurance system consists of a large number (302 societies anticipated under universal coverage) of administratively and financially independent non-profit insurance societies organized along employment, location and occupation lines. Administrative independence means that each has its own management team which is responsible only to a firm, firm-group or

county authority and not to a national authority. Financial independence means that each is responsible for financing its own activities and is theoretically at risk for deficits.

38. There is an ongoing discussion in Korea concerning the most desirable organizational structure for the insurance system. In particular, there has been serious discussion of the desirability of creating a single, centralized agency to cover the entire population. It is argued that unification would achieve administrative cost reductions, a better income distribution, and superior risk pooling, especially if urban and rural societies are amalgamated.

39. Some of the presumed benefits from unifying the system may be exaggerated. For example, at around 5%, administrative costs are already reasonable by international standards, and the prospects of significant reduction via reorganization are slim. For societies covering the self-employed, premium collection is a more important financial variable than administrative costs. For such societies, largeness of size may be a disadvantage. Preliminary evidence from the experience of the rural insurance scheme started in 1988 indicates that smaller societies have higher premium collection ratios and lower costs.

40. As far as income distribution effects are concerned, the assumption that amalgamating all societies will generate net benefits for the relatively poorer-off should be carefully examined. Unless great care is taken in assessing incomes and wealth accurately and linking premiums to incomes in a progressive fashion, it is possible that amalgamating rural and urban societies, for example, might well result in a situation where poor urban workers end up subsidizing the health care of rich rural farmers.

41. Combining the numerous existing insurance societies may indeed provide superior risk pooling which in turn should permit a reduction in premiums. Anecdotal evidence suggests that characteristics of beneficiaries vary widely among the existing societies and that some societies face systematically higher risk. This interpretation is supported by the fact that some societies are consistently high or low in rankings based on administrative costs as well as the observation of wide variation in utilization rates across insurance societies. However, while such evidence would support the merger of some societies, it does not follow that complete unification is optimal.

42. Province-Based Societies. By the same token, showing that complete unification may not carry great advantages does not establish that the present degree of decentralization is optimal. Indeed, the present structure might well be considered unwieldy and arbitrary and there may be merit in moving to an intermediate level of administrative and financial control, such as the provincial level. Such a move would allow retention of some of the advantages of decentralization while enabling access to some of the benefits of amalgamation. Establishing province-level insurance societies would permit more effective cost control mechanisms to be adopted and enforced than is likely with the present system of small, narrowly-based societies. For example, such societies are likely to be more effective in bargaining with providers for cost-effective care. Smaller societies are unlikely to have the clout necessary to deal with powerful doctor and hospital lobbies.

43. The appropriate degree of aggregation of the health insurance system should also be linked to the level at which decisions concerning hospital financing, advanced medical technology acquisition, and medical manpower training and allocation are taken. International evidence suggests that these decisions affect the costs of health care to a significant degree and that systems in which those who pay the bills are also in a position to influence medical investment decisions tend to do much better at cost containment than systems without such links. In this regard also, provinces are likely to be more appropriate foci of administrative and fiscal control than smaller government entities.

44. Finally, a province-based structure would permit experimentation with alternative management approaches and provider-reimbursement mechanisms and thereby the comparison of cost and productivity across different societies containing roughly similar client-pools. Such comparisons would provide the basis for changes in system design with the objective of reducing costs and improving service delivery. Design flexibility and its informational benefits would not be as easily achieved under a unified system.

45. Ultimately, the decision on the appropriate degree of aggregation must be based on actuarial and behavioral data that are not available at present. The collection and analysis of such data should be given high priority since the potential savings from reorganization could be large. Until such data are available one can only suggest that while attempts to create a unitary centralized system should be discouraged, reorganization of the insurance system to concentrate administrative and financial responsibility at a higher level than is presently the case, say at the provincial level, might be useful.

### III. Issues in the Supply and Use of Manpower

46. The introduction of universal health insurance will present a challenge for public policy to ensure appropriate use of the various categories of health manpower. The reimbursement rules adopted under insurance can channel the supply and utilization of medical manpower along cost-effective lines or can generate cost escalation and inefficient deployment. The latter outcome can be exaggerated if the pattern of public subsidies and regulations typically present in the medical education and training system is not changed to reflect the new structure of incentives introduced by the availability of insurance.

47. Manpower Planning. In this context, public policy can be usefully applied to develop procedures of manpower planning based on health care "needs" rather than "demand." The use of demand, as measured through current utilization data, would not be unreasonable if two conditions were met: all costs of care were borne entirely by the consumer and the consumer were fully aware of alternative clinical solutions to his problem. These conditions are not met in a health care system with insurance. Medical transactions are typically characterized by asymmetric information between providers and consumers and providers tend to have a large degree of control over the quantity and quality of services used. This aspect is even more likely to

prevail under insurance when consumers do not bear the full cost of treatment, and to be further exaggerated if provider reimbursements are based on fee-for-service. Accordingly, demand or utilization data may not accurately reflect true medical need and manpower planning based on demand may make matters worse by validating the biases or distortions present in the system. While Korea may still be at a stage where the demand for care does not actually outstrip need, recent trends in health status and expenditures suggest that it will soon reach such a stage; it would be best to have made the transition to manpower planning on the basis of "needs" before that time.

48. A need-based manpower planning approach has three requirements: (a) epidemiologic measures for the level and nature of ill-health among the population, (b) clinical studies which define what effective treatment procedures exist for that ill-health and (c) studies of the most cost-effective personnel who can perform these procedures. There are already reasonably good data on disease prevalence in Korea which can form the basis of such an exercise. Translating the epidemiological picture into manpower requirements could be done by panels of experts which include the full range of medical manpower categories in Korea so that each category (e.g. nurses, oriental doctors, pharmacists) has an opportunity to make its case. Accordingly, it is recommended that a formal health manpower planning committee be constituted with participation from all the practitioner organizations, with coordination provided by MOHSA, and with the aim of developing manpower plans which reflect the health care "needs" of the population.

49. Manpower Supply Trends. Supply trends since 1977 show a picture of an increasingly specialized and technical work force; while all categories have grown in absolute terms, specialists and their complements (e.g. nurses, nurse aids and technicians) have grown much faster than such doctor substitute categories as midwives, pharmacists and oriental medical doctors. This pattern of relative growth is consistent with what might be expected from the new incentives established by insurance: no provision is currently made for the direct reimbursement of the doctor substitute categories.

50. At the present rate of growth of about 5.5% there will be a physician for every 900 persons in Korea by 1995. While this number will be short of the typical ratios for developed countries, it will be more than would be predicted for Korea's per capita income. Indeed, Korea is even today relatively better endowed, with a physician for every 1300 persons, than is the norm for its income. Among physicians, the proportion who are specialists has been rising dramatically in recent years, from about one third in 1977 to over one half in 1986. Furthermore, age-distribution data indicate that the physician stock is very young. These aspects suggest that Korea is likely to remain comfortably endowed with physicians, and particularly specialists, for many years to come.

51. The recent growth in the supply of physicians is due to a policy adopted several years ago of increasing the number of medical schools and enrolments. This policy was developed to counter the perceived tendency for the price of physician services to increase; it was assumed that an increase in supply would force down the price. There is some anecdotal evidence that the policy has had its intended effect at least in the setting of urban hospitals.

52. However, there are reasons to be concerned that continued high growth of physician supply may become counterproductive after a point. First, it appears that the training capacity in place is not adequate for the increased enrolments and the quality of training is suffering. Second, a slack supply of physicians acts as a deterrent to the use of more cost-effective substitute personnel; to the extent that medical education is partly subsidized by Government, this may not be an efficient outcome. Third, in the absence of comprehensive utilization controls, an increasing supply of physicians will lead to increasing expenditures on health as these physicians use their discretionary powers over the intensity and amount of service applicable to any episode of illness to protect their incomes. This pattern is uniformly observed in countries with health insurance and especially so in systems which reimburse on a fee-for-service basis.

53. Accordingly, action must be taken on several points. First, the potential for "induced" demand by physicians should be reduced by imposing appropriate utilization controls or by altering reimbursement mechanisms to make such actions unprofitable. For example, a Diagnosis Related Groups (DRG) system could be introduced in which reimbursements are linked to the condition of the patient rather than to the treatment actually selected by the provider. The case payment method is already being considered in Korea for such standard procedures as child delivery and appendectomies. The number of such cases should be increased. Another option would be to adopt a capitation system under which providers are paid a fixed (negotiated) amount per year for every enrolled patient.

54. Second, the potential for cost-effective substitution among various categories of manpower should be assessed via specific studies and made known to the general public via education and "marketing" programs. Such programs could stress, for example, that midwives can deliver babies just as safely as obstetricians in the normal case, or that community health practitioners can provide primary care just as effectively as physicians. The use of cost-effective substitutes can also be promoted by ensuring that, if reimbursement is made on a fee-for-service basis, the fee is set at a level consistent with the normal income expectation of the lowest-cost fully-qualified provider who can deliver the service.

#### IV. Issues in the Supply and Use of Medical Facilities

55. Public Policy Concerns. As with medical manpower so also with medical facilities, the availability of universal health insurance can have significant effects on supply and utilization. The challenge for public policy is to ensure that these effects do not promote inefficient resource allocation and cost escalation. In the Korean case, public policy must be concerned with the following specific issues.

56. First, the appropriateness of care provided will need to be monitored since insurance reduces the incentive for consumers to do their own monitoring and increases the incentive for providers to dispense medical services of a quantity and quality above what may be medically necessary.

57. Second, changes in incentives for consumers and providers is changing the pattern of utilization especially in terms of the settings in which care is demanded and provided. In particular, a pattern of overuse of the more sophisticated general hospitals is becoming established. This may need to be rectified through appropriate regulatory action and/or the redesign of certain insurance features.

58. Third, the uncontrolled expansion of facilities may generate undesirable cost escalation especially if reimbursements under the insurance system are on a cost-plus basis. International evidence shows that investments in new buildings and advanced medical technology represent a particularly serious source of such cost escalation. It will be important therefore for public policy to guide the capital acquisition and utilization process in the interests of cost containment.

59. Fourth, the distribution of health facilities, which is typically uneven in most countries including Korea, can be made more uneven by the availability of insurance. The challenge will be to ensure that the degree of unevenness remains tolerable and does not result in serious deprivation for large groups of the population.

60. Growth in Utilization. Research studies suggest that the availability of insurance is leading to substantial increases in utilization of medical services in Korea. On average, it is estimated that the availability of insurance tends to increase the utilization of outpatient services by 100% and of inpatient services by about 70%. Such substantial effects imply that a watchful eye must be kept on the appropriateness of the care that is reflected in the increased utilization rates. While much of this care might be meeting genuine unmet need, the potential exists for unnecessary care to be provided also. One study has found that the length of hospital stays was significantly higher for insured than for non-insured patients although post-operative complications, a measure of the need for hospital stay, were not different (Yu, 1983).

61. As already indicated in earlier sections, the problem of overutilization is characteristic of insurance systems which reimburse on a fee-for-service basis. Accordingly, changing the reimbursement mechanism is one way of dealing with a problem of this nature. Two alternative mechanisms have already been recommended. One is the DRG system in which payments are set according to the nature of the medical problem at hand rather than the specific treatment undertaken by the provider. Another is the capitation system in which providers undertake to provide care to all the patients enrolled with them for a fixed annual fee; this fee can be supplemented by copayments and deductibles.

62. International evidence suggests that a major determinant of medical cost escalation is the rising cost of care after admission (Pauly , 1985). Medical procedures have become more intensive in the use of sophisticated and expensive technology and it is increasingly being debated whether the resulting benefits are worth the costs in all applications. For Korea it may be useful to set up a Medical Procedures Review Committee which would develop a list of diagnoses and procedures which have a high probability of being inappropriate. Physicians and/or hospitals would be required to provide a

special justification every time such a procedure was performed before their claim would be paid. While such a requirement might be viewed by some as unjustifiable second-guessing, there is sufficient variation in clinical practice and sufficient uncertainty with respect to the efficacy of many clinical procedures to make such interference worthwhile.

63. Theoretically, coinsurance and deductible levels can be increased to make the consumer more cost-conscious. In the Korean context this approach would seem to be less promising than controls on providers for three reasons. First, the evidence suggests that the price elasticity of demand for health services is low; hence raising user charges will not necessarily reduce utilization and expenditures although it will transfer more income to providers. Second, coinsurance levels in Korea are already quite high by international standards; further upward adjustments may be resisted. Also, after a point, high user charges will defeat the very purpose of insurance. Third, there is some concern that high user charges in Korea tend to be inequitable in that they discourage lower income people from seeking care.

64. Health Care Delivery Locations. There is a clear recent trend towards greater use of general hospitals relative to other facilities such as smaller hospitals and clinics. This is suggested, too, by the patterns of relative growth among health facilities. The number of beds in general hospitals grew by 137% between 1981 and 1986 while that in hospitals grew by only 47% and in clinics by 11%. While a preference for higher quality care at more sophisticated facilities is consistent with rising income levels, insurance arrangements can exaggerate such a preference. Studies show a preference among the already-insured for the most sophisticated facilities, featuring highly-trained specialists and advanced medical technology. This is clearly true for inpatient care: the percentage of insured patients who use general hospitals for inpatient care more than doubled (from 30% to 63%) during 1979-1984. It is also true for outpatient care although in this case the increase in usage is modest.

65. The rapid rise in the supply and utilization of general hospitals should be viewed with concern because international experience suggests that the hospital sector is typically the dominant source of cost escalation. Furthermore, to the extent that such hospitals are being used inappropriately to deliver care that could easily be provided in other, less expensive, facilities, society loses since these resources could potentially be used more efficiently.

66. One approach to influencing the consultation preferences of patients is to alter the relative out-of-pocket costs of using different facilities. Presently in Korea, using general hospitals is the most expensive option for a consumer in two ways: such hospitals are allowed to charge fees which are about 15% more expensive than at clinics and copayments for outpatient care which are double that in clinics. Despite these higher charges, however, the utilization of general hospitals has risen at almost the same rate as that of clinics in recent years. It would appear that the price elasticity of the demand for care at prestigious delivery locations is quite low.

67. In many countries, the use of tertiary and secondary facilities is controlled by referral requirements; a potential user must be referred by a

primary clinic which serves as a "gate keeper." For Korea, it has been argued that such requirements may be impractical since Korean medical facilities lack functional specialization in that many hospital and clinics offer both primary and secondary health services. On the other hand, pilot schemes in Korea have shown that the rate of utilization of different facilities can be affected by referral requirements (Yu, 1988); such requirements have also been mandated for participants in the rural insurance schemes. To rationalize the use of facilities and to avoid anomalies in the access to health care of different population groups, it is recommended that referral requirements be adopted for all the insured at least as far as the use of tertiary facilities and large general hospitals are concerned.

68. Facilities expansion and technology acquisition. The supply of health facilities has grown rapidly in recent years. During 1975-86, the number of facilities, all taken together, grew from about 11,000 units to about 14,500 units while the number of available beds more than doubled, from about 47,500 units to about 107,000 units. Korea now has a bed for every 400 persons and is fast approaching the WHO recommended standard of a bed for every 333 persons. The availability of beds in Korea is in keeping with what might be predicted for its per capita income level.

69. Together with the rapid expansion in the number of facilities has come rapid growth in the acquisition of advanced medical technology. For example, the CT scanner is now diffused so widely in Korea that nearly every hospital with more than 200 beds has one. Similarly, there are now 38 hospitals in Korea with the technology capability for performing heart transplants; on a per capita basis, this is much higher than in the United States. The reason why there has been such a proliferation of advanced equipment is that such equipment is associated in the public mind with better quality care and Korean hospitals tend to compete not on price but on the basis of the availability of such equipment. Furthermore, since most such equipment is not covered by government-set fee schedules, there exists the opportunity to raise profits by charging high prices for its use.

70. The problem with rapid growth in facilities and advanced medical equipment is that, after a point, the costs of such investment are not commensurate with the benefits obtained. Such investments are not an unconditional means to better health status. The returns to such investments decline eventually and society is potentially better off spending the additional resources on other activities, such as education or improved low income housing, which may have a higher payoff in health status improvement.

71. Furthermore, there is the risk that the uncontrolled expansion of facilities and technology will generate cost escalation via supplier induced demand. As with the supply of physicians, so also with the supply of facilities a strong correlation is observed between availability and utilization ("a built bed is a filled bed") and, accordingly, with expenditures. This tendency is exaggerated by the availability of third party payment as under an insurance arrangement.

72. Presently in Korea, there exist regulations designed to curb the rapid growth of medical facilities and equipment but these seem not be working effectively. For example, government approval is required before new

hospitals can be built or existing ones expanded in certain designated areas. These regulations, however, are reported to be often relaxed because of political pressure. Furthermore, a major loophole is present in that clinics are able to expand without needing approval. Similarly, there exists a committee which reviews the suitability for importation into Korea of high-priced medical equipment. This board, however, has done little to control the expansion of such equipment so far. It is thought that this is so because only physicians are represented on the board and they not only lack an economic incentive to control technology acquisition but may have a "technical" bias in favor of acquisition.

73. Generally speaking, it would appear that Korea has in place the appropriate regulations but that these need to be strengthened. It is recommended that this be done by concentrating regulatory and fiscal responsibility for health facilities and equipment expansion as well as for insurance at the provincial level. International experience suggests that purely regulatory bodies which are not fiscally responsible for projects they might approve tend not to be appropriately cost conscious. On the other hand, an agency which has to meet the bill for facilities expansion, either directly or via its insurance functions, is likely to be suitably cost conscious. An advantage of locating these functions at the provincial level is that since such health-related expenditures are likely to be a large part of provincial budgets, they are likely to be more critically assessed than if they were buried in a much larger central budget. Since provincial governments may not at present have the quantity and quality of administrative manpower needed to discharge such responsibilities, efforts should be made to provide the necessary training and incentives.

74. It is also recommended that such provincial regulatory bodies be assisted in their functions by an Office of Technology Assessment set up at the central level. The purpose of this office would be to evaluate new and existing technology from both a medical and a cost effectiveness point of view and to advise regulatory bodies accordingly. Participants in the deliberations of this office should include not only physicians but also representatives from consumer, insurer and employer organizations.

75. Regional Distribution of Facilities. While there remain considerable differences, there have been significant reductions in the disparity of resources in recent years. For example, whereas the bed to population ratio in urban areas was almost ten times higher than that in rural areas in 1975, it is now less than four times as high. Also, about 70% of the rural population is now within an hour's time-distance of a primary facility. The reduction in disparities is partly a result of the ongoing government program of establishing community health facilities and small hospitals in "medically underserved" areas and partly associated with improvements in transportation and continuing rural-urban migration, concomitant with rapid economic growth. As these processes continue, regional disparities will undoubtedly continue to decrease.

76. A number of considerations suggest that the program of establishing and upgrading government-owned health facilities should now be reassessed. Firstly, as just noted, the problem of relative access is now much less severe than it used to be and should improve over time with continued economic growth

and urbanization. Secondly, community health facilities (especially county hospitals) tend to be underutilized; the average physician workload in such facilities is less than half that in urban clinics and hospitals. Thirdly, the prospects of increasing utilization are poor; as insurance enhances financial access, rural residents are likely to seek care in urban locations because of the enduring association in their minds between urban facilities and better quality care.

77. Attempting to increase utilization through upgrading community health facilities (via the provision of more and better equipment and manpower and/or by converting health centers into hospitals) is a potentially expensive proposition which may not be worth the effort. Physician turnover in these facilities is high since many of them are there only to fulfill their military obligation and are not committed to establishing reputations and practices. International experience suggests that programs to attract qualified physician to rural areas are typically unsuccessful. In the Korean context, however, some optimism may be derived from the fact that there are signs of an emerging physician surplus, a surplus which should encourage more and more physicians to locate in rural areas.

78. In light of these considerations, it is recommended that the ongoing program of establishing and upgrading community health facilities be redesigned to support facilities only in those areas where no private facilities are available and the possibility of serious deprivation exists for large population groups. Where such criteria are not met, public funds could be better spent in other activities, such as providing better education and transportation.

#### A Final Word

79. The investigation of the Korean health care and insurance system conducted in this report has revealed that the system is generally sound but that it contains a few tendencies that may become a source of discomfort later. Being in an early stage, the system has not yet revealed the full extent of its strengths and weaknesses. As a result, many of the recommendations for reform presented in this report are based on the experiences of other countries. These must, of course, be supplemented by data appropriate to the Korean context. The best way to generate such data is to build flexibility into the system and to experiment with alternative design features. This report has recommended some such design features and others could undoubtedly be found. The intention is not to be definitive but to provoke consideration of a wider range of options than seems to have been the case so far. If such consideration could be given at the present stage, when the system has not yet been "set in stone", Korea will most likely be spared many of the ills that afflict the health care systems of so many developed country health care systems.

## I. RECENT HEALTH SECTOR DEVELOPMENTS

### A. Introduction

1.1 A substantial change is occurring in the Korean health sector through the introduction of health insurance. Insurance coverage has been expanded gradually since 1977 and is scheduled to become universal by mid-1989. Together with the expansion of insurance have come regulations with respect to the setting of fees, the supply of doctors, and investments in health facilities. This set of insurance-related interventions is producing and will continue to produce substantial changes in the health sector especially in the following areas: the access to health care; the pricing of medical services; the training and allocation of medical manpower; the level and composition of investments in health care facilities; and the share of health expenditures in the GNP.

1.2 Government's intentions are laudable; they are to ensure access to health care to all citizens irrespective of income and location. Health care has been recognized as a basic need and a social goal in Korea, and it is no longer thought appropriate for it to be allocated entirely on the basis of ability to pay. It should be remembered, however, that most health insurance initiatives are launched with such noble intentions but, because of insufficient attention to design, many flounder on issues of cost and effectiveness.

1.3 Insurance often leads to an acceleration of private investments in health facilities and personnel partly in response to a genuine increase in demand but partly also because the effective private returns to investment are increased by implicit or explicit subsidies available to providers through typical insurance mechanisms. While some level of subsidy may indeed be socially desirable, care must be exercised to ensure that the investments undertaken do not exceed socially desirable levels; the same concern is true with regard to the composition of investments.

1.4 The effectiveness of health expenditures must also be considered; it is widely accepted that the returns to such expenditures declines after a point and no noticeable gains in health status result from continued increments in expenditures (see Figure 1.1). While Korea may still be far from the point of declining returns, policies and procedures need to be put in place now so that when it does arrive at that point there are sufficiently clear signals available to prompt appropriate action. Typically, poorly designed insurance systems obscure or dilute such signals. In such a case, society loses because resources are being spent in such a way that the benefits are not commensurate with the costs.

1.5 New regulatory initiatives are desirable now because the structure of incentives is being radically altered and Government has assumed fiscal responsibility for a major portion of health expenditures. Korea has taken a political decision to embark on the (partial) public funding of private expenditures in this area. This decision also entails substantial modification of the incentives facing consumers and providers of health services. If appropriate modifications are not made to the regulatory structure

# AN INTERNATIONAL COMPARISON OF LIFE EXPECTANCY AND PHYSICIAN TO POPULATION RATIOS (1971-1972)

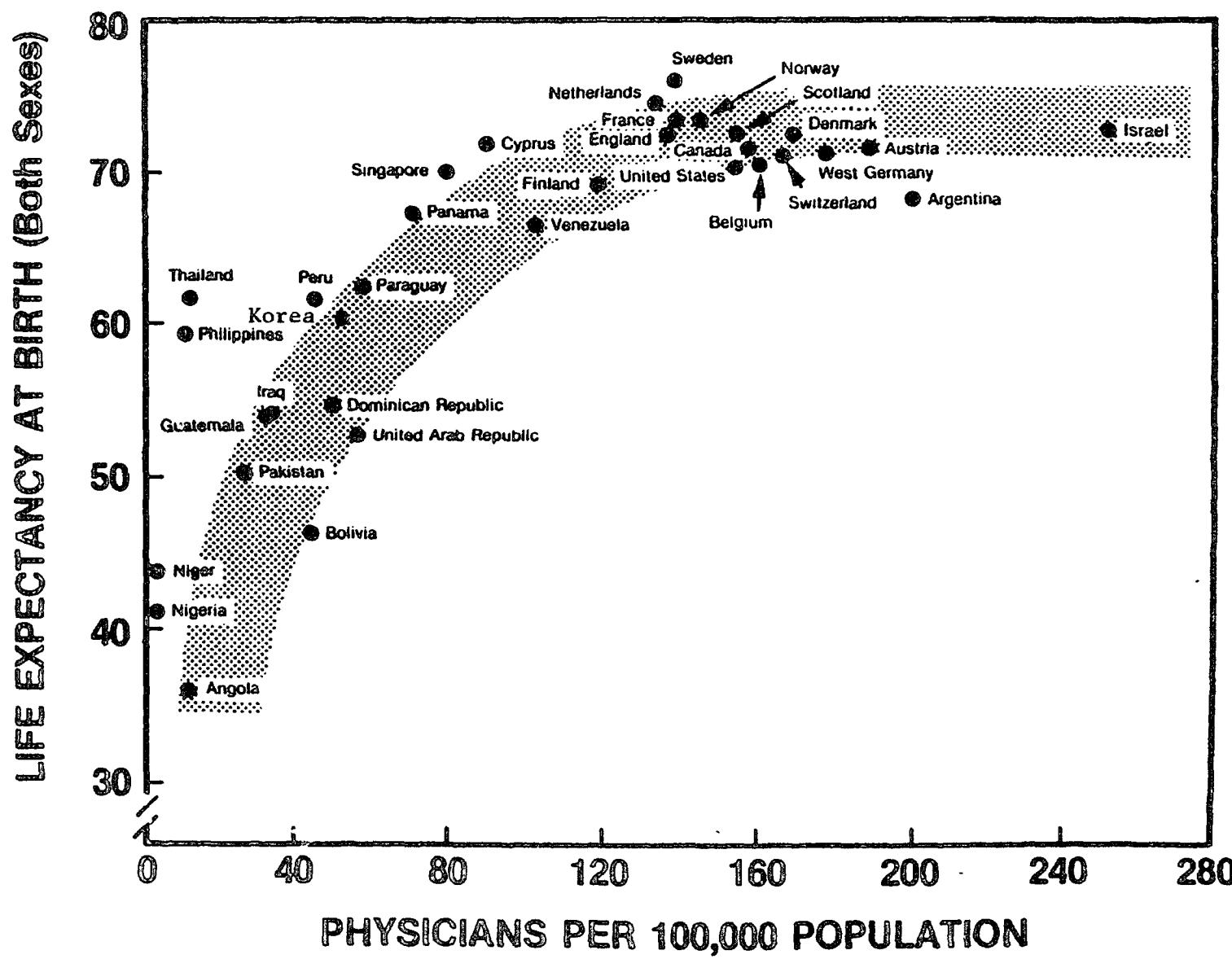


FIGURE 1

governing the demand for and supply of health services it is possible that Korea will experience, as many industrialized countries have, substantial cost escalation and an inappropriate pattern of manpower and facility investments in the health sector.

1.6 The purpose of this report is to investigate the effects and implications of health insurance on the health sector in Korea, and suggest reforms that would help Korea meet its health care objectives in a cost-effective and equitable manner. The experience of the industrialized countries with respect to the financing and delivery of health care is used as a guide wherever appropriate. Reforms are suggested both in the organization and design of the insurance system and in the regulations governing public and private investments in medical manpower and facilities.

#### Organization and Preview of Report

1.7 The remainder of this chapter is given to a review of recent developments in the health sector. It is noted that the health care system is presently in a state of transition from private to public sector orientation. It is noted that the evolution of health care status and approaches in Korea is similar to that experienced by the industrialized countries in earlier decades and that Korea is likely to face similar dilemmas of cost and effectiveness of care. Korea's health status developments feature a dramatic improvement in life expectancy and a pronounced trend towards a developed-country type of morbidity profile. These suggest that, in the future, a greater proportion of medical expenditures will be spent on dealing with illnesses for which, the experience of developed countries shows, the linkage between problem, therapy and cure is highly uncertain and the best that can be achieved may be maintenance in a state of more or less disability. This implies that the prevalence of medical need may grow with the "successful" application of advanced technology and with the achievement of universal access. It also implies that health expenditures will continue to grow.

1.8 Expenditures on health have risen rapidly in Korea in recent years and, while the parallel growth in GNP has kept the overall burden moderate in comparison with developed countries, there is reason to be concerned that health care needs combined with insurance arrangements will continue to drive expenditures up even when there is a slowdown in GNP growth. Furthermore, there is reason to be concerned that health expenditure may become exorbitant in relation to the benefits in health status that they bring about.

1.9 Chapter 2 provides a description of the Korean health insurance system from the perspective of coverage, financing and administration. On the whole the system is judged to be well-designed. It provides for mandatory universal coverage in a manner that avoids adverse selection, enhances equitable access and generates adequate revenue. It is based on sound and equitable financing principles in that the poor are provided virtually free care while the nonpoor pay insurance premiums linked to income levels in a manner that ensures that those who earn more pay more. Copayments are also used appropriately to influence both the overall demand for care as well as the preference for different types of health care facilities. These financing features provide a potential means also for consumers to impose some cost discipline and might prove useful as counterbalances to the typical tendency

for costs to escalate because of inadequate controls on providers and insurers.

1.10 However, a few proposals are offered to improve the system in some areas. With respect to financing, it is proposed that Government reconsider the initiative to provide large subsidies for the insurance schemes that will cover the self-employed. With respect to administration, it is proposed that efforts to create a completely centralized and unitary insurance system be discouraged; at the same time, the present degree of decentralization may not be optimal and it may be appropriate to aggregate insurance societies at an intermediate level, such as at the provincial level. More generally, it is proposed that attempts be made to maintain competition among insurers and among providers so that a quasi-market discipline is imposed.

1.11 Chapter 3 provides a discussion of trends in the supply and distribution of various health personnel, the division of roles among these personnel, and the effects of insurance on supply and utilization. It is noted that public policy can be usefully applied to initiate manpower planning based on health care needs rather than demands and to exploit the substitution potential among different types of health manpower. The chief recommendations that emerge from this perspective are that health manpower planning should be better coordinated among the various ministries involved, that the role of doctor substitutes such as midwives and community health practitioners should be enhanced and their services marketed aggressively, and finally that alternative reimbursement mechanisms (such as capitation payments) should be permitted within the insurance system so as to provide incentives to providers to be cost-effective in their use of health manpower.

1.12 Chapter 4 provides a discussion of key issues in the supply and use of medical facilities. Two major concerns are noted: first, the uncontrolled expansion of facilities and advanced medical technology could become a source of cost escalation; second, unregulated utilization could lead to inappropriate care at inappropriate locations. Several recommendations are offered. First, alternative reimbursement mechanisms such as capitation should be experimented within order to control utilization and expenditures. Second, the appropriateness of care should be monitored by a committee which includes representatives from all parties to a health transaction, consumers, providers, insurers and government. Third, the desirability of investments in advanced medical equipment should be monitored by an agency modelled along the lines of the Office of Technology Assessment in the US. Fourth, future hospital expansion should be carefully monitored because hospital services tend to be the most prominent sources of cost escalation in insurance-funded health systems; in line with the principle of concentrating financial responsibility and system control at the same level of government, it would be appropriate to make provincial governments responsible for financing hospitals in their provinces in return for being given control over the insurance systems in their provinces. Finally, the program of establishing and upgrading community health facilities should be modified so as to support facilities only in areas where no private facilities are present and where large groups of the population face the prospect of serious deprivation.

B. The Emerging Public Sector Role

1.13 Historical Development. The idea of a public system of medical care was slow to take root in Korea for cultural, financial and organizational reasons. Culturally, Confucian ethics placed the burden of family care, especially that of the old and infirm, on members of the family. Financially, the state never had the resources to build a large public medical system. Organizationally, a highly centralized system of governance diluted the incentive and the ability of local authorities to develop such public services. The first manifestation of a public system of medical care came in the form of hospitals established around the turn of the century by missionaries. Such hospitals, however, were few and far between and the bulk of medical care continued to be provided through small and private oriental herbal clinics.

1.14 A shift in roles began during the thirty-six years of Japanese occupation before the Second World War. In this period, the colonial regime adopted a policy aimed at replacing traditional herbal medicine in Korea with a system of provincial and municipal hospitals managed by Japanese doctors. After the war, a Department of Health and Welfare was established in 1946 to take over the functions of the Japanese-established system. Throughout this period, however, the dominance of the private sector in the country's health care system continued, supported both by tradition and fiscal constraints; it was never really realistic to expect the network of private herbal clinics spread throughout the country to be easily or quickly replaced by a public system. The need for some public medical services and for western medicine did, however, come to be generally accepted.

1.15 A new phase was ushered in by the Korean War of 1950-52. By the end of this war about 70% of public medical facilities stood destroyed and the number of medical personnel available to staff such facilities stood considerably diminished. The vacuum thus created was filled largely by the private sector. However, the nature of the private medical care system changed and traditional herb clinics began to be supplanted in importance by western-medicine clinics and hospitals. For its part, Government assigned higher priority to strengthening preventive public health services than to expanding the system of public hospitals. This division of roles has continued more or less unchanged into present times.

1.16 Accordingly, by 1985, the private sector accounted for over 88% of all health care facilities, 80% of inpatient beds, 75% of doctors, 80% of dentists, 55% of nurses and 62% of medical technologists. Private medical schools accounted for more than 71% of medical schools and 60% of the dental schools. All the oriental medical schools were operated by the private sector.

1.17 There is a difference in the activities of public and private facilities also. Public hospitals have come to concentrate on special diseases such as tuberculosis and generally on acute communicable diseases. In 1986, out of 2,031 hospital beds countrywide for tuberculosis patients, 1,416 were in national and public hospitals and 535 in private hospitals. Similarly, out of 3,446 beds for the treatment of communicable diseases, 2,157 were in public and only 289 in private hospitals. For general diseases, as might be expected, a different pattern prevailed: of 64,732 beds only 8,655 were in public hospitals.

1.18 Consequences of Private Sector Orientation. The historical private sector orientation of the Korean health care system has had two consequences which have engaged the attention of the authorities in recent years. First, most private medical facilities and staff have come to be located in urban areas. Second, access to medical care has been largely determined by income and location and not by need.

1.19 The concentration of private medical facilities in the urban areas is not difficult to explain. The urban areas have been growing the fastest both in population and income terms; hence the economic demand for medical services has been rising fastest in such areas and the returns to health facility investment have been higher here. As of : almost 81% of all medical facilities and 83% of hospital beds were located in urban areas, while more than 85% of all doctors, 82% of dentists, 85% of oriental medical doctors and 87% of nurses were working in urban areas. Recognizing that the geographical imbalance of medical service availability could have undesirable economic and social consequences, Government has attempted, since the late 1970s, to increase availability in "under-served" areas through public investments as well as through providing incentives for private investments. There has also been a change in the pattern of public expenditures for health care services, with the share of preventive services decreasing from 68% in 1976 to 27% of the overall health budget by 1981, as some public facilities were charged with providing more curative care.

1.20 Concern about the consequences of providing medical care on the basis of income rather than need has led to the devising of special programs to cover the medical needs of various population groups. In 1977, poor or otherwise handicapped people were guaranteed access to subsidized medical care under a program called the Medical Aid Program; this program was supplemented by the Medical Assistance Program in 1986. Also in 1977, mandatory health insurance programs for employees were initiated. Health insurance has been progressively extended to other groups in the population, culminating in a decision in 1986 to provide universal coverage by 1990.

1.21 Transition to Public Sector Orientation. The health care system of Korea is presently in a state of transition from private to public sector orientation. Until recently, most facilities were privately owned, most prices for medical services were set in market transactions between consumers and providers, and most investment decisions were privately taken without constraints imposed directly by Government. Since the onset of health insurance, however, the character of transactions in the health system has been changing. While most facilities remain privately owned, the pricing and allocation of health care and of health care investments has come to be more and more heavily influenced by Government actions. For example, most medical services to the insured are covered by a fee schedule set by Government. Also, the expansion of hospitals in certain areas is subject to prior approval from Government. Finally, the supply of medical personnel is determined by Government decisions on medical school start-ups and enrollments. The proposed universalization of health insurance will carry the transition even further since, theoretically, few transactions will then take place directly between consumer and provider. Most transactions will pass through a third party, the insurance society. To the extent that the Government sets the rules for insurance coverage and payments, the health care business will

clearly be influenced more fundamentally by Government actions than at any time in Korea's past.

1.22 Intervention in the health sector via insurance is presently being justified by reference to equity arguments. Access to affordable health care has been accepted as a basic need for all citizens and as a social goal for Korea. Insurance, accompanied by government regulations on the pricing and allocation of health care and health investments, has been accepted as an appropriate mechanism for achieving this goal. In this respect, the evolution of societal objectives with respect to health care seems to be following the same path that has already been travelled in many developed countries. This path has pitfalls of which Korea should be aware.

### C. Health Status Trends

1.23 Korea's health status trends suggest that it is likely to face the same cost and effectiveness dilemmas regarding health care in the future that many OECD countries have faced in recent years. There are two aspects of the evolution of health status in Korea over the past twenty years that support this interpretation. First, there has been a dramatic improvement in health status and a decline in public health concerns. Second, there has been a pronounced trend towards an industrialized-country type of mortality and morbidity profile.

1.24 Improving Health Status. Most conventional indicators of health status (see Table 1.1) suggest that Korea has experienced great improvements in recent years. Life expectancy at birth increased from about 55 years in 1965 to about 65 years in 1985 for males and from 58 years to 72 years for females. In the same period, the infant mortality rate declined from 63 to about 27, the child death rate from 6 to 2, and the overall crude death rate from 11 to 6 per 1,000. It would appear that the benefits of the remarkable economic growth that has occurred in Korea during the past two decades have accrued in the health sector also. The fall in mortality has probably been due largely to improvements in education, nutrition and health care that accompany rising standards of living.

1.25 The incidence of acute communicable diseases such as cholera, dysentery, typhoid, smallpox, typhus, diphteria, scarlet fever, poliomyelitis and encephalitis has also diminished sharply: indeed, many of these diseases have been eradicated. There have been no reported cases of smallpox since 1961, of typhus since 1968, of malaria since 1980 and poliomyelitis since 1984. The prevalence rate of tuberculosis now stands at about 2%, a low level compared to the situation only 20 years ago when Korea's rate was higher than most other developing countries. All this suggests that Korea has had successful disease prevention and public health promotion programs. It would also appear that investments in water supply systems, sewage disposal facilities and low-income housing are paying off.

**Table 1.1: HEALTH STATUS INDICATORS FOR KOREA**

	1965	1985
Life expectancy at birth		
Male	55	65
Female	58	72
Infant mortality rate (aged under 1)	63	27
Child death rate (aged 1-4)	6	2
Crude death rate	11	6

Source: World Development Report, 1987. World Bank.

1.26 Changing Mortality Profile. Together with the decline in mortality to levels approaching the standards of developed countries there has occurred a transformation in the pattern of morbidity and mortality. A picture of this transformation is provided in Table 1.2 which ranks the ten leading causes of death in Korea in 1953 and in 1983. It is clear from this table that "modern" diseases have come to dominate the picture. Whereas in 1953 communicable and/or infectious diseases such as tuberculosis, pneumonia, bronchitis and gastroenteritis were the most prominent causes of death, by 1983 the most prominent were hypertensive and cerebrovascular diseases and accidents.

1.27 This transformation of the mortality pattern is consistent with patterns observed elsewhere and is linked to changes in living patterns that accompany rapid economic growth. Such growth provides resources to conquer communicable diseases but, at the same time, promotes changes in lifestyles that produce new health risks. In particular, the incidence of non-communicable adult diseases such as hypertension, diabetes, cancer, and heart, liver and kidney diseases has been observed to increase with rising income levels.

Table 1.2: TEN LEADING CAUSES OF DEATH IN KOREA

Rank	1953	1983
1	Tuberculosis	Hypertensive disease
2	Gastroenteritis	Cerebrovascular disease
3	Cerebrovascular disease	Accident
4	Pneumonia, bronchitis	Aging
5	Nervous system disease	Malignant neoplasm of stomach
6	Senility	Chronic liver disease and cirrhosis
7	Heart disease	Traffic accident
8	Infectious and parasitic disease	Tuberculosis
9	Malignant neoplasm	Suicide and self-inflicted injury
10	Unspecified	Emphysema, bronchitis & asthma

Source: "Introduction to the Health Situation in Korea". Korea Institute for Population and Health, 1986.

1.28 These developments imply that, in the future, a greater proportion of medical expenditures will be spent on dealing with types of illnesses for which, the experience of developed countries shows, the linkage between problem, therapy and cure is highly uncertain and the best that can be achieved may be continuing maintenance in a state of more or less disability. If so, the prevalence of medical need will continue to grow with the "successful" application of medical technology. This tendency is exaggerated in "aging" societies where the elderly form a large proportion of the population; Korea's demographic trends suggest that the proportion of the elderly, while presently small compared to the developed countries, will continue to grow steadily. Finally, an increasing proportion of health expenditures will be devoted to dealing with the ill-effects of personal lifestyle choices (with respect to diet and exercise, for example). This raises the question whether, in this case, it would not be more efficient to spend funds to affect lifestyle choices directly (via education, for example).

1.29 Changes in public objectives regarding health care have brought national governments of most industrialized countries squarely into the health care business. From the evidence to date, this role for government has turned out to be an expensive fiscal proposition in most countries. Furthermore, the particular incentives provided through insurance-related interventions have increased private expenditures also. Korea seems to be embarked on a similar track as far as health care objectives are concerned and could learn from the experience of these countries. The next section examines the experience of the developed countries and of Korea with respect to health expenditures.

#### D. Health Expenditures: A Matter of Choice?

1.30 In every developed country, one of the largest industries in the national economy is the collection of systems, organizations and individuals providing health care services to the population. The share of national

resources absorbed in this effort varies among the OECD countries, from 4.6% of GDP in Greece to 10.7% in the United States; but most of the major industrialized countries are currently spending in the range of 8% to 10% of their national income on health care.<sup>1/</sup> This proportion has increased substantially over the past three decades in all such countries, although in most it has stabilized during the 1980s. The United States is the outstanding exception.

Table 1.3: PERCENT OF GDP SPENT ON HEALTH: KOREA AND SELECTED OECD COUNTRIES, 1984/85

United States	10.7
Sweden	9.4
France	9.1
Netherlands	8.6
Canada	8.4
Germany	8.1
<u>OECD mean</u>	7.5
Italy	7.2
Japan	6.6
New Zealand	5.6
Portugal	5.5
<u>Korea</u>	5.2
Greece	4.6

Source: Schieber, G.J. (1987). Financing and Delivering Health Care, OECD Policy Studies, No. 4.

1.31 Correspondingly, control of the level and rate of escalation of such outlays has become a major public concern in virtually every industrialized country. There is now almost universal concern over "value for money" in health services. This reflects a widespread view that the institutions governing the organization and delivery of health care have a particular tendency to generate costs without proportionate benefits, and to do so without any internally imposed limit. The particular institutions through which health care is provided and paid for differ radically from one nation to

<sup>1/</sup> Interestingly, however, Japan is reported at 6.6% of GDP spent on health care, and yet its broad aggregate indicators of health status are among the highest for industrialized nations. One explanation lies in Japan's dietary preferences which cut down the risk of heart disease and cancer.

another. Yet the tendency for health care systems to expand until externally constrained appears to be common to all national systems.2/

#### Determinants of Expenditure Variation

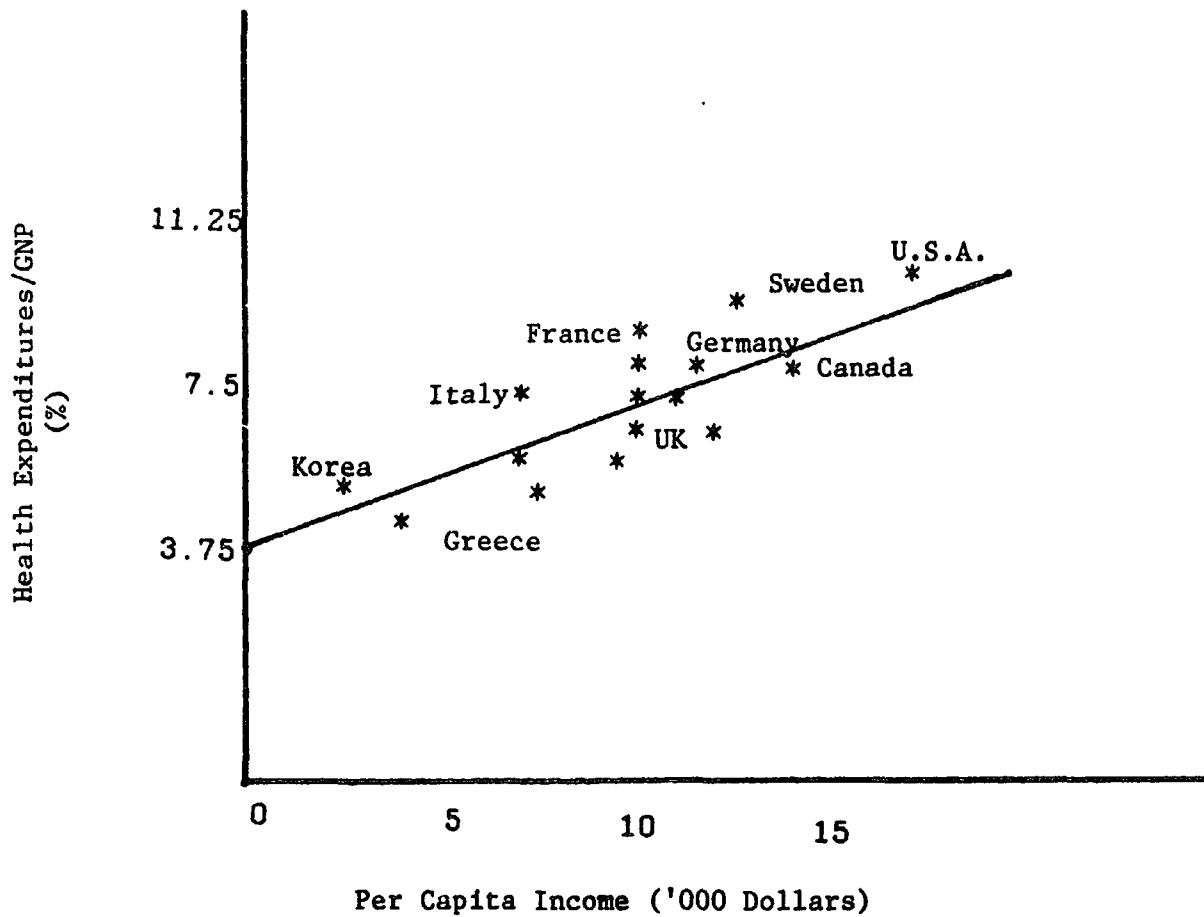
1.32 The patterns of resolution, or perhaps rather of accommodation, of these conflicts vary considerably--as do their outcomes. Most obviously, as noted above, the share of total economic resources devoted to health care differs markedly across developed countries. But attempts to distinguish the performance of different national systems on simple measures, such as whether they are "socialized," or "entrepreneurial," however, or according to the proportion of health care funding which passes through "public" or "private" budgets, have not been very successful. In particular they are inadequate to explain why the "entrepreneurial" United States and the "socialized" Swedish systems are proportionately the most costly in the world--10.8% and 9.3% of GDP in 1985--along with the more "mixed" French system at 9.4%. The "entrepreneurial" Belgian and "socialized" British systems, on the other hand, are among the least expensive--7.3% and 5.7% respectively.3/

1.33 Indeed, there has been a school of thought which has argued that the forms of organization and payment make no difference to the level of expenditure on health care. On this view, the proportion of national income spent on health care is simply a function of the level of national income per capita. Health care is, at least at the aggregate level, a "luxury good," and as nations become wealthier, they spend a higher proportion of their income in this sector. Cross-national measurements of the relation between per capita incomes and health spending have in fact shown a very strong statistical relationship (See Figure 1.2), which would suggest that nations cannot, or at least do not, control their overall outlays on health, regardless of the

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2/ The generality of this tendency presumably corresponds to the fact that modern medical technology, and increasingly the patterns of training of medical personnel, are common throughout the developed world. Insofar as the clinical personnel in health care share a common international culture, their patterns of behavior and their expectations are similar.

3/ Aggregate data on the proportion of health care finance provided through the "public" and "private" sectors are particularly unrevealing because the "public/private" line is not clearly drawn. Nominally private organizations may be not-for-profit insurance agencies under very tight public regulation and coordination, as in West Germany (and Korea). If public regulation controls rate setting, enrollment policy, and reimbursement decisions, in what sense do the payment organizations remain "private"? On the other side of the coin, governments may set up insurance commissions to administer health insurance, which report to, say, a minister of health, but have a substantial degree of independence. To classify the West German payment system as "private," and the Swedish as "public" would be to miss the real nature of the political interactions involved.



**FIGURE 1.2:** Income and Health Expenditures  
(Korea and Selected OECD Countries, 1984-85)

institutional framework surrounding its delivery and reimbursement. The most that could be achieved by institutional design or policy choice, then, would be a reallocation within that total, and perhaps some impact on the relative effectiveness of the services provided.

1.34 This view is not universally accepted. The experience of several countries and especially of Canada, suggests that policy choices and institutional design can have a major impact on the relationship between health care spending and national income. In several countries, one can observe a decline over time in the responsiveness of health spending to general economic growth. Broadly speaking, real health expenditures have been growing less rapidly than GDP in most OECD countries since 1980. Hence, one should not posit a rigid, mechanical relationship between incomes and health spending.

1.35 Most developed nations have within the last decade (if not earlier) begun to assign increasing importance to policies to control health care costs and to improve the management of resource use in this sector. It has taken some time for the decision-making structure in each country to come to the realization that there was a problem, and to begin to develop mechanisms of control which are both effective, and politically effective. Nor is that process ever really over--the management and control of health care costs appears now to be a permanent responsibility of governments in the developed world.

1.36 Control policies are working better in some countries than in others as witness the stability in Canada for about fifteen years compared with continuing escalation in the United States. This contrast is all the more striking because the differential in trends has been maintained over so long a time period, and because the health care delivery systems and the wider societies in which they are embedded are so similar on either side of the border. Only the health care funding system differs, making it a good candidate for the explanation of the difference in cost performance (Evans 1988).

1.37 There are other contrasts also. Germany seems to have stabilized its share of health spending since 1980, and has not increased much since 1975, while in France the ratio has escalated steadily. Swedish health spending doubled its share of national income between 1960 and 1980, and since then has actually fallen slightly. There seems little room for doubt that health care policy choices do matter, and different countries do show greater and lesser success in the management of health care costs, for reasons which can be clearly linked to the characteristics of the policies they have chosen.

#### E. Health Expenditures in Korea

1.38 Korea's public spending on health programs has been rather low by the standards of other countries in Korea's income group. Table 1.4 shows proportions of central government budgets spent on health in selected upper middle income countries for the years 1972 and 1985. In both years, Korea ranks at the bottom and considerably below the average for the group. Indeed, Korea's public expenditures on health appear meagre even by the standards of many of its neighbors in Southeast Asia with lower per capita incomes. This is also shown in Table 1.4.

1.39 Nevertheless, Korea's achievements in health improvement indicate that its relative public parsimony has not been detrimental. This is probably because of two reasons. First, the substantial increase in Korea's GNP over the past two decades has meant that a rapidly growing amount of funds has been available for health programs even though as a proportion of the central government budget this amount has remained low. Second, private expenditures on health in Korea have risen significantly as income levels have risen and may even be higher, relative to income, than in many of its neighbors and perhaps even than in many other upper middle income countries; unfortunately, the lack of appropriate data prevents a definitive comparison. These observations highlight the importance of rising income levels and of private expenditures in the achievement of better health.

Table 1.4: COMPARATIVE PUBLIC EXPENDITURES ON HEALTH /a

	1972	1985
<u>Upper middle income countries</u>		
Brazil	6.7	7.6
Uruguay	1.6	4.1
Mexico	5.1	1.5
Venezuela	11.7	7.6
Israel	3.6	3.5
Singapore	6.2	3.9
<u>Korea</u>	1.2	1.4
<u>Southeast Asian countries</u>		
Indonesia	1.4	2.5
Philippines	3.2	6.0
Thailand	3.7	5.7
<u>Averages for country groups</u>		
Industrial market economies	10.0	11.4
Upper middle income	7.9	4.6
Middle income	6.8	4.4
Low income	4.9	3.7

/a Percent of central government expenditures allocated to health.

Source: World Development Report, 1987. World Bank.

1.40 Sources of Total Expenditures. Total expenditures on health arise from three sources: public, private and insurance. Public expenditures consist of the health-specific outlays of the central and local governments and can be estimated from the respective budgets. Private expenditures consist of the outlays of families on health care and can be estimated from annual family income and expenditure surveys. Insurance expenditures consist of the benefits paid by the publicly regulated insurance societies and can be obtained from their annual reports.

1.41 Trends. As already noted, public expenditures on health have tended to be relatively meagre in Korea as compared to other countries in its income group or even to some neighboring countries with lower per capita incomes. However, private and insurance expenditures appear to have compensated for the lack of public effort. Table 1.5 provides data on the evolution of monthly private health expenditures for urban households. It can be seen that such expenditures have risen sharply since the early 1970s and have stabilized in recent years at around 7% of all expenditures or 5% of income. Table 1.6 provides data on the behavior of insurance outlays since 1977. Again, a sharply rising trend is obvious, broken only in 1986 when higher user charges were imposed in order to rein in insurance society expenses.

Table 1.5: MONTHLY PRIVATE HEALTH EXPENDITURES,  
URBAN HOUSEHOLDS, 1970-1985

Year	Percent of all expenditures	Percent of income
1970	3.1	3.1
1973	2.6	2.4
1976	5.0	3.7
1979	6.1	4.1
1982	7.0	5.3
1985	7.1	4.9

Source: Economic Planning Board (various years),  
Report of the Household Income and  
Expenditure Survey.

Table 1.6: INSURANCE BENEFITS PAID BY VARIOUS INSURANCE  
PLANS, 1977-1986  
(Billion won)

	1977	1979	1981	1983	1985	1986
Industrial establishments	4.6	38.2	118.1	269.9	405.7	386.7
Government employees						
private school teachers	-	35.4	70.7	113.4	154.5	152.6
Voluntary regional	0.1	0.2	0.4	1.8	4.1	5.2
Compulsory regional	-	-	0.3	5.5	6.8	6.2
Occupational	-	-	-	11.9	28.7	31.3
Other (automobile and accident insurance)	14.4	35.3	30.0	51.3	171.7	166.6
<b>TOTAL</b>	<b>19.1</b>	<b>109.1</b>	<b>248.7</b>	<b>497.4</b>	<b>771.5</b>	<b>748.6</b>

Sources: Federation of Korean Medical Insurance Societies (1987), and Soon Won Kwon (1988).

1.42 Table 1.7 combines the estimates of public, private and insurance expenditures for health care to show total health expenditures for the period 1970-86 and their share of GNP. Three points may be noted. First, private and (privately-financed) insurance expenditures account for the bulk of health outlays and for the rapid rise; public expenditures have risen modestly and their share of the total has been falling. The "privateness" of the health burden in Korea may be judged from the fact that among OECD countries private expenditures typically account for only 30% of all health expenditures whereas, in Korea, the proportion is closer to 67%. Second, a spurt in expenditures occurred around 1977 when insurance was introduced and a somewhat higher rate of increase has been prevalent since (see Figure 1.2). Third, health expenditures have been rising faster than GNP, thereby accounting for a larger and larger share of GNP; in view of Korea's remarkable GNP growth in the past two decades, the growth of health expenditures must be regarded as very rapid indeed.

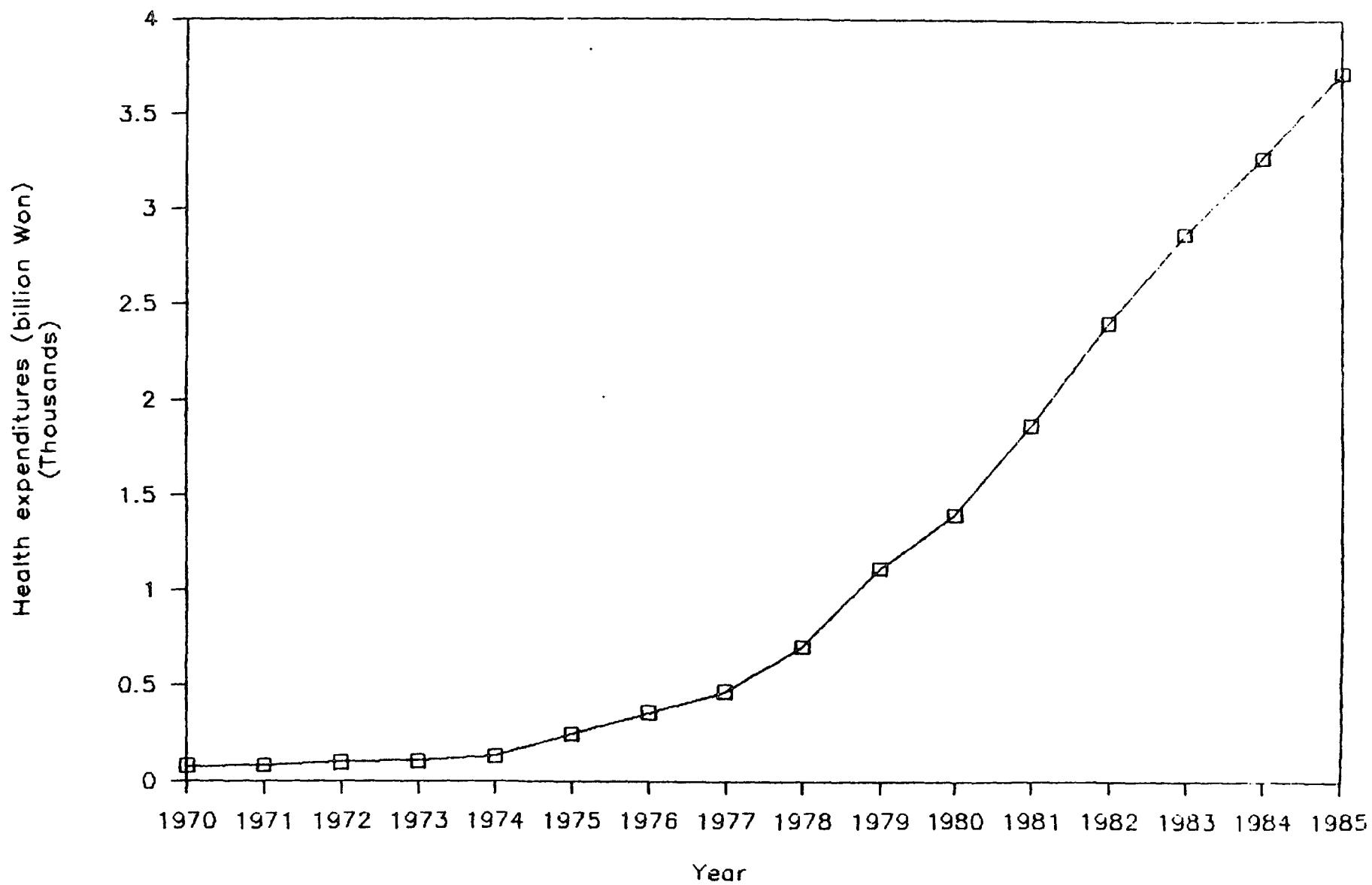
Table 1.7: ESTIMATE OF NATIONAL HEALTH EXPENDITURES

Year	Percent of Total Health Expenditure			Total (billion won)	Total as a Percent of GNP
	Public	Private	Insurance		
1970	14	85	1	77.5	2.5
1972	17	81	2	95.7	2.8
1974	17	81	2	127.9	2.9
1976	16	83	1	357.2	2.7
1978	19	76	5	701.8	3.1
1980	14	73	13	1,396.5	3.8
1982	13	71	16	2,405.3	4.7
1984	12	69	19	3,275.7	4.9
1985	12	67	21	3,716.7	5.1

Source: Bank staff estimates.

1.43 Rapidly rising private expenditures are consistent with the substantial increases in per capita incomes that have occurred in Korea in the last two decades. The spurt and higher rate of growth associated with insurance is consistent with the experience of other countries that have introduced health insurance in the past. The rising share of health expenditures in GNP is consistent with the idea of health being a "luxury" good whose demand rises more than in proportion to income (i.e., its income elasticity is greater than unity). However, the rate of increase of the share is worrisome. Although Korea is now below the level of relative spending on health in most OECD countries, at present rates of growth it will soon surpass several of them. The above trends, and in particular the rapidly rising health/GNP ratio, draw attention to the necessity of monitoring health expenditures to ensure that they do not become exorbitant in relation to the ability to pay and, more importantly, to the benefits in health status improvement that accrue.

## GROWTH OF HEALTH EXPENDITURES IN KOREA



F. Determinants of Health Expenditures

1.44 Efforts to monitor and eventually to control health expenditures must be predicated on a good understanding of what drives such expenditures. The principal determinants of total expenditures on health, as suggested by a review of the relevant literature, are: income per capita, population size and age structure, and insurance arrangements.

1.45 Per Capita Income. Income is typically the most important determinant of the demand for services and the demand for health care is no exception. Quantitative studies of the experience of developed countries routinely find income to be statistically the most significant factor explaining variation in the consumption of health care.

1.46 The growing demand for health care in Korea, as evidenced by the rising share of GNP absorbed by health expenditures, can be explained in considerable measure by Korea's remarkable experience with income growth. During the past twenty years Korea's per capita income has grown at an average of 8%, among the highest rates experienced by non-oil-based economies. This high and sustained growth of income has brought commercial health care within reach of a larger and larger number of people and has probably changed preferences towards higher-quality care. At the same time, higher incomes have probably promoted changes in lifestyles, such as the increased consumption of alcohol and cigarettes, that generate greater demand for health care. All these tendencies lead to higher expenditures on health care; in the Korean case, expenditures have risen from 2.5% of GNP in 1970 to 5.1% of GNP in 1985 as GNP per capita has risen from about \$250 to about \$2,000. The income elasticity of health expenditures has been measured at 1.8 which is high relative to most other countries and which suggests that health is an especially important concern for Koreans. As Figure 1.2 shows, Korea's health expenditures per capita are higher than what would be predicted for its income level in comparison with OECD countries.

1.47 Population Size and Age Structure. Population size affects total expenditures in an arithmetically obvious way: assuming utilization and per capita health costs constant, the larger the population size the greater the total expenditures. Also, under these assumptions, growth in population will translate into an equal growth in health expenditures. Furthermore, if population growth exceeds income growth, this identity suggests that the share of health expenditures in GNP will tend to rise.

1.48 Age structure affects health expenditures because it affects both utilization and unit health costs. Elderly people tend to be more intensive users of health care and the sort of care they demand tends to be more expensive. Thus the greater the proportion of elderly people in a given population, the higher will be health expenditures. If this proportion rises over time one would expect to see health expenditures rise as a proportion of GNP.

1.49 Korea's current demographic situation suggests that health expenditures may be expected to grow both in absolute and relative terms over the next two decades. Korean fertility is now close to replacement level and the absolute number of births will start to decline in the next decade, but

births will exceed deaths for several more decades because of the relatively large number of women of childbearing age. The population growth rate, while declining, will continue to be positive well into the next century.

1.50 The projected age structure (see Table 1.8) of the Korean population shows a steadily growing proportion of older people as a result of both declining fertility and increasing life expectancy. If fertility falls below replacement level, the proportion of older people will become even higher. While the percentage of people over 65 in the OECD countries is now significantly higher than it will be in Korea even 20 years from now, the growth rate of the elderly population in Korea (about 3.95%) exceeds that of the OECD countries (about 1.25%). All this suggests that health expenditures are likely to rise as a proportion of GNP for age-structure related reasons and that the Korean health care system must be prepared for a more rapid expansion than that of the OECD countries.

1.51 Aged persons in Korea are typically cared for by their children. However, as in other countries, modernization has weakened filial bonds. Increasing life expectancy, declining fertility, and a growing preference for nuclear families, especially in urban locations where housing space is scarce, has resulted in an increase in the number of aged persons admitted to nursing homes in recent years. Since each of these trends is expected to continue in Korea, the growing number of older people will require more nursing home care. Health expenditures may be expected to grow for this reason also, as expenditures for the care of the aged, which were mostly invisible when care took place in the homes of their children, become visible.

Table 1.8: POPULATION SHARE OF THE ELDERLY IN KOREA: 1985-2010

	Age group			Total population ('000 persons)	Growth rate (%)
	50+	65+	75+		
	-----	(%)	-----		
1985	14.6	4.2	1.3	41,056	1.40
1990	15.9	4.9	1.4	43,789	1.29
1995	17.6	5.5	1.6	46,389	1.15
2000	19.5	6.5	1.9	48,738	0.99
2005	21.9	7.8	2.3	50,813	0.83
2010	25.2	8.7	2.7	52,940	0.80

Source: World Bank demographic data files.

1.52 Insurance Arrangements and their Effects. Insurance can affect health expenditures in a variety of ways depending on the design of the insurance arrangements. To begin with, the cost of running the insurance system must be counted in health expenditures. To the extent that some systems are more expensive to administer, national health expenditures will be

larger. Quantitatively more substantial effects, however, are likely to come about from the manner in which insurance arrangements change incentives for consumers and providers.

1.53 Typically, the availability of insurance leads to an increase in the demand for medical care as the effective cost of obtaining care is reduced for beneficiaries. The increase in expenditures comes about from two sources: an increase in the quantity of services demanded as well as a shift to better-quality and more expensive services. A number of research studies show that both these sources of increase in expenditures have been at work in Korea. It is widely believed that the introduction of insurance for wage and salaried workers in the mid-1970s led to an increase in utilization as well as a marked increase in the propensity to use large general hospitals for primary care. A pilot study conducted in the rural areas in 1982-83 found that utilization increased following the introduction of insurance and preference among facilities visited for medical care also changed in favor of the more expensive ones. In particular, while visits to rural clinics and hospitals almost doubled, visits to drug stores, formerly the most popular facility for care, decreased by almost half (Kim et. al., 1986).

1.54 The availability of insurance is also believed to create incentives for providers of medical services to increase the quantity of services to patients beyond medically necessary levels. Since the patient does not have an incentive to resist the prescription of additional services, not being financially fully responsible for them, such services typically get performed and medical expenditures go up accordingly. Several studies have found patterns of behavior in Korea that are consistent with such a conjecture. One recent study found that insured patients received a greater quantity of medical care services as compared to a group of non-insured for the same diagnoses. Another study found that length of hospital stay was significantly longer for insured patients although post-operative complications, a measure of the effectiveness of the care provided, appeared not to differ significantly between insured and non-insured patients (Yu, 1983).

1.55 The observations noted above suggest that the design of insurance arrangements can have a significant effect on the level and rate of increase of health expenditures. In addition, insurance arrangements can have substantial effects on the level and composition of investments in medical facilities and manpower. These effects are explored in the remaining chapters.

## II. THE HEALTH INSURANCE SYSTEM

### A. Introduction

2.1 Health insurance was introduced in Korea in 1977 when Government required all firms with more than 500 employees to participate in privately-financed insurance arrangements and began its own program of premium-free coverage for the poor. Before this, a number of voluntary insurance programs had been encouraged but progress had been slow and unsteady. Since 1977, compulsory insurance has been provided progressively to other groups in the population. By 1981, almost 30% of the population was covered; however, all the covered were employed either in industry or by the Government. In 1981, insurance coverage was offered to the self-employed on an experimental basis; six communities, one city and five rural counties, were included in this program. At the same time, coverage of the employed continued to expand as smaller and smaller firms were brought into the insurance system so that by 1987, almost 47% of the total population was covered (see Table 2.1). A further 10% were covered under the special assistance program for the poor.

2.2 The growing coverage of the employed and the lack of coverage for the self-employed fed perceptions of inequity and generated louder and louder complaints by the mid-1980s. These complaints about the lack of fairness coincided with a general tendency towards greater political liberalization in the country. By this time also, experience had been gained with the pilot programs for the self-employed. Accordingly, in 1986, a decision was taken to extend insurance to the rural self-employed (farmers and fishermen mostly) by 1988 and to do the same for the urban self-employed by 1990.

2.3 Broadly speaking, a social (and political) decision has been made by the Republic of Korea to extend compulsory health insurance coverage to the total population. The motives behind this decision concern both fairness and efficiency objectives. It is desired that every Korean have health insurance coverage and that as a result the costs of health services be fairly shared by all--rich, poor, ill, and well--not borne overwhelmingly by those unfortunate people who need extensive health services.

2.4 Insurance has been chosen as the mechanism for extending the availability of health care to all because of its efficacy in achieving fairness and efficiency objectives. Compulsory insurance, with premiums varying by wealth, is believed to be a practical method for equitably spreading health care costs over the population. It is also believed to be an appropriate method for gaining the efficiency benefits that come from sharing risks of possible financially catastrophic illness and injury.

Table 2.1: EXPANSION OF INSURANCE (1977-86)

	1986		1977	
	Number of beneficiaries ('000)	Proportion (%)	Number of beneficiaries ('000)	Proportion (%)
<u>Medical Aid</u>				
1st class	643	1.5	369	1.0
2nd class	1,819	4.4	1,726	4.7
Medical assistance	1,924	4.6	-	-
All medical aid beneficiaries	4,386	10.5	2,095	5.7
<u>Medical Insurance</u>				
Industrial establishment	13,294	32.0	3,140	8.6
Government employees and school teachers	4,329	10.4	-	-
Regional and occupational	1,739	4.2	60	0.2
All Insured	19,362	46.6	3,200	8.8
<u>All Covered</u>	<u>23,748</u>	<u>57.1</u>	<u>5,295</u>	<u>14.5</u>

Source: Ministry of Health and Social Affairs.

2.5 Unfortunately, introducing health insurance is expected to bring negative as well as positive results. Strong incentives for cost escalation, because of increased demands for services by the insured and decreased incentives for cost control on the part of the insured and the service providers, are introduced by any form of insurance. If such cost escalation occurs, too many resources will be paid to the health sector relative to the real value of services provided, and society will lose. This inefficient result also will not be equitable, in that consumers will pay unreasonably large amounts for health care, and there will be redistribution of income from those outside the health sector to those who work or invest in the health sector. It is therefore imperative that care be taken to design the insurance system so as to minimize the negative impacts on both economic efficiency and fairness.

2.6 Cost escalation and excessive use of health system services are the two most obvious possible negative outcomes of poorly designed health insurance schemes.<sup>1/</sup> The goals of the health insurance system--availability of health care to all, fair distribution of the health care costs of the nation across population and need groups, effective risk-sharing by all members of the society, and a stable source of revenues for the health system--must be sought in the context of a diligent attempt to prevent these two problems. An insurance program that is not designed with effective cost control as an objective, can fail in the long run to achieve the positive objectives of insurance, because cost escalations eventually undermine the financial viability of (and the political support for) the system. It is the ultimate objective of this chapter to suggest ways to improve the design of the insurance system so that the positive benefits of insurance coverage can be achieved while the possible negative results are minimized.

2.7 A cursory overview of the Korean insurance system reveals the following prominent features: coverage and participation are mandatory; financing is done largely through premiums and user charges; providers are reimbursed on a fee-for service basis in accordance with a schedule set by Government; and insurance coverage itself is provided through a large number of non-profit and non-competing societies. The sections that follow describe and discuss these and other coverage, financing and organizational features in more detail.

#### B. The Insurance System: Coverage Issues

2.8 The current health insurance system in Korea has three distinctive features as far as coverage is concerned. First, participation and coverage are mandatory. The assignment of beneficiaries to insurance societies and vice-versa is done without allowing a choice in the matter to either party. Second, coverage benefits are virtually identical, although regional variations in the availability and quality of facilities may result in variations in benefits actually availed of. Third, there are separate arrangements for covering the poor.

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<sup>1/</sup> Rising costs, by themselves, are not necessarily a cause for concern since they may reflect both rising demand and improvements in quality of care. It is really the "value for cost" concept that is important. In this regard, it is useful to be reminded that, in most advanced countries, health status improvements do not seem to be linked to increases in health expenditures after a point.

Who is Covered and How

2.9 The assignment of (nonpoor) beneficiaries to insurance societies is done on the basis of employment and location status. The primary distinction is between wage (or salary) earners and the self-employed; with the category of the self-employed further distinctions are made according to occupation and location in urban or rural areas. Wage and salary earners are covered by one or the other of two schemes: a scheme for employees of industrial establishments and a scheme for Government employees, private school employees, and pensioners. The self-employed are covered by one or the other of three schemes, one each for rural and urban residents and one for members of the same occupation.

2.10 Each of these schemes is associated with different insurance societies so that employment and location determine which society one will belong to. Employees of large industrial establishments belong to insurance societies organized at the firm level (one for each establishment) while employees of small and medium enterprises belong to insurance societies organized to cover groups of such enterprises. There are 144 insurance societies for employees of industrial establishments. Government employees, private school teachers and pensioners are all covered by one insurance society called the Korea Medical Insurance Corporation (KMIC). The rural self-employed are covered by 140 societies set up along county or district lines and the urban self-employed are to be covered by 17 additional societies whose jurisdictions have not yet been firmly established. The societies which presently cover members of the same occupation will be disbanded when the schemes for the self-employed are fully operational.

2.11 Participation and coverage are mandatory. Neither the insurance society nor the beneficiary has a choice in selecting each other. Such compulsory coverage avoids the moral dilemma of how to deal with people who voluntarily choose not to have insurance coverage but fall ill and are unable to pay for the necessary care. Thus, hospitals do not have to face the possibility of providing subsidized care or turning sick people away. Compulsory coverage also has the benefit of avoiding adverse selection whereby those who are more likely to be sick participate while many of the healthy opt to stay out of the system or those who are more likely to be sick are rejected by insurance societies while those who are healthy are signed up. Either way the availability of choice reduces the risk-spreading ability of the system. Choice could also introduce an equity problem since poorer people will be more likely to choose not to be covered and, because they are more likely to have health problems, insurance societies are more likely to screen them out. Thus, mandatory coverage would seem to be one way of promoting equity in access to health care.<sup>2/</sup>

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2/ The disadvantage of a compulsory assignment procedure is that it prevents consumer choice from being used as a means of imposing cost and efficiency discipline on insurers. Consumers cannot discipline insurers by choosing the least expensive or most efficient among them.

2.12 The fact that benefits are not directly linked to premiums and are virtually identical for all the insured promotes equity within any given insurance society. However, there are variations in the availability of health services across regions and this affects the benefits actually availed of by different segments of the insured. The potential for a lack of equity across different insurance societies arising from the differential availability of services is offset by an indirect link between premiums and benefits. This indirect link works through the financial conditions of different insurance societies. Societies that operate in areas with relatively low availability of health services are also likely to experience relatively low payment claims and should therefore be able to get by on lower premium contributions.

How the Poor are Covered

2.13 A separate system (Medical Aid) covers approximately the poorest 10% of the population. The participants pay no premiums but there are copayments for several types of care. Eligibility for the Medical Aid system is nominally based on specific income standards, but local governments make the decisions and are allowed to consider other factors in their decisions. On the basis of available information it is difficult to ascertain how well this process identifies the actual poor.

2.35 Identification of the Poor. The system for identifying the poorest 10% is straightforward in concept. Each community's leadership is told that those who qualify on the basis of income, assets, and other specifications (such as being young, old, pregnant, or an immigrant from North Korea) should be declared eligible. Because of the inexactness of the data available, however, other information can be used by local officials. In effect, then, there are no strict regulations (or formulae) regarding how various assets and income are to be weighed in making the eligibility decisions. Obviously, some amount of subjectivity results.

2.14 Officially, there are three classes of people eligible for the Medical Aid System. Class I members must come from households with incomes of less than W 44,000 per person per month and have property owned of value less than W 3.2 million, but must also be over age 65, under age 18, or immigrants from the Korean People's Republic. Class II members are those who meet the Class I income and property standards but not the age or immigrant criteria. Class III members come from households with incomes of less than W 54,000 per person per month and a value of property owned of less than W 5.4 million.

2.15 The local governments pay 50% of the costs of treatment for Medicaid members in Seoul and 20% elsewhere in the country. This local government copayment feature provides some incentive for local officials not to certify nonpoor people for the program. It is rumored, however, that significant numbers of nonpoor do become certified; while numbers of those who are poor are not judged to be eligible. Because such allegations tend to be based on little hard evidence, it is very difficult to evaluate their validity.

2.16 Alternatives. There are possible alternatives to the present community leaders' ("village head") method of identifying the poor that could be tried. Each of the methods has its own practical problems, but all are

used in various places, and for a revenue-short system almost any practical method can be preferable to making no attempt to identify the poor. In the absence of a means-testing approach, the only alternatives are to charge everyone equally or to charge no one (really the same as the first alternative except the premium is set at zero). Charging everyone the same positive price tends to be unfair to the poor, and the alternative of making health care free has the added problems of (i) failure to raise revenues to pay for the cost of the services used, (ii) providing no monetary disincentives to overuse of the health care system, and (iii) being regressive in that those who are able to pay (the relatively well-off) have their health care paid for by taxpayers (the average taxpayer generally being relatively poor).

2.17 Over time, as tax records become more reliable, more precise identification of the poor should become possible. Short-run approaches that might prove helpful until income can be better evaluated could include such actions as the requirement that all Medicaid patients use only the most basic "no-frills" level of hospital service to make Medicaid less attractive to the nonpoor. Another possibility is a self-declaration system with specific income and wealth standards. Those who declared themselves qualified would be accepted into the system, and random (or other) audits, with relatively severe penalties for false declaration, could help to dissuade abuses. As income data do become better and more available, fee systems could be designed to vary by income level, with the poor paying low fees and the rich paying more.

#### What is Covered

2.18 Insurance presently covers a range of medical services such as examinations, medicines, treatment, surgical operations, hospitalization, nursing services and ambulance services. Even preventive check-ups are covered under some plans such as the plan covering Government employees and teachers.<sup>3/</sup>

2.19 The scope of coverage appears to quite generous by the standards of Korea's per capita income. This may become a source of budgetary discomfort if a greater degree of subsidy comes to be provided by Government than is presently the case. The design of the benefits package, however, is not completely oblivious to the need to keep system expenses low: frivolous services such as cosmetic surgery are excluded as are services involving the use of very expensive technology such as the CT Scanner. In addition, the use of copayments and deductibles serves to restrict abuse of the system.

#### C. The Insurance System: Financing Issues

2.20 The most prominent characteristics of the Korean insurance system, as far as financing is concerned, are that the bulk of the financing is presently raised from private sources via premiums, copayments and deductibles rather than from public sources and that all providers are reimbursed on a fee-for-service basis in accordance with a fee schedule negotiated and set by the government. A preliminary assessment is that overall the financing system is sound and equitable but some potential dangers lurk. One danger is the

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<sup>3/</sup> Regular check-ups are not covered under the industrial establishment insurance plans since they are mandated by labor laws.

possibility that the fee setting mechanism will eventually lose receptivity to market signals. Another danger is that the public sector will eventually come to bear a substantial burden of financing if initiatives to extend subsidies to the self-employed are carried through.

How Finances are Raised

2.21 Premiums. Under the present system, contributions (premiums) are set by each insurance society at levels needed to cover services demanded at the fee levels set by the MOHSA. Premium rates vary across insurance plans from 3 to 8% of wages and in most cases they are shared equally between employees and employers (including Government).

2.22 It is difficult to judge the effect on equity of premiums in the Korean system. On the one hand, setting premiums as a proportion of wages effectively causes those with higher wages to pay more. On the other hand, the rate of utilization is a positive function of income; the better-off tend to generate higher benefit claims (Moon, 1987). Equity effects get even more complicated if the geographical distribution of facilities is taken into account. It is claimed that the relatively poorer availability of health services in rural and remote areas is a source of inequity. However, this may not be so if the premiums paid by residents of such areas are lower than those paid by residents of areas with better services.

2.23 Copayments and Deductibles. Presently, most patients are required to pay a portion of the cost of inpatient and outpatient care. For inpatient care at either a clinic or hospital the patient pays 20% of the cost and the insurance scheme covers 80%. For outpatient care the system of copayments is a bit more complex as shown in Table 2.2. A prominent feature of the outpatient copayment structure is the substantial difference between treatment in hospital versus non-hospital settings: at a minimum, hospital users have to pay all consultation expenses plus 40% of all other expenses. In 1987, the average copayment at hospitals was 65.3% while the average at private clinics was 41.8%. This feature is designed to prevent inappropriate use of hospitals. Even such a high copayment rate is believed not to have deterred the use of hospitals for medical needs which could easily be taken care of in primary care facilities.

2.24 Because system costs were perceived to be increasing rapidly, a yearly deductible payment was added in 1986. It was believed that less vital uses of the system would be reduced by the necessity of the insured paying the deductible amount from their own resources before the insurance plan began to cover much of the cost of added expenditures. Some reduction in cost growth appears to have occurred as a result of the deductible.

2.25 While no premium payments are paid by Medicaid participants, there are separate copayment schedules for the three classes of Medical Aid Recipients. Those in Class I pay no copayments for either inpatient or outpatient care, while in Class II, inpatients must pay 40% of the cost in large cities and 20% elsewhere. Class III participants must pay 50% of the inpatient costs in large cities and 40% elsewhere and also have to pay 67% of the cost of their outpatient care. For Class III patients loans are available to pay inpatient costs if they exceed W 60,000 for any illness.

Table 2.2: COPAYMENTS IN THE KOREAN MEDICAL INSURANCE SYSTEM

	Outpatient	Inpatient (%)
Private clinic	30% of total cost if over W 10,000. For less than W 10,000, a flat payment of W 2,000 for a first visit and W 1,500 for later visits.	20
Dental clinic	30% of total cost if over W 10,000. For less than W 10,000, a flat payment of W 2,500 for a first visit and W 2,000 for later visits.	20
Herb clinic	30% of total cost if over W 10,000. For less than W 10,000, a flat payment of W 2,200 for a first visit and W 1,700 for later visits.	20
Health clinic	30% of total cost if over W 10,000. For less than W 10,000, a flat payment of W 400 for a first visit and W 300 for later visits.	20
CHP post	30% of total cost if over W 10,000. For less than W 10,000, a flat payment of W 400 for a first visit and W 300 for later visits.	-
Hospital	Total consultation expense /a plus 40% of any additional costs above the consultation expense.	-
General hospital	Total consultation expense /a plus 55% of any additional costs above the consultation expense.	-

/a W 2,970 for a first visit and W 1,800 for a revisit.

Source: Ministry of Health and Social Affairs.

2.26 On Subsidies to the Self-Employed. A policy decision that must be carefully considered is whether and how much to subsidize insurance premiums of the self-employed. At the moment rural societies are provided subsidies of about 50% of their costs. It is expected that the urban self-employed will demand and receive similar subsidies. It is estimated that the subsidy to the rural self-employed will be about 128 billion won per year while that to the

urban self-employed will be about 193 billion won. These numbers amount to 0.7% and 1.1% respectively of a projected central government budget of 17.5 trillion won in 1989. While it may be possible to make a case for aid during the early stages to help establish plans, the wisdom of long-term subsidies must be carefully considered.

2.27 Among the reasons to provide a subsidy is the judgment that rural nonwage workers are poor and that the insurance plan should be used as a second-best method for transferring income from general tax payers to rural residents. Such a rationale, however, can hardly justify general subsidies for all rural premiums. As noted earlier it may be better to carry out desired redistributive transfers through channels other than the insurance program.

2.28 A related argument is that the employed pay a premium based on wages or salaries and not on gross income (inclusive of non-wage benefits and non-work-related income) while the self-employed have to pay a premium based on gross income and wealth. These considerations, however, make a case not for arbitrary subsidies to a very broadly defined group (such as the self-employed) but for better recording of gross income and wealth. If the purpose of subsidies is to improve income distribution they shou' l be targeted on the basis of income (and wealth) rather than on the basis of location or employment.

2.29 Another possible reason for such subsidies would be that insurance for rural residents provides spillover (externality) benefits to the rest of society. Why subsidies based on this rationale would be justified for rural but not for other insurance participants is difficult to comprehend. Therefore, the externality case provides little basis for such subsidies.

2.30 Finally, it is agreed that because the government subsidizes 50% of the cost of insurance premiums for government employees, and private employers pay 50% of the total premiums for their employees, government should pay 50% of the premiums for the self-employed. The logic of this argument is faulty. Economic analysis would lead one to conclude that if an employer must pay an amount for insurance premiums, the amount he or she will be able to pay workers in wages and still cover all costs and make a reasonable return will be reduced by more or less the amount of the premium paid. That is to say, in a competitive labor market, workers are forced to pay all or most of the employers' part of the premiums because of a reduction in the amount the employer will pay them in wages. This reasoning is widely accepted and is the basis on which premiums for the self-employed are set at a higher level (approximately equal to employee plus employer shares) in almost all national social security health insurance systems.<sup>4/</sup>

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<sup>4/</sup> Indeed, the use of tax funds to subsidize the self-employed in this manner would constitute a transfer from the employed to the self-employed, an arrangement that would be considered quite inequitable in most countries.

Reimbursements to Providers

2.31 At present providers are reimbursed via a fee-for-service arrangement with fees set by MOHSA on an occasional basis. A committee in the ministry evaluates costs and sets the fee schedule in consultation with a representative body of health service providers. All insured patients must be treated for these fees.

2.32 Fees for Services. Under a fee-for-services payment system the provider is paid for each itemized service provided. In a competitive market with no insurance (or other third-party payers) and fully informed patients (who knew as much about the needed care as the provider), such a system probably would not lead to cost escalation. Because patients tend to accept providers' word as to what is needed, however, in the health market the providers are able to create demand for care, some of which may not be of great value to the recipient. When insurance coverage, under which the patient pays none or only a small fraction of the cost of care, is added to a fee-for-service market the incentives for much money to be spent on small-value services increases greatly. Patients are even less likely to disagree with the provider over the need for (often expensive) extra care when the insurance system pays a large fraction of the added cost and the incentives for cost escalation are large. These cost escalations in turn raise the cost of health care and insurance for the whole society.

2.33 There are also advantages of the fee-for-service approach, however. When the physician or other provider profits from providing added care, incentives for thorough treatment are created. Procedures and tests that may be helpful to the patient but are costly, tend not to be foregone for reasons of expense. So even though the costs of such systems can be high, the quality of care can often be high.

2.34 There can also be incentives to low levels of care when the fees in a fee-for-service system are regulated. If providers cannot charge more than a certain amount for a specific service, incentives are created to provide as many services as possible each day. Under these circumstances, doctors may try to maximize the number of services provided (often giving each patient very little time), rather than the quality of each service provided or of the total care provided to each patient.

2.35 The Fee Setting System. Over the period of existence of this system in Korea, prices have tended to grow rapidly at some times and very little at others. During the period from 1981 through 1986 the average cost of treatment of an insured illness has risen from about W 11,000 to W 18,000, an increase of over 50%. What seems to have happened is that total expenditures have been more or less independent of the levels of allowed fees in the official fee schedule. It has been reported that the medical system has been able to keep revenues growing when fees did not, by increasing the number of procedures provided for patients. This explanation is certainly feasible and has been reported in other countries where cost control was attempted through fee regulation.

2.36 Setting fees under a system of universal coverage will certainly become very difficult if, as is now planned, all fees are set by MOHSA. The

semblance of market evidence now available from the noninsurance sector will no longer be available to fee setters, and as time goes by the absence of information on reasonable wage levels and other costs in the health system will become more pronounced. Once this system of government monopoly in price setting has been in effect for several years, about the only information available to the committee will be prices set by them in the previous period and usage and expenditure information. But the prices will have been regulated, the demand levels will have been a result of those prices set plus the fact that insurance coverage pays approximately 80% of all costs of actual service used for all citizens. Alternatives to MOHSA's fee setting, perhaps directed toward setting up pseudo-competitive bargaining situations, should be given careful consideration by the Korean government. Some possibilities are discussed in a later section of this report.

2.37 If the fee-setting process can be organized in a manner that somehow approximates a market, the potential for perverse signals and/or supply bottlenecks will be reduced. The amount of information needed to correctly set fees for health services is extremely large, and the incentives for those from whom the information must be gathered to mislead the fee setters are great. Without competition, such elements of information as the correct wage for certain types of staffed personnel are not even conceptually easy. How can a board decide if a type of skill is being overpaid when all who practice the skill are presently paid at levels determined by past fee levels set by the same board?

2.38 Having fees set by market forces can, of course, lead to prices for health services and insurance coverage that are burdensome to low-income people. If the prices are too high, some poorer people may choose not to use health care when they need it. Ways must be used therefore to protect the poor. If the government chooses to use premiums and copayments to pay essentially all costs of health care through insurance, it can still make political decisions to subsidize those premiums and copayments for the poor. Compassion for the poor can be focused on taking actions that aid them in paying for insurance and copayments, rather than on reducing the amounts charged for premiums and copayments from those who can afford to pay.

2.39 Alternatives to Fee For Service Reimbursement. Two alternatives may be briefly noted. One is the capitation system and the other is the salary system.

2.40 Capitation. The capitation, or fee per enrolled patient, approach is used in a wide variety of health systems. A major objective of capitation payment systems is to prevent cost escalation. The enrollee pays the fee for joining but pays nothing (or perhaps a small copayment) during the year when care is needed. Providers have no incentive to provide unnecessary services, in fact the incentive is to provide care at a low cost to not lose money by spending more on enrollees than the fees they pay to belong to the system.

2.41 An obvious problem with capitation systems is that the incentives to keep costs down can lead to needed care being unprovided. To trust in the goodness of health providers to provide expensive care for no extra financial reimbursement is similar to trusting in them not to provide unneeded services in a fee-for-service system.

2.42 Salary. A national insurance system of individual societies could hire care personnel directly and pay them on a salary basis. Such a system could purchase or rent facilities, equipment, and supplies, directly, and in effect put the total health system on a "salary" basis. This is exactly what many prepaid care systems, such as Health Maintenance Organizations (HMOs), do. Such health care organizations are providers and insurers combined, and many of them pay many of their personnel on a salary basis. Others, it should be noted, while charging enrollees on a capitation basis, choose to pay their personnel with the fee-for-service method.

2.43 A problem with the salary system is that salaried workers are often less motivated than those who receive fees. Incentives to do such things as treat many patients per day, or work overtime are greatly reduced when compensation is based neither on the number of patients served nor on the number and type of services delivered. Using a salary system also adds a burden to the insurance providers in that direct management of the workers becomes necessary. With fees for services and some types of capitation insurance the system pays the charges. Obviously, however, some capitation-type systems (such as some HMOs) also require the insurer to manage actual health provision. In many of these prepaid systems the workers are paid by salary rather than by capitation of fees.

#### Cost Control via Fee Control: International Experience

2.44 The most obvious form of cost control maneuver for those components of a health care system which are reimbursed by fee for service is simply to constrain the increases in fees. There has been considerable debate in the academic and policy analysis literature as to whether such controls do in fact work to constrain cost increases at all, and if so for how long. The present state of knowledge and experience seems to be that such controls do work; they have clearly constrained cost escalation in Canada and apparently in the Federal Republic of Germany, as examples. They do not work automatically, however, and they do generate professional responses which, over the longer term, require further regulatory responses.

2.45 The first reaction by providers to fee controls is to try to open up other channels of fee increase by direct (or "extra") billing to patients. Extra-billing is primarily a way in which physicians can protect themselves from the consequences of cost control policies by shifting the control from total cost--their incomes--to the costs incurred by the reimburser--whether government, insuring agency, or in some systems, the employer. In Korea, the extra billing has so far been directed towards the non-insured since it would be illegal to charge the insured more than is specified in the fee schedule. This avenue of cost shifting will be closed once universal coverage is implemented.

2.46 From the provider's point of view, such cost transfer is much to be preferred, because the total costs continue to escalate, but the burden is shifted from the organization which is most likely to be able to do something about this situation, onto patients (and perhaps private insurers). Thus, representatives for physician organizations tend to try to frame the discussion of costs, not in terms of the share of total health spending in

national income, but in terms of its share in government budgets, for example. The latter "problem" can be addressed by cost shifting, which may indeed increase the rate of overall cost escalation, but at least in the short run appears to offer relief to governments or other reimbursement agencies.<sup>5/</sup>

2.47 Once it has been established that the fee which the reimburser controls is in fact the fee which the physician or other provider receives, and that the fee controls cannot be evaded by increasing charges to patients, the next set of issues relates to overall levels of utilization. While the literature continues to debate whether or not physicians have the power to "induce demand" for their own services, those responsible for reimbursing fee for service practitioners are acutely aware that costs can escalate rapidly even though the level of fees is fixed, if providers simply increase the volume and value of the services they provide.

2.48 Successful cost containment strategies appear to require comprehensive controls on utilization. In particular, it is readily apparent that some medical procedures are more amenable to expansion than others. Minor diagnostic and therapeutic procedures performed in conjunction with an office visit, for example, are very much under the discretion of the physician. If separately reimbursed, they provide a ready opportunity for cost escalation. Similarly, if such difficult to monitor procedures as "office visits" are classified into a number of different types with different levels of reimbursement, it is virtually impossible to prevent providers from re-labelling their visits for higher reimbursement.

2.49 Accordingly, successful cost control requires a relatively simple fee schedule, which may not do justice to the practitioner who prefers to provide long and careful visits--but the alternative is uncontrolled costs. Similarly, the readily expandible diagnostic procedures must be consolidated into a comprehensive office visit rate. As a general proposition, the fee schedule must be structured in such a way that the practitioner cannot easily generate more billings without a corresponding contribution of more of his/her own time and effort.

2.50 This structuring is an adaptive process, over time. When fee levels are periodically renegotiated, the reimbursing agency must have an information base on patterns of utilization which is sufficiently detailed to show where utilization increases are occurring, and to bring these items forward in negotiations. This in turn means that effective fee control implies a bilateral, monopoly/monopsony relationship between providers and payer. It cannot be conducted by a large number of different payment agencies, each with its own clientele, staff resources, and particularly information base. Either there must be one payer, as in each of the Canadian provinces, who negotiates with the organization representing providers, or there must be an authoritative coordinating body which links together all the insurers, as in

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<sup>5/</sup> The fact that physicians in most countries favor direct charges of various types, which if they actually served to "deter" utilization would thereby reduce physician incomes, becomes readily explicable from this perspective. Shifting costs to patients relieves pressures for overall control--for a time.

Germany. Thus, effective cost control would seem to require a specific administrative structure for the insurance system. The advantages and disadvantages of alternative administrative structures are reviewed in the next section.

#### D. Administration and Management Issues

##### Organization

2.51 As already noted, the Korean medical insurance system consists of a large number of administratively and financially independent insurance societies organized along employment, location and occupation lines. Administrative independence means that each has its own management team which is responsible only to the local/county or firm-level authority and not to a national authority. Financial independence means that each is responsible for financing its own activities and theoretically at risk for deficits. These societies do not have any choice in the selection of beneficiaries to be covered or benefits to be provided but they are allowed to levy premiums in accordance with their financial needs (subject to Government approval). There are 285 societies in existence now and an additional 17 are planned to cover the urban self-employed in the final phase of the extension of universal health insurance.

2.52 Despite formal autonomy the insurance system is deeply intertwined with the central Government. To begin with, some insurance societies are provided regular subsidies directly from the national budget. These include the rural societies set up recently. Moreover, other societies which do not receive regular contributions from the budget nevertheless get periodic infusions of cash when they experience operating deficits. Finally, all societies are subject to regulations designed and implemented by the central government. Because of the financial and regulatory connection with Government, there has been discussion at various points in the past of the desirability of amalgamating the various societies into a single, centralized agency. It has been argued that such a development would change the insurance system in form only and not in substance in that it would remain a Government-regulated system, but that the change in form would have the advantage of achieving administrative cost reductions and superior risk-pooling.

##### Advantages of Multiple-Society Structure.

2.53 A review of the properties of the present multiple-society structure suggests that it has three main advantages: it provides an opportunity for maintaining competition; it provides a method of monitoring costs and promoting efficiency; and it provides a means of being responsive to local needs.

2.54 One of the effects of the present design of the Korean insurance system is that competitive elements within it are being gradually reduced. Competition among providers is declining as fee schedules fixed by Government come to dominate their income earning opportunities and patients cannot be attracted by price incentives. Competition among insurers does not exist; they are not permitted to compete for clients. Having a multiple-society system leaves open for the future the option of re-introducing competition

into the system. Societies could at some point be allowed to compete for clients. Or they could be allowed to bargain with providers and set their own fee schedules or capitation levels. Combining all the present societies into one centralized agency would remove this option or at least reduce the likelihood that it would ever be exercised.

2.55 One of the ways in which the adverse effects of the lack of competition can be ascertained is by comparing the performance of individual societies and analyzing why costs and productivity might differ among them. Having multiple societies at least offers the opportunity for monitoring such cost and productivity differences. This would seem to be eminently desirable in a regulated system which will soon be without market-enforced cost and efficiency discipline. The ability to monitor performance and isolate causes of low productivity should be a valuable management tool. In a unitary system, it would be harder to identify poor management and thus harder to control costs.

2.56 Having insurance societies organized at the local level also enables the system to be more responsive to local needs and pinpoints responsibility for performance in a relatively precise fashion. A local rural area with few people who use hospitals (perhaps because they are not available in the area) is able to charge premiums that reflect this fact. Should the local insurance society experience systematic deficits because of poor management, the responsibility for this would be fairly clear and actions could be taken by local residents to improve the management of the society and/or improve the collection of premiums. They would have an incentive to do all this because they have to bear the costs of higher premiums. Of course, this incentive is reduced to the extent the central government makes it a habit to subsidize money-losing societies.

#### Province-Based Societies

2.57 Accepting the superiority of the multiple-society structure still leaves one with the problem of deciding the appropriate level of aggregation for the insurance system. At present the system is decentralized to the level of the local county authorities in the case of the rural scheme and to the level of the firm or firm-groups in the case of the industrial establishment scheme. There are some reasons to believe that there may be benefits in aggregating the numerous rural and industrial establishment societies at a higher level, say at the provincial level.

2.58 There is some anecdotal evidence that indicates that the present degree of decentralization may not be optimal. It is said that characteristics of beneficiaries vary widely among the numerous local and industrial establishment societies and that some societies face systematically higher risk. This view is supported by the fact that some societies are consistently high or low in rankings based on administrative costs as well as by the observation of wide variation in utilization rates across insurance societies. Large variance in risk characteristics and administrative cost performance among societies suggests that efficiency gains may be had from repooling of

beneficiaries. There may also be equity gains in that some societies will not have to charge higher premiums even though their beneficiaries tend to be among the less well-off.

2.59 The appropriate degree of aggregation of the insurance system is also affected by the level of government at which decisions concerning hospital financing, advanced medical technology acquisition, and medical manpower training and allocation are taken. Since these decisions affect the underlying costs of providing health care those who are responsible for financing health care must also be in a position to influence these decisions. The importance of this point is discussed in the next section on cost control and administrative structure.

#### Cost Control and Administrative Structure: International Evidence

2.60 Evidence from different national systems indicates that some are more successful than others in controlling the escalation of health costs. One characteristic which seems to be critical is the link between fiscal responsibility and system control. Systems in which those who pay the bills are also in a position to affect the design of the insurance arrangements tend to do much better at cost containment than systems without such an administrative structure.

2.61 This point may be illustrated by comparing the systems of the United States, Canada, the United Kingdom, and Sweden. In the United States individual practitioners set their own fees and determine their own practice patterns. Hospitals set their own charges and the medical staff, consisting of those private practitioners who have admitting privileges at that hospital, determine the hospital's style of practice. Funding comes from a large number of sources--public and private insurance and out-of-pocket payment, but these sources can at most control their own liability--they cannot control the hospital's total budget or the fees or activities of the practitioner. The only limitation is the willingness of the patient to accept recommended care, and that seems almost indefinitely expandible.

2.62 In this environment, the costs of care are borne initially by the patient, but in fact most of them are passed on to private insurance companies or to one or other level of government. Private companies pass them on in premiums, which are in large part paid by employers, who in turn pass them on as higher product prices. The share borne by governments is distributed among taxpayers, which might impose some political discipline, but governments also have the option of limiting their liability by imposing more costs on users, which then get picked up in "Medigap" private insurance policies and the "cost pass through" proceeds with no one transactor having both the power, and the financial incentive, to try to place external constraints on the overall size of the health care system budget. Not surprisingly, costs escalate at a rapid rate.

2.63 In Canada, on the other hand, while private medical practitioners determine their own styles of practice in their individual offices, they are paid by the public insurance system in each province according to uniform fee schedules negotiated at periodic intervals between provincial medical

associations and the government reimbursement agency. They are not permitted to bill patients over the official fee schedule. They also care for patients in non-profit hospitals run by Boards of Trustees, as is true of most U.S. hospitals, and are paid fees, according to the negotiated schedule, for the work they do there. But the hospital is reimbursed on a global budget, annually negotiated with the provincial reimbursement agency, not by fee for service.

2.64 All payments to physicians and hospitals come out of the budget of the provincial ministry of health -- they all flow across one desk. If they escalate, the political official responsible is clearly identified. He or she must then go to his/her cabinet colleagues, and ask for more money -- implying less funding for other ministers' projects, or higher taxes, or a larger public debt. The incentives for cost control are clearly located on that official's shoulders. But so is the power, or at least much of it. Accordingly, serious efforts to constrain costs have been undertaken in the Canadian provinces, and with some considerable success.

2.65 Sweden and the United Kingdom tell the same story. Both have "socialized" delivery systems, just as both Canada and the United States have "private" delivery systems (if a regulated profession can ever be said to be private). But in Sweden, health care is provided by regional governments, which have access to centrally collected income tax revenue. The governments which determine spending patterns are not primarily responsible for raising the necessary revenue. Moreover they are smaller regions than the Canadian provinces, and health care represents their predominant function. They are thus much more vulnerable to "capture" by providers than are the Canadian provinces, for whose governments health spending is, indeed, the largest and most politically sensitive program, but still only one among a large number of other enthusiastic competitors.

2.66 Thus the Swedish system, while it puts both funding and delivery responsibilities in the public sector, does not link ultimate fiscal responsibility and the power of system control. On the other hand, the United Kingdom has a unified, centralized form of "socialized medicine" in which all budgets are set by a department of the central government, which also raises all the necessary resources, and is responsible for balancing health sector priorities against other program and fiscal objectives. The net result has been that health care costs in Sweden take up about 10% of national income, second only to the United States in the world tables, and in the United Kingdom they take up about 7%.<sup>6/</sup>

2.67 Ultimately, the decision on the appropriate degree of aggregation in Korea must be based on actuarial and other data that are not available at present. The collection of such data should be given high priority since the potential savings from reorganization could be large. Until such data are available one can only suggest that while attempts to create a unitary

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6/ These arguments would also justify a unified, centralized system. However, there are other reasons, already noted, why one should not go to the centralized extreme.

centralized system should be discouraged, reorganization of the insurance system to concentrate administrative and financial responsibility at a higher level of aggregation than is presently the case, say at the provincial level, might be useful.

2.68 Simply reorganizing administrative responsibilities may not be sufficient, however. As noted earlier, design improvements must be based on data. And the best way to generate data appropriate to the Korean situation is to experiment with alternative designs for the insurance system. In particular, it would be useful to permit province-level insurance societies to experiment with alternative reimbursement mechanisms.

2.69 At present only one reimbursement system, the fee-for-service system, is allowed. This system has proved to be a significant contributing factor to the cost escalation experienced in all the countries that have it; the US experience is particularly instructive in this regard. The superiority of other reimbursement mechanisms, however, has also not been conclusively established; while they tend to be better at controlling costs, they are sometimes deficient in providing care of adequate quality and timeliness. The overall suitability of repayment mechanisms also tends to be affected by a variety of country or region specific factors. For all these reasons, it would appear useful to permit experimentation with different reimbursement mechanisms to see which one eventually proves most cost-effective in providing care of adequate quality. Under a nationally determined reimbursement system that is applied uniformly within the country the benefits of experimentation are lost. If provincial societies were permitted to choose and negotiate reimbursement mechanisms with providers, over time a substantial body of comparative experience would be accumulated which would be of great use in designing further improvements to the insurance system.

#### The Need for Data

2.70 In addition to the behavioral data obtained from experiments with alternative design features, it is critical for the process of policy formulation, implementation and evaluation that an appropriate descriptive data base be established. This data base should be built from the bottom up for regional as well as national use. The minimum data sets need to include:

- (a) number and characteristics of the population covered by health insurance;
- (b) number and characteristics of the users of services, that can be related to a population and/or facility or service base;
- (c) volume, value and characteristics of the use of services, which will preferably be specific in terms of final outputs as well as intermediary services. Once again these should be capable of being related to a population and/or facility or service base;
- (d) volume, value and characteristics of the use of resources that can be related to the outputs generated and people who used them;

- (e) indicators of quality of services provided;
- (f) inventory of facilities or services available and their capacity.

2.71 This data base, which would be used both at regional and national levels, should provide information for the building of profiles of suppliers and of users of services. They are essential to regional management in the monitoring of effectiveness, efficiency, and equity issues, in terms of appropriateness of services, level of utilization, access to services by different groups in the community, and in different geographical locations. The utilization statistics would need to be compatible with demographic and accounting information. In turn, the accounting information needs to provide a sound basis for costing and other management accounting (e.g. budgeting), as well as relevant financial data.

2.72 The data base should also provide an epidemiological, demographic and actuarial basis for the estimation of premiums that will ensure the financial viability of the insurance system.

2.73 Some components of the data base could be obtained as byproduct of claim processing. Others would require appropriate yearly statistical and accounting reports from suppliers. These reports could be obtained as a condition of the participation of providers in the health insurance scheme, as is the practice in some countries.

2.74 In order to improve the efficiency of the system, computer hardware and software should become available and form a network that will minimize costs in the input and transmission of data. Where practical this network should include suppliers of services. It is obvious that there are set-up and maintenance costs in the establishment of such a network. However, the decision already taken to centralize claim processing in a single organization should facilitate the task of developing and maintaining an essential national data base.

#### E. On Ensuring Competition in the Insurance System

2.75 On the whole the Korean health insurance system is well designed. It provides for mandatory universal coverage in a manner that avoids adverse selection, provides access to all, and generates sufficient revenue for the system to be self-financing overall. It is based on equitable financing principles in that the poor are provided virtually free care while the nonpoor pay insurance premiums linked to income levels. Copayments and deductibles serve to prevent abuse of the system as well as to provide a potential mechanism for affecting the distribution of consumer demand among types of facilities and services. Insurance is provided by a large number of non-competing, non-profit societies organized at the firm, firm-group or county level. The system is administered in a decentralized manner that has not resulted in high administrative costs on average, although some insurance societies tend to run deficits consistently.

2.76 One potential risk to the system lies in the fact that competitive elements within it will be considerably reduced as it develops along the presently envisioned track. There will be no competition among insurers since

beneficiaries have been and will continue to be assigned to insurance societies on the basis of employment, occupation and location and not via voluntary choice. With no private customers left after universal insurance coverage is established, there will be reduced competition among providers as they turn their energies from attracting customers to negotiating higher fee schedules with government. Their incentives to reduce costs will be lower since they will not necessarily attract more customers through lower charges; indeed by letting costs rise, they may be able to push government into providing higher and higher adjustments to the fee structure if fees are set on a cost-plus basis. Furthermore, the informational asymmetry between doctors and patients inherent in the health care process makes consumers a relatively ineffective source of cost discipline. Thus, there is a real danger that the health system may evolve in a fashion that would encourage cost escalation. It is important, therefore, that careful consideration be given to ways to extend universal health insurance without removing all semblance of competition in the health sector.

2.77 One possible market-type system is to have at least two insurance systems in any geographical area between which every participant can choose, and also to have at least two care providers with which every insurer can negotiate for services. While no system will work perfectly, given the nature of the demand for and supply of health care, such a market system can force insurers to compete for customers on the basis of quality and cost of care. If a lower cost provider is available who provides equal quality care it will be rational for the insurance plan to make use of it. The plan can better compete for customers by either offering equal care at a lower cost, or better care for the same cost. In such a competitive system overpriced providers will have problems selling their services to insurers and overpriced insurance plans will soon find few customers. Given that universal insurance will soon be a fact, the incentives for health care providers to be affiliated with a local plan will be strong because treating noninsured patients will not be an option.

2.78 An alternative market-like approach would set up provincial governmental insurance plans, each bargaining with the areas' providers for reimbursement mechanisms and care standards each year. If the government plans were at risk financially (i.e., each plan collected premiums and was obligated to pay all costs), there would be political and financial pressures to keep costs down. A variation on this approach would be to allow a limited number of private insurers to compete with the government plans for enrollees. If they could bargain better with providers they would be able to offer lower cost insurance and, therefore, attract customers. Having two alternatives from which participants could choose for their insurance coverage would prevent many of the problems related to monopoly (even when the monopoly is of the government). The regional set-up would also ensure that cost comparisons were available across systems as another check on how well each regional system was bargaining with providers and administering the plan in general. Fee schedules or capitation budgets that were out of line could be easily noticed among the large set of such arrangements negotiated by all the regional insurance agencies.

2.79 If a fee-for-service system is retained, a system that avoids the setting of fees by a board in a completely nonmarket and politicized manner is almost a necessity. With fees set by a regulatory board, the more time passes in which fees are set without either pressure or information from markets, the more difficult the task of obtaining the needed information for correct fee setting becomes. Most such fee-setting systems, including the one in Korea are under constant pressure from providers to raise fees. In the fee-setting process, what often results is that the board determines the cost of service provision as well as it is able (often with most of the information being provided by doctors and hospitals--the regulated) and then allows prices (fees) to be set that will cover these costs (or costs net of subsidies). When such a cost-plus procedure is used there is little incentive for providers to keep costs down or for hospitals to do such things as bargain diligently with employees over wage levels. Incentives in regulated fees systems of any kind are therefore not strongly favored toward control of costs, even though cost control is the ostensible reason for having a fee-setting commission at all.

2.80 Even if some market, pseudo-market, or combination approach for fee setting is used, however, direct government oversight almost certainly cannot be withdrawn in the health sector. As noted above, for consumers to evaluate such things as quality of care is very difficult or perhaps impossible in any practical sense. By the time consumers learn a provider is giving poor quality care, many may be harmed. Government therefore must regulate the health sector through all reasonable mechanisms. That competition will help with the process of keeping service efficient in no way suggests that added scrutiny is not valuable. Licensing, peer evaluation, and probably criminal and civil legal remedies for negligence are necessary. It should not be thought that maintaining a competitive pricing system will free government from the responsibility of oversight of the health sector. However, such a system could free some government personnel to carry out other regulatory and educational functions in health.

2.81 As part of its rightful educational role, the Korean government should make every attempt to gather the information needed by consumers and insurers for evaluation of health care costs and quality. Fee setting by any of the systems discussed above will result in better outcomes the more information is made available to participants in the bargaining process. Often such information can be extracted only by the government. Because it often must come from the service providers, the government also must be able to exact penalties if it is falsified.

### III. ISSUES IN THE SUPPLY AND USE OF HEALTH MANPOWER

#### A. Introduction

##### The Objectives of Health Manpower Policy

3.1 The introduction of national health insurance can be both an opportunity and/or a danger for the appropriate use of the various categories of health manpower. The opportunity is presented by the leverage that insurance's financing and organizational approaches can have over cost-effective deployment of manpower. The danger is that they can also freeze in place a set of manpower roles that may be inappropriate for the more publicly-funded and comprehensive system of health care which is now nearing completion. The problem areas in health manpower in Korea appear to be mostly attributable to a lack of understanding of this difference in objectives for the previous piecemeal private system, and the present comprehensive government-initiated system. Partly because of the gradual nature of the introduction of health insurance over the last decade, the transition from private to public objectives has not yet really taken place and some anomalies are developing in health manpower roles.

3.2 This transition is important because much of the health policy debate in western European countries and North America is now focussed on how to re-organize health care systems that were not planned with the transition of objectives in mind. With the possible exceptions of Sweden and the U.K., these health care systems were brought about with public funding of previously private individuals or institutions, with little or no accompanying change in the structures and planning strategies for those individuals or institutions. The result has been a set of health care systems in which the private incentives have pushed up public expenditures significantly. This has reached the point where the return for the health of the population of additional expenditure is marginal, but the public planning systems are not in place to control that further expenditure - the health care cost-containment "crisis".

3.3 The response of most of these countries has been to impose some overall cap on the total monies allowed into the system, but this is a very blunt instrument that may not take account of the targetted areas in which additional expenditures would bring significant health benefit to the population. The alternative has been to limit the posts available for employment in the system, thereby limiting the number of private health professionals and institutions who are drawing on the expenditures for their incomes. In the absence of any public control over the output of health professionals from the educational system, this has resulted in highly trained individuals being left with no opportunities to use their training--the unemployed physician phenomenon seen now in most European countries and emerging in North America. This latter observation is a major reason why clear health manpower policies must be established early on in the development of Korea's national health insurance system.

3.4 Although no explicit statements on current health manpower policy objectives were made available, the following objectives appear to have been implicitly adopted:

- (a) To make health personnel available to meet demand for care.
- (b) To overcome inequities in the geographic distribution of health personnel, especially physicians.
- (c) To overcome inequities by income classes in access to health care personnel.
- (d) To provide Korea's youth with opportunities for a professional education.

3.5 There are three main areas for the transition in these objectives for health manpower policy, all of which are closely connected to the fact that the mode of introducing health insurance in Korea will inevitably affect both public and private expenditures on health; it will be in the social interest to ensure that good value is obtained for these expenditures. The first is in the difference between meeting health care demands versus health care needs. The second is in the extent to which one has an interest in the use of the most cost-effective array of manpower roles. The third is the nature of the efforts to redress inequities across social and income classes.

#### Demand Versus Need for Health Care

3.6 Demand for health care does not have the same properties as demand for consumable goods. In the first place, the demand is not for the health care itself, but for what may result from its consumption - health. Second, and perhaps most important, the quantities demanded will be highly dependent on the advice of the supplier - physicians, dentists, and so on have a large degree of discretion over how "intensively" they may treat patients. For instance, Korean physicians appear to vary substantially in the extent to which they require frequent follow-up visits of short duration for monitoring simple complaints.<sup>1/</sup> The "need" for these visits, with regard to their return to the health status of the patient, is often questionable and sometimes absent. Thus, by using existing utilization data (as a proxy for demand) in the planning of future manpower requirements, one is including utilization that may be unrelated to the need for health care.

3.7 The use of demand for care in planning, as measured through utilization data, may not be unreasonable when the decisions made by patients under the advice of the provider are based on the full prices for care borne out of their own pockets (although even here there are regulatory and ethical questions over and above economic considerations). However, under a government subsidised insurance scheme with not insubstantial government responsibility, the use of such utilization data for planning on the future quantities of care can result in government funding a proportion of care that may not be needed. This might either be because the patient has over-consumed

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<sup>1/</sup> It is reported that it is not uncommon for Korean physicians to see 100 patients a day in hospital outpatient clinics; this volume is possible because so many of the visits are for minor follow-up of previous visits.

care, or because the provider has erred on the side of over-provision with no objection from the patient. The extent to which the utilization of care will overestimate the need for care will depend on a number of things, including the extent to which a system has already addressed unmet needs. Where many unmet needs still remain, where they can be met best with health care providers (rather than income, housing or sanitation improvements for instance), and where there are not already significant numbers of providers, then current levels of utilization will likely underestimate need. However, when the reverse is true (as in most developed countries by the 1980s), utilization (or "demand") for care, will likely overestimate need.<sup>2/</sup>

3.8 While Korea may still be in a position where demand for care does not actually overestimate need, its rapid economic and social development means that it soon may be an overestimate, and it would be best to have made the transition to planning on the basis of need before that time.

3.9 A final consideration is the limitation of using demand for care on the ability to plan for new services or needs. If a particular category of manpower is not currently available, or if a particular health care need will not emerge until a time in the future, then current utilization or demand is obviously incapable of capturing the need for this type of care. Community health practitioners are only available on a limited basis in Korea, and therefore their utilization is not well represented in current data. The aging of Korea's population is only just beginning (by 1995 5.2% will be over 65, by 2000 it will be 6.2%), and the chronic care needs of this population again do not show up in existing data. Thus, health planners must anticipate new need categories, and strive to steer manpower into those areas at an appropriate pace.

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<sup>2/</sup> One of the most instructive examples of this can be taken from the U.S. where the future supply of physicians was planned for on the basis of utilization data for most of the 1960s and 1970s by exercises that consistently projected future shortages of manpower unless production was increased. However, in 1980 the Graduate Medical Education National Advisory Committee (GMENAC) undertook a needs-based analysis using epidemiologic data on projected health needs of the population. Their conclusions were that if the production policies established by the previous (utilization-based) exercises continued to be followed, the U.S. would be oversupplied with physicians by nearly 20% by the year 2000. A similar situation has been documented in Canada (see Lomas et al., "Supply projections as planning: A critical review of forecasting net physician requirements in Canada," Social Science and Medicine 1985; 20:411-424), and western Europe appears to have been no different (see Schroeder "Western European responses to physician oversupply," Journal of the American Medical Association 1984; 252:373-384).

3.10 All of these considerations mean that the use of demand, through current unadjusted utilization data, is an inappropriate planning approach. The preferable approach is to plan on the basis of health care needs which, although difficult to measure, will constrain planned investment in manpower types and numbers to the optimal array for maximum return for the health status of the population. The topic of measuring need for health care, or of at least adjusting utilization data to better represent need, is discussed in more detail in a later section.

#### Cost-effective Arrays of Health Manpower

3.11 The second transition affecting health manpower objectives relates to the interest in producing a cost-effective array of manpower for the system. Even when one has defined the particular health care service needs of a population, there are a number of different types of providers or technologies that can address that need. While some account has to be taken of consumer preferences (which are understandably always for the most qualified individual whatever the service), account must also be taken of alternative uses to which expenditures could be put to improve health status. For example, while one's personal preference may be for professors to teach one's school children, it is generally accepted that the additional quality is probably not worth the additional educational expenditure. Similarly while personal preference may lean towards having physicians attend to the birth of babies, it may be more cost-effective to fund midwife-training programs since midwives can do so just as effectively and safely as physicians in most cases but at lower cost.

3.12 Current objectives of Korean manpower policy do not appear to recognise this potential substitutability between different types of manpower. Manpower production plans tend to be accentuating the pre-insurance preference for the best qualified practitioners such as specialists, regardless of their over-qualification, and may actually be slowing the potential supply of cost-effective substitute personnel such as midwives and pharmacists. These two categories of health manpower, along with oriental medical doctors, show the slowest growth rates of all manpower since the introduction of health insurance (see Table 3.1). The absence of this specification of the most cost-effective personnel for particular services in the objectives of manpower policy, seems to be part of a broader absence of cost-containment considerations in the design and planning for health insurance. While this is understandable, given the early concern with addressing unmet needs and inequities in access, it is important to build cost-containment considerations into a system sooner rather than later - health care systems have a tendency to quickly develop highly resistant forces for the status quo.

Table 3.1: HEALTH PERSONNEL WITH EFFECTIVE LICENSES BY CATEGORY,  
1978-1984

Year	Physicians	OMDs	Dentists	Pharmacists	Nurses	Midwives	Aid Nurses
1978	20,079	2,852	3,102	22,371	33,672	4,455	47,019
1979	21,279	2,913	3,326	23,381	36,975	4,641	53,288
1980	22,564	3,015	3,620	24,366	40,373	4,833	61,072
1981	23,742	3,133	3,947	25,311	43,605	5,115	68,577
1982	25,097	3,268	4,266	26,307	46,651	5,403	73,159
1983	26,473	3,409	4,611	27,395	49,587	5,681	85,910
1984	28,015	3,591	4,972	28,531	54,081	5,991	92,264
1985	29,596	3,789	5,436	29,866	59,104	6,247	106,340
1986	31,616	4,041	5,995	31,334	64,270	6,513	107,672
<u>Growth Rates</u>							
1978-86	57.5%	41.7%	93.3%	40.1%	92.2%	46.2%	129.0%
Average annual	7.2%	5.2%	11.7%	5.0%	11.5%	5.8%	16.1%

Source: Ministry of Health and Social Affairs, Republic of Korea, Yearbook of Public Health and Social Statistics, 1985.

OMDs = Oriental Medical Doctors

#### Equity of Access to Care Versus Equity of Health Status

3.13 Finally, the equity concerns in current objectives of manpower policy must be handled with some care. Central to this issue is the nature of what one wishes to be equitable. Presumably, one does not merely wish to have medical care equally available because, as mentioned already, it has no value except insofar as it produces health in the population. Therefore, it is safe to assume that what is really desired for equity is comparable health across all income and geographic divisions - equitable access to care is merely a convenient marker for this objective. There must be caution, however, in not relying too long on access to care as a marker for access to health. It is now becoming quite apparent that beyond a basic, and fairly modest, level of access there are no further major gains to be found for health status, especially among the lower income groups. In the United Kingdom, for instance, a government report has recently shown that the inequalities in health between the rich and poor are of the same size now as they were at the start of the National Health Service, despite 40 years of equitable access.<sup>3/</sup>

<sup>3/</sup> This report is generally known as the Black Report, after the chairman of the commission set up to evaluate the delivery and outcomes of health interventions in the United Kingdom.

3.14 These findings are congruent with the now well-recognized fact that medical care is only one of a number of categories of determinants for the health of a population, and in developed countries with already well-established medical care systems, it is a relatively minor determinant. This point was first brought forcefully into the public policy arena by a report from the Canadian government in 1974 - the "Lalonde Report" - which delineated three categories of determinants in addition to health care organization. These other three components of the "health field" were human biology, lifestyle and environment, none of which have much to do with what is addressed by the traditional health care system. The Report pointed out that once a society has assured a reasonable level of access to traditional health care services then "improvement in the environment and an abatement in the level of risks imposed upon themselves by individuals, taken together, constitute the most promising ways by which further advances can be made".<sup>4/</sup> Given its recent health status trends, Korea may be fast approaching the point where further advances can best be made with investments in areas other than traditional health care organization.

3.15 The general point is that the provision of care, and the production of manpower to provide it, can quite quickly become self-justifying and exceed the quantities required to produce health in the population. This point is made graphically in Figure 1.1 where it is clear that countries beyond a particular density of physician supply show no appreciable differences in health, as measured by the life expectancy. Therefore, a more appropriate objective for health manpower than equitable access to care, is equitable health across different divisions - an objective that may favour the production of health educators over nurses, or sanitation system engineers over physicians.

3.16 It is the transformation of current manpower policy objectives to incorporate these new objectives that is the main theme of this consideration of Korean health manpower. Without planning based on needs rather than demands, without increased awareness of the substitution potential for more cost-effective use of different types of manpower, and without concern for equities in health rather than health care access, Korea may well find itself grappling with the painful prescriptions of cost-containment currently occupying developed countries. In the remainder of the report the current availability of various health personnel is first analysed. Then the division of roles among the personnel is reviewed from both the legislative and actual use perspectives. This is followed by a projection of future manpower trends, given existing production policies, and the planning context in which these production policies have been developed. Finally, some consideration is given to the impact on manpower of different modes of financing and organizing the health care system.

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<sup>4/</sup> Lalonde, M. "A New Perspective on the Health of Canadians". Ottawa: Government of Canada, 1974, p.65.

B. Current Supply of Manpower

Overall Supply

3.17 The supply of licenced physicians (including specialists), oriental medical doctors, dentists, pharmacists, nurses, midwives, aid nurses, and technicians is presented for the period 1978 to 1986 in Table 3.1. On the basis of registration data it is clear that not all these licenced personnel are active practitioners. For physicians, dentists and oriental medical doctors, approximately 75%-80% of the licenced stock is in active practice in Korea. For the other categories the active supply as a proportion of licenced stock varies from 30%-35% for nurses and midwives, through 50% for technicians, and upto 80% for pharmacists.

3.18 The proportions of the additions to licenced stock that are remaining in active practice vary considerably according to category. If those engaged in military (or substitute rural) service are included, most physicians (over 90%) appear to be remaining in active stock. This is explained by the significantly lowered emigration rate following improved economic conditions in Korea, and over-supplies of physicians in the U.S. and other attractive destinations. Nurses, however, continue to have a low participation rate, with reports of significant unemployment among the current stock of nurses.<sup>5/</sup>

3.19 The practitioner to population ratios of a country are usually highly correlated with the per capita income of the country. Korea appears to be no exception to this, although it is probably somewhat better endowed with practitioners than might be expected for its income level. Depending on how one defines physician,<sup>6/</sup> the physician to population ratio for licenced practitioners is between 1:1100 and 1:1300. The judgment that Korea is

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5/ Emigration and military service have both been influential in the supply of health manpower in Korea. However, the direction of influence of these factors has changed recently from making health manpower less available to the general population, to making it more available. Historically both physicians and nurses chose to emigrate in large numbers to the U.S. and other economically attractive destinations. With improved economic conditions in Korea, and an explicit desire on the part of most developed countries to exclude foreign physicians, this drain on the potential supply is no longer occurring. Indeed, in the case of nurses, the Korean health care system adapted to their emigration by defining a more expanded role for nurse aides; the nursing profession is now trying to re-capture these lost roles for nurses but, not surprisingly, is meeting some resistance from nurse aides. In the case of military service, all physicians serving their time were required to meet the medical needs of the armed forces. However, there is now such a high proportion of trained physicians flowing into military service that they significantly exceed the requirements of the armed forces, and they are being used to provide medical care to the rural and less-populated areas of the country.

6/ Herb doctors and oriental medical doctors can be included with licenced medical doctors.

comfortably endowed with physicians relative to its population and per capita income is confirmed by Figure 3.1. This figure plots population per physician against per capita income for a sample of 16 middle and high income countries. It also shows the line that best expresses the statistical relationship between these two variables. It can be seen that Korea is better endowed with physicians per capita than would be predicted by its per capita income. Indeed, a similar statistical and graphical exercise suggests that Korea has a larger number of nursing persons per capita than would be "normal" for its per capita income level (see Figure 3.2). Expanding the statistical sample to include lower income countries makes Korea's relative "overendowment" even more prominent.

3.20 The proportion of Korean physicians who are specialists has been rising dramatically in recent years, from about one third in 1977 to over one half in 1986. The proportion who are under age thirty five has also been rising dramatically, reaching nearly 50% in 1986. All the stocks of practitioners are very young, but this is particularly true of the physician stock. Thus the current physician supply will have low rates of attrition from deaths and retirements for some years to come.

3.21 The impact of health insurance on health manpower numbers, and their distribution across the categories, appears to have been comparable to that experienced in many developed countries. The physician stock has shown strong and sustained average annual growth rates of 7.0% to 7.5% since 1977 (the first year of any kind of health insurance), while the population has grown by little more than 1.5% per year. However, the situation for their potential substitutes (midwives, pharmacists and oriental medical doctors) has been much slower growth. Of all the manpower categories in Table 3.1, these three categories of potential substitutes show the slowest annual average growth rates since 1977 - 5.8%, 5.2%, and 5.0% respectively. This is to be contrasted with the much larger average annual growth rates for the complements to the physicians' functions in the form of nurses (11.5%), aid nurses (16.1%) and technicians (39.5%). This suggests that health insurance has had the effect of accentuating the role of the physician (and the hospital, where nurses and technicians work), to the potential detriment of more traditional and community-based practitioners. The picture is one of an increasingly specialised and highly technical health manpower work-force, which will draw the population toward increased reliance on hospitals, the physician and the physicians' complements.<sup>7/</sup>

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<sup>7/</sup> This picture seems to be the norm in countries where the introduction of national health insurance has not been accompanied by explicit public policies to prevent such an evolution. For instance, in Canada, following the introduction of health insurance, the average annual growth rates in the stock of health occupations that complement the functions of the physician were in the range of 5 - 6%. This contrasted with average annual growth rates for occupations that could substitute for the physician in the hospital or community of less than 1% (see Lomas and Barer "The Legacy of Canadian Health Manpower Policy" in Medicare at Maturity, Evans RG and Stoddart GL (eds.). Calgary: University of Calgary Press, 1986).

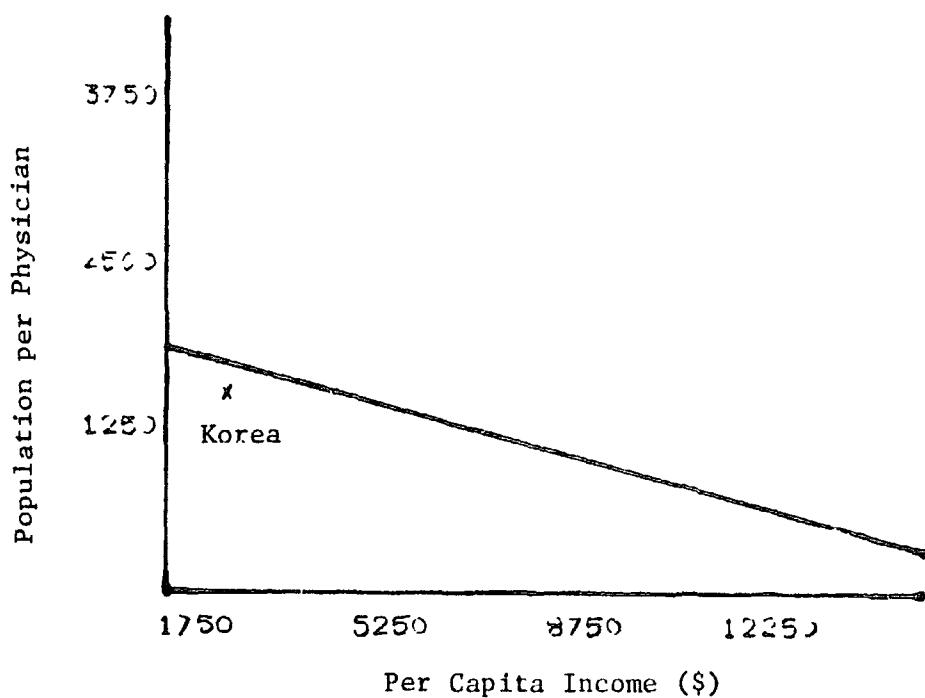


Figure 3.1: Per Capita Income and Doctor Endowment

Source: World Development Report, 1987.

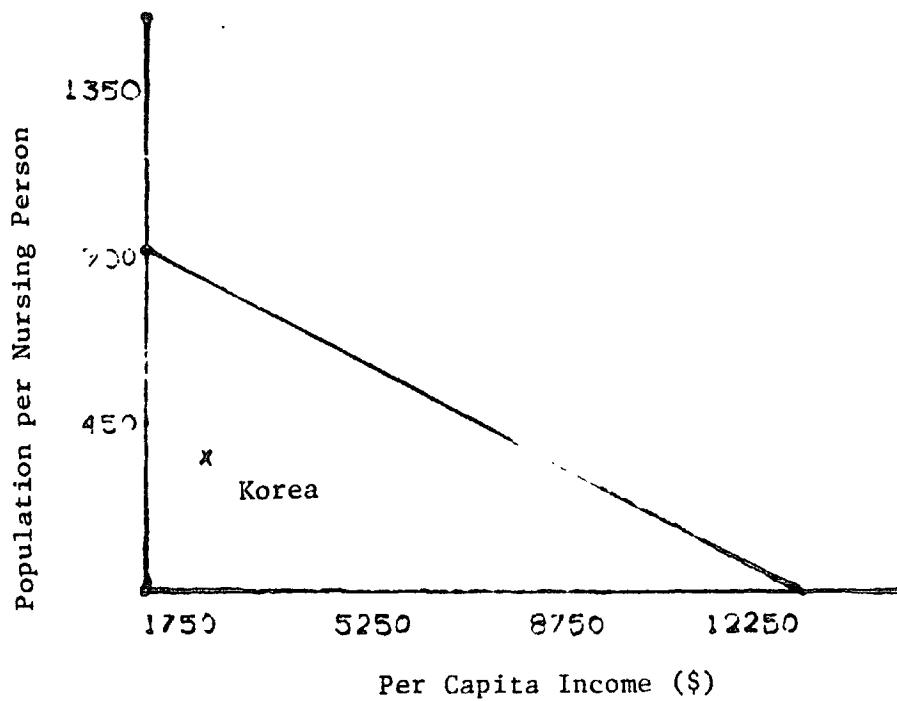


Figure 3.2: Per Capita Income and Endowment of Nursing Persons

Source: World Development Report, 1987.

3.22 The diversity of providers and of provider settings (ambulatory versus institutional) has been reduced by health insurance. The populations' reliance on midwives, pharmacists and oriental medical doctors for first-contact care has gradually been eroded. This trend will undoubtedly continue as long as health insurance makes no provision for the direct reimbursement of these categories of manpower, and may have gained enough momentum over the last ten years to be irreversible even with the presence of health insurance reimbursement policies for the substitute occupations.

3.23 A final point to note is the absence of any data on the number of trained health administrators. The introduction of health insurance does not appear to have been matched by a commitment to improved administration of health facilities by formal training of large numbers of health administrators. While discussion did provide evidence of a few recent programmes in health administration training, these were universally agreed to be too few in number and only recently put in place. The demands for good administration of hospitals and clinics cannot be likely met with the current number of trained administrators - the numbers of which could not even be ascertained.

#### Geographic Distribution of Supply

3.24 At the start of the health insurance period in 1977, there was a great deal of concern about the distribution of practitioners. The distribution between rural and urban areas for 1981 is shown in Table 3.2. Nearly 90% of each of the practitioner types are located in the urban areas, and for physicians and dentists around 70% of the stock practice in the four largest cities. During the period of health insurance the proportion of practitioners working in rural areas has, in fact, gradually decreased.

Table 3.2: DISTRIBUTION OF HEALTH MANPOWER BY AREA, 1981

	Physician (%)	Dentist (%)	Midwife (%)	Nurse (%)
Four Large Cities	10,863 (70.0)	2,120 (70.0)	905 (50.8)	9,187 (61.9)
Nationwide				
Urban	13,949 (89.9)	2,660 (88.7)	1,522 (85.5)	13,349 (90.0)
Rural	1,574 (10.1)	340 (11.3)	259 (14.5)	1,490 (10.0)
<u>Total</u>	<u>15,523</u> <u>(100.0)</u>	<u>3,000</u> <u>(100.0)</u>	<u>1,781</u> <u>(100.0)</u>	<u>14,839</u> <u>(100.0)</u>

Source: Ministry of Health and Social Affairs, Yearbook of Public Health and Social Statistics, Seoul: 1982, pp. 78-79.

3.25 However, there has been an improvement in service levels for rural areas. The decrease in the proportion in rural areas has, because of the very fast increase in the absolute number of practitioners, not resulted in less manpower. Furthermore, over the same period there has been a significant migration out of the rural areas, such that the size of the rural population has actually decreased relatively. Also, military service requirements for the large number of newly graduating physicians have, in many instances, been transferred into service in rural clinics and health posts which have been upgraded in their facilities.<sup>8/</sup> Finally, the urban areas are experiencing an oversupply of physicians, especially specialists, and these practitioners are opening practices in small towns and rural areas.

3.26 Nevertheless, it is still the case that the private sector carries only a small part of the service load in the rural areas, with public facilities and publicly employed practitioners providing the majority of care. The problem of remote areas has been innovatively addressed with the use in health posts of specially trained nurses or midwives called community health practitioners.

3.27 The fact that only a small proportion of rural residents have had health insurance until 1988 means that the experience since 1977 may not be a good guide to the level of service demand that may occur in the near future. This observation has been causing some concern about physician supply, especially specialist supply. Some of this concern is being alleviated with the overflow of surplus specialists from the cities, and the expanding policy of transferring medical graduates under military service to public clinic service. It is also arguable that in a small country such as Korea, the need for further diffusion of specialist services is questionable. It is now the

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<sup>8/</sup> This is a far from optimal solution to medical care provision in rural areas. Most of the military service physicians are young and inexperienced, they have little back-up supervision, do not stay long in the community or feel any particular allegiance to the local population, and are often dissatisfied enough with their role that they are poorly motivated and oriented toward the time when they can leave.

case that most of the population is within 60 minutes travelling time of major specialists, and further diffusion may result in specialists unnecessarily becoming involved in primary care to maintain their practice loads in the face of a small population base.<sup>9/</sup> This appears to have happened already in the oversupplied major cities, with midwives displaced from childbirth care to such an extent that only 50% of them work in the four big cities (compared to 70% for most other practitioners).

3.28 For nursing care, the rural areas rely extensively on nurse aids. With an increasing number of unemployed nurses in the urban areas, the nurse aids are coming under some pressure to be replaced by nurses in rural clinics and health posts. Although currently employed nurse aids are resisting the pressure, there will presumably be a gradual move to use more nurses in the rural areas in the future.

3.29 Therefore, the rural areas appear to have developed a less highly trained health care workforce. Compared to the urban areas there is more focus on the use of primary care physicians in public health posts referring to specialists in the larger centres, more midwives, greater use of community health practitioners as substitutes for some physician functions, and many more nurse aids than nurses. Before this potentially cost-effective array of manpower becomes displaced by the steering effect of health insurance, toward the more specialised and technical urban array, some evaluations of the population's use levels, satisfaction, and resulting health outcomes may be helpful. The results of such evaluations would guide future decisions on the direction of new policies to distribute different types of health manpower to the rural areas.

#### Facility Distribution of Supply

3.30 The distribution of physicians (see Table 3.3) across hospitals, clinics and various government facilities shows that, in total, nearly 90% work in hospitals and clinics. However, the break-down by rural and urban areas gives very different pictures, with only 15% of rural physicians working in hospitals, compared to 50% of their urban counterparts. By contrast, less than 2% of urban physicians work in government settings, whereas 33% of rural physicians are located in the government facilities. This reflects the greater reliance of the rural areas on primary care and public provision of services, and the orientation of the private sector toward the more profitable urban environment.

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<sup>9/</sup> This appears to be recognized by Government. MOHSA's latest annual report laments the "unnecessary medical treatment as well as increase in medical fees" arising from a disproportionately high ratio of specialists to physicians (MOHSA, 1987, p.42).

Table 3.3: ACTIVE PHYSICIANS BY INSTITUTION AND REGION IN 1984  
(in percent)

	Hospitals	Clinics	Health-related institutions	Government research institutions	Colleges and universities
Urban	52.9	36.9	1.7	0.4	7.9%
Rural	15.3	46.2	33.6	0	4.9%
<u>Total</u>	<u>48.0</u>	<u>38.2</u>	<u>5.9</u>	<u>0.4</u>	<u>7.5</u>

Source: Korean Institute for Population and Health, Health Manpower Census.

3.31 In fact, the majority of all types of practitioners work in private settings, either clinics or hospitals. The hospitals are predominantly staffed by specialists and nurses, whereas the clinics are staffed more by family physicians and nurse aids. However, with the rapidly increasing supply of specialists, there is a trend toward more clinic care by them (and even less of a role for family physicians in hospitals).

3.32 Health insurance appears to have significantly increased the reliance on hospitals, rather than clinics. Recently, restrictions have been placed on hospital building and expansion in the major urban areas to counteract this phenomenon. These restrictions will possibly slow the recent trend of a drift of manpower into the hospitals, and start a trend toward more clinics because there are few restrictions on their start up. Nevertheless, the hospital will remain as the principal place of employment for providers as the degree of reliance on technology is accelerating (there are over 200 CT scanners in Korean hospitals), and efforts to reduce the use of hospital outpatient departments are meeting with only limited success.

#### C. Training and Division of Roles for Manpower

##### Training

3.33 The majority of the training programmes are traditionally organized along the lines encountered in most developed countries. One method to assess the breadth of each practitioner group's trained abilities, is to ascertain which are trained in diagnosis. Discussions indicated that only dentists, physicians and community health practitioners had such training.

3.34 The case of community health practitioners is a special one as they are a recently developed category, designed for explicit use in remote areas, who are already trained as nurses or midwives but receive relatively brief additional training to undertake primary care duties in substitution for the physician. Some demonstration model attempts to train them for use in urban areas were, apparently, brought to a halt after representations from the Korean Medical Association.

3.35 Nurse aids have also been developed to substitute for some of the simpler functions of nurses. The expansion of their training programmes was the result of a shortage of nurses in much earlier years. Nurse aids offered (and still offer) the capacity to undertake many nursing functions, but to do so after a much shorter training period and with a lower income expectation. This substitution of nurse aids for nurses probably has most promise in the primary care sector where they are already in widespread use in rural clinics and health centres, but may also have some applicability in hospitals.

3.36 The development of health insurance appears to have affected training programmes little except for physicians. In this group there has been an increase in the degree of specialty training, even to the extent that a specialist qualification in family practice has now been developed. What has not been introduced into their programs is any appreciable training in management issues. At only two universities has there been some inclusion of such matters in the curriculum, and some provision for continuing education of already-practicing physicians. Given the central role of the physician in managing most health care facilities - hospitals in Korea are usually owned and operated by a physician or physicians - this omission will have potentially serious consequences as the pressures of national health insurance increase the demand for good management practices.

3.37 Another impact of health insurance has been from the rapid increase in the production of physicians through an increased number of medical schools. The number of medical schools has more than doubled since 1977 to a total of 31 in 1987, and most recently three medical schools have been opened despite opposition from the Korean Medical Association and prior statements from MOHSA indicating that no further medical schools were required. This occurred because the prestige attached to a University Hospital strongly encourages universities to lobby for a medical school, and because the absence of a coordination mechanism between MOHSA and the Ministry of Education (which licenses medical schools) allows effective lobbying to occur.

3.38 Unfortunately the impact on the quality of training has been detrimental. The political compromise in opening the new schools was to allow only small entering classes, at or around thirty per year. These numbers are not enough to support a full complement of teachers on faculty, therefore "travelling professors" have been introduced to teach students at a number of different medical schools. In addition, this has been exacerbated by a shortage of teachers in some areas of practice. It was generally agreed that the quality of training received by many of the newer medical graduates is not adequate.

### Legislative Framework

3.39 In most developed countries the health professions have been provided with extensive powers of self-regulation, thus removing from government the opportunity to use direct regulation of manpower roles. These countries have, therefore, found it extremely difficult to resist the natural inclination of the primary professional groups, such as physicians and dentists, to restrict the roles of their substitute competitors through the vehicle of their extensive self-administered regulatory powers. Often the onset of health insurance in these countries has also exacerbated this legislative dilemma by specifying these same primary professionals as the "gatekeepers" of the system, with the sole right to receive direct reimbursement from the health insurance plans.

3.40 Korea appears to be an exception to this pattern of regulation. First, the regulations governing the allowable roles of the professional groups are controlled directly by MOHSA. Second, hospitals are permitted to receive reimbursement from health insurance plans and therefore can, in theory, employ any reasonable type of practitioner to perform the services within their institution. The situation is, however, far less flexible in non-hospital settings such as clinics, where direct reimbursement of the physician is the main health insurance mechanism.

3.41 To the extent that MOHSA regulations allow for direct contact by consumers with pharmacists, oriental medical doctors, midwives and (under special legislation) community health practitioners, then there is considerable consumer sovereignty in their choice of practitioners over and above dentists and physicians. However, the restrictive reimbursement policies of health insurance for these MOHSA endorsed practitioners has inevitably led to a decrease in real consumer choice. For instance, there is little incentive for consumers to use the pharmacist (whose services are not covered by insurance) since the out-of-pocket cost (but not the cost to society) exceeds that for the physician. While oriental medical doctors have recently become covered under health insurance, and politically sensitive discussions are proceeding for the coverage of pharmacists, these moves may not be enough unless they are accompanied by new and stronger MOHSA regulations regarding the roles of these various practitioners.

3.42 At the present time the licence to practice is provided by MOHSA to most practitioners, usually after examinations administered by a quasi-government body. However, in the case of physicians the final requirement for practice - registration - is done with the Korean Medical Association. Most other practitioners register with the local county government. If all practitioners were required to register with the government in the locality in which they intended to practice, then MOHSA, through these local governments, would have available a potential method for controlling the overall number of practitioners by area. MOHSA would have the power to establish the reasonable number for a particular type of practitioner in each area, and then issue no further registrations beyond that number.

3.43 This mechanism allows MOHSA to determine the mix of manpower categories available by area and, in concert with appropriate financial and organizational changes, ensure that the most cost-effective arrays of manpower were being utilised. For example, many of the rudimentary primary care activities of physicians can be (and in remote areas are) conducted by community health practitioners. However, for this to occur in each area government would at least have to mandate through registration numbers an adequate number of community health practitioners and a reduced number of primary care physicians. This type of policy obviously relies on society and government accepting the concept of an unemployed physician, in the same fashion as they seem to currently accept unemployed nurses.

3.44 The registration proposal is but one possibility for the government to exploit its direct regulatory role over the different categories of health manpower. What is interesting about Korea, is that such direct regulatory policies over the roles of various health practitioners is possible at all. As mentioned, most countries have "traded away" this regulatory power to the primary professions themselves, who have tended, not surprisingly, to use the power to enhance their own roles and advantage.<sup>10/</sup>

#### The Populations' Actual Use Preferences and Impact of Health Insurance

3.45 The population has a strong preference for the use of physicians in general, and specialists in particular. This preference has certainly been influenced by their coverage under health insurance, but also reflects an underlying value that most consumers place on obtaining the most highly qualified help, regardless of the seriousness of the problem.

3.46 The convenience factor counteracted this tendency somewhat in the pre-insurance era. For instance, minor problems were routinely dealt with by visiting the pharmacist, with no recourse to the physician, because pharmacists are generally highly accessible. However, the financial incentive of lower out-of-pocket costs for the physician visit, because pharmacists have not yet been approved for coverage under health insurance, has had a major impact on this pattern of preference. Unless coverage of the pharmacist under health insurance includes coverage for some rudimentary diagnostic activity (which appears unlikely), then their late coverage is unlikely to alter the new pattern of use preference. In the area of personnel coverage, this issue of the role for the pharmacist is the major one occupying health insurance

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<sup>10/</sup> In Canada, public policy on regulation of the health professions has been dominated by the issue of how to regain some control over the governance structure of the medical profession after it was historically provided with the right of self regulation. This struggle was precipitated by some obvious abuses of the self-regulatory power, such as preventing physicians who wished to work in community health centres from gaining local hospital privileges, or refusing to designate some of the simplest of medical acts as delegable to the nursing profession without medical supervision. The medical profession has, in general, used its self-regulatory power to control the practice content of the other health professions when its own economic or social domain was threatened. (For further details see Lomas and Barer, ibid).

negotiators in Korea at the present time. Because they have no formal training in diagnosis, their prior role in this capacity is likely doomed for extinction except for those in remote rural areas where they may be the only health professional available.

3.47 Given the potential for pharmacists to provide diagnostic and therapeutic services more cost-effectively than physicians for uncomplicated common illnesses, some consideration should be given to coverage for them under health insurance for more than the restricted prescribing role. The concern is that the accuracy of their diagnosis (and therefore the appropriateness of their prescription) may be less than optimal. Therefore, the government may find it advisable to make coverage of pharmacists for diagnostic services conditional upon the results of a research study on the quality of such services provided by pharmacists. For a random sample of pharmacists the research could assess quality and, if a previously agreed upon level of competence was demonstrated by the profession, the government could agree to their coverage for uncomplicated primary care services. Of course, if the criterion level of quality was not demonstrated then the pharmacists would be restricted for coverage to prescribing alone. If this latter situation arose, then there should also be a reduction in the output of pharmacists from the training programs, given the obvious decreased requirement that would exist for them in the future. In any event, it would appear likely that pharmacists will see decreases in both their role and income over the next few years.

3.48 Similarly, in the larger urban areas midwives have had a decreased role as mothers seek out specialist obstetricians for childbirth that is insured. In rural areas there continues to be an orientation toward the midwife, but this may change with the increased penetration of insurance for rural inhabitants. These preferences have changed despite the fact that the midwife is also a "specialist", with extensive and exclusive training in childbirth issues.

3.49 While there was apparently no strong preference for the use of community health practitioners, they have been well received in the remote communities where they are located. Partly this is related to them largely being from the communities in which they practice, and to them remaining in the communities for many years to establish continuity and an appreciation for the peculiarities of the local community.

3.50 Greater use of community health practitioners in the public clinics and health posts of the small towns and urban areas might alleviate the problem of lack of continuity experienced by those of the facilities staffed by transferred military service physicians on a rotating basis. Because the local populations often feel that the physician is not well trained, and does not understand their community, they will often prefer to travel to the larger centres and use the specialist services in the local hospital. The use of CHPs in these facilities, in conjunction with the rotating physicians, might improve the perception of continuity of care and increase preferences for local service.

3.51 Finally, the population seems to engage in much "doctor shopping", where a number of different physicians are "tried out" for the same disorder. The onset of health insurance has, apparently, accentuated this practice. A strong and enforced referral system may be the only way to prevent continuation of this practice.

#### Conclusions

3.52 Health insurance appears to be freezing in place a less than optimal division of roles among the various categories of health manpower. Existing consumer preferences for highly (over-)qualified practitioners has been allowed to drive the manpower complement toward a gradually more specialised mix in the area of medical care. One exception is nursing care, however, which appears to have continued to capitalize on the large degree of substitutability between nurses and nurse aides outside the hospital setting. This pattern is also understandable in view of the fact that nurses are not directly reimbursed by insurance; their clinic or hospital employers are.

3.53 The preference for specialists over general practitioners is very strong, and is unlikely to be changed without strong financial incentives to reverse it. With the heavy emphasis on the training of specialists - more than 75% of current graduates are going into specialist training - the general practitioners' role is likely to continue to decline.

3.54 The driving trend of health insurance, toward a more specialized complement of practitioners, has occurred despite the fact that there are no formal legislative barriers to greater use of more cost-effective personnel. The power is located within MOHSA to regulate the role divisions and functions between the different categories of personnel. One can only assume that the opposition of the stronger professional associations, such as the Korean Medical Association, has made the use of such regulatory power difficult.

3.55 Under current circumstances a more cost-effective role division could be achieved with greater use of midwives and community health practitioners. However, the consumer preferences would have to be changed somewhat with "marketing" campaigns by government and hospitals on behalf of these practitioners. Such a marketing strategy would emphasize the major advantages of using their services instead of the services of obstetricians (for the midwives) or rotating physicians transferred from military service (for the CHPs). A marketing campaign of this kind should be in the interests of the private for-profit hospitals, who would (say) be able to use less expensive midwives to replace more expensives obstetricians, while continuing to receive the same level of fees for the service that was delivered.

#### D. Manpower Planning, Projections and Policies

##### Manpower Planning

3.56 The most striking aspect of the framework for manpower planning in Korea is its absence. Until recently (the 1980s) there appear to have been no planning exercises, and the recent ones have been conducted by health services

researchers in the universities with no formal government planning mechanism to consider them. There is little or no coordination between the Ministry of Education (responsible for training manpower), the Economic Planning Board (responsible for funding manpower), and MOHSA (responsible for employment or employment conditions for manpower). As a consequence, manpower production policies have been able to proceed in a manner largely unrelated to the needs of the health care system.

3.57 This is understandable insofar as the system has been largely private until recently. However, the need for coordinated government-level planning has now emerged, but no formal mechanism appears to have been instituted and production policies continue to be largely reactive to the relatively unplanned demands of the previously privately funded system. The establishment of such a mechanism is one of the transitions that should be made in the near future, as Korea moves from the private system to one with significant government commitment.

3.58 The existing manpower plans conducted in the universities have been of a high level of methodologic sophistication. They have, however, mirrored the assumption of private preferences as the determinant of policies by basing projections of future requirement on extrapolation of current demand for services. Underlying all plans conducted so far is the assumption that manpower should be produced in the numbers and mix required to continue the current pattern of privately negotiated provision, even if that includes unnecessary services or use of inappropriate personnel for some services.

3.59 The attraction of this "demand-based" approach is in the ready availability of data on current utilization levels which, with a few manipulations for productivity levels of the various categories, can be used as a proxy to measure the demand (read requirement) for manpower. An alternative, but methodologically more challenging, approach is to make the planning "need-based". The assumption underlying this approach is that government has the responsibility to produce only the numbers and mix required to most cost-effectively service those episodes of ill-health that can be resolved by health care interventions. The requirement for manpower is then related to a) epidemiologic measures for the level and nature of ill-health among the population, b) clinical studies which define what effective interventions exist for that ill-health, and c) studies of the most cost-effective personnel who can deliver those services to treat that ill-health. The challenges lie in measuring the level of ill-health, translating the treatable component into manpower units, and combining this with the results from studies on cost-effectiveness of different personnel.

3.60 There are already reasonably good data on disease prevalence in Korea which can form the basis of such a need-based exercise. These data can be

supplemented with delphi consensus exercises 11/ to quantify in areas where prevalence data are uncertain, to outline likely future changes in prevalence, and to uncover new areas of disease (such as the emerging chronic diseases commensurate with an aging population). Similarly the delphi consensus process can be used to ascertain whether, and/or how much, professional service is required to effectively address each episode of ill health; aggregation of this using the overall disease prevalence data provides a total service requirement. Finally, the service requirement is translated into actual numbers and mix of different types of manpower, based on evidence of the most cost-effective type of provider for each area of service, and the productivity levels of each type of practitioner. Such an estimate of the future requirement for health manpower would be almost totally independent of present patterns of service delivery and utilization.

3.61 The delphi process is already in use in Korea by health services researchers. Two examples encountered were to establish future research priorities for health services research, and to obtain estimates of productivity levels across different medical specialists. The entire needs-based manpower planning methodology using delphi techniques was used by the United States in the early 1980s to match future requirement with projections of supply. At that time this "Graduate Medical Education National Advisory Committee" (GMENAC)12/ decided that the U.S. was moving into a physician surplus position within the next few years - their prediction seems to have already become a reality.

3.62 The importance of making the planning exercise at least partially independent of current delivery and utilization patterns cannot be stressed enough. If future requirements are blindly based on current provision, then the planning itself is a strong element in supporting the status quo which includes some inappropriate levels and methods of service provision. If one does not wish to perpetuate these less efficient patterns of care, but also

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11/ The delphi process, or modifications thereof, is widely used in situations where there is some hard information available, but the extent of uncertainty is still great enough that expert opinion is needed as a supplement prior to decision-making. A panel of "experts" is brought together and given the common base of the existing information, and a set of questions which require answers that can be only incompletely provided with the existing hard information. After a round of individual responses, the group works together to reconcile areas of disagreement and reinforce areas of agreement. The final product is a set of agreed upon answers from the group for which, if the process works correctly, no one individual can claim credit.

12/ For more details on GMENAC see McNutt, DR: "GMENAC: Its manpower forecasting framework" American Journal of Public Health 1981; 71: 1116-24.

does not want to go to the lengths involved in a full needs-based planning exercise, then the use of current utilization to approximate need should be premised on adjustments to remove ineffective or inappropriate utilization before it is extrapolated to future "required" levels of utilization. Thus, when it is known that diagnostic procedures performed in clinics are often unnecessarily repeated by the hospital if the patient is admitted, the utilization represented by the repeat testing should not be included in planning as "required utilization". Adequately constituted delphi panels can make such adjustments to avoid producing the numbers and mix of personnel to perpetuate this pattern of provision.

3.63 It is unfortunate that much of the production of manpower has not recognized this previously. Therefore, training capacities that have been planned and put in place may already be feeding into this perpetuation of an inefficient service pattern. The problems with this are two-fold. First, it is much more difficult to close down training places than it is to introduce them; reversal of current plans already in place is therefore politically problematic, especially for medical school places. Second, the existing manpower mix, and the future mix that will result from current training and production plans, significantly affects what it is possible to do in the future. For instance, if obstetricians are already available in large numbers, and planning policies will ensure continuance of those numbers, then it is far more difficult to justify and maintain widespread use in the future of more cost-effective midwives to replace some of obstetrician's activities.

3.64 The above concerns merit high priority. Accordingly it is recommended that a formal health manpower planning committee be constituted with participation from all the practitioner organizations and concerned ministries, with coordination provided by MOHSA, and with the aim of developing plans which reflect the evolving health care "needs" of the population.

#### Projections of Physician Supply

3.65 There has been a major expansion of medical school capacity in Korea since the introduction of health insurance in 1977. Enrolment has increased by nearly 150% between 1977 and 1987. As has already been pointed out, there are some problems with quality of medical education as a consequence of this rapid expansion, with new medical schools being too small to offer a full teaching faculty. In addition, the expansion has occurred in concert with a far greater focus on training specialists. Because the training period for a specialist is approximately ten years (including two years of pre-medicine), the major influx of physicians to the current stock is only just beginning and, given the emphasis on expansion in the most recent years, will continue for the foreseeable future.

3.66 The focus on specialist training is occurring despite the frequent statements heard that the shortage of specialists is almost solved, even outside the rural areas, and that there is a developing oversupply of physicians in the cities. One indication of this oversupply are the reports

that salaries offered to physicians in hospitals have actually dropped in recent years. In this context it is all the more surprising that in 1987 there was a 24% increase in the number of specialist training positions available in teaching hospitals. While this increase kept the proportion of specialist training opportunities at about 75% of graduating stock (there was a large increase in graduate numbers in 1987), the effect will be to exacerbate the tendency for over-specialization of the existing stock.

3.67 Indeed, data in Tables 3.4 and 3.5 indicate that in the eight years to 1995 the specialist proportion of the physician stock will rise from the current 54% to well over 60%, with about 14,000 more specialists added to the existing licenced supply of nearly 17,000. About 5,000 more GPs will be added to the current supply of just over 15,000. With a conservative assumption of a 1.2% annual attrition rate from current stock due to deaths, emigration and retirement,<sup>13/</sup> the total supply of licenced physicians will increase by almost 50% to nearly 50,000 by 1995. Between 1986 and 1995 the physician stock will increase each year by at least 5.5%, while the population is projected to grow at less than 1.5% per year. These calculations are based on extrapolations from the numbers of students already enrolled in medical school; in other words, the figures are not really "what ifs", but are close to "what will be". Thus, by 1995, the physician to population ratio will be about 1:900.

3.68 The one area where the mix (but not total size) of the supply can be changed is in the proportion of specialists. If the number of positions available for specialist training in teaching hospitals were significantly reduced, then a greater proportion of GPs would be attained. However, because GPs require only a one year internship before going into practice (specialists need four years beyond this), the total supply would grow much faster than calculated in Tables 3.4 and 3.5. One solution to this is to accompany any reduction in the number of specialist training places with an increase in the training period for remaining specialists from four years to six years.

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<sup>13/</sup> This 1.2% figure is made up of 0.9% for emigration and 0.3% for deaths and retirements. It is a conservative assumption because (a) the existing stock is very young and will not be retiring or dying in large numbers for many years yet, and (b) emigration rates for physicians in nearly all countries are going down as more and more countries declare physician oversupply, and impose immigration controls on physician entry.

**Table 3.4: INPUT AND OUTPUT OF NUMBERS IN ENROLLMENT COHORTS FOR MEDICAL SCHOOL AND SPECIALIST TRAINING, 1977-1991**

(Graduation and specialist numbers are estimates for 1988-1991, based on actual enrolments 1977-1987, actual graduations 1981-1987, and actual specialist training positions 1985-87).

Year	Enrollment cohort	Year	Graduation of cohort (4 yrs later)	Training positions for specialists (% of cohort)
1977	1,221	1981	1,076	-
1978	1,608	1982	1,417	-
1979	1,864	1983	1,630	-
1980	1,873	1984	1,715	1,372 (80.0)
1981	2,964	1985	1,860	1,511 (81.2)
1982	3,282	1986	2,041	1,592 (78.0)
1983	3,385	1987	2,538	1,971 (77.7)
1984	2,856	1988	2,428/a	1,821/b (75.0)
1985	3,074	1989	2,613/a	1,959/b (75.0)
1986	3,178	1990	2,701/a	2,025/b (75.0)
1987	2,998	1991	2,548/a	1,911/b (75.0)

/a Assumes a 15% attrition rate during training.

/b Assumes that 75% of graduates will have specialist training available.

**Table 3.5: NUMBER OF SPECIALISTS AND GENERAL PRACTITIONERS ADDED TO STOCK IN THE FUTURE, 1988-1995**  
(All numbers are estimates, based on figures from Table 4)

Year	Specialist	GPs	Taking exams	Added to stock /a
1988	1,372	567	1,939	1,842
1989	1,511	607	2,118	2,012
1990	1,592	654	2,246	2,134
1991	1,971	676	2,647	2,515
1992	1,821	637	2,458	2,335
1993	1,959	625 /b	2,584	2,454
1994	2,025	625 /b	2,650	2,518
1995	1,911	625 /b	2,536	2,409
<b>Total</b>	<b>14,162</b>	<b>5,016</b>	<b>19,178</b>	<b>18,219</b>

/a Assumes an examination pass rate of 95%.

/b Assumes that medical school graduation stays constant at 2500, and that 25% of graduates continue to become GPs.

3.69 In any case, these changes are unlikely to occur without strong intervention from the government, who currently share control over the number of specialist training places with the Korean Hospital Association (KHA). The KHA has a major incentive to keep a large number of places available, because resident specialist trainees represent a cheap source of labour in all the teaching hospitals, and because an oversupply of specialists will likely drive down the salary level for them in hospitals.

3.70 While this market effect of supply and demand on specialist salaries in hospitals might be thought of as a good economic reason to keep up production levels, there are avenues other than the hospital for physicians to garner an income. There is much opportunity for increased utilization of physicians on an ambulatory basis. Clinics are relatively unregulated, and specialists will be (and are already) setting them up in small towns still in commuting distance from the cities. Here they will be able to bill insurance plans directly for their services. With the use of their highly discretionary powers over the intensity and amount of service applicable to any episode of illness, and the population's strong preference for specialist physician services at all times, there will likely be income opportunities for them, and ever-increasing expenditure commitments for the insurance plans, for some years to come. Thus, while the salaries for specialists in Korean hospitals may get driven down by an oversupply in urban hospitals, this will likely be more than compensated for by specialists setting up practice in the relatively unregulated ambulatory environment. Indeed, the lower hospital salaries will encourage this to some extent. The total expenditures on specialists in Korea would therefore increase significantly, despite their lower salaries in hospitals.<sup>14/</sup>

3.71 The experience of other developed countries has been that areas with dense supplies of physicians, are the areas with the highest utilization and fee levels. The fact that some specialists now see as many as 100 patients in a day suggests that there is already some "induced demand" by them for their services. Again, the experience in other countries is that as the physician supply increases the extent of this induced demand increases in order that each old and new physician can maintain the income levels available when the physician supply was lower.<sup>15/</sup> As discussed earlier, the extent to which

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<sup>14/</sup> The U.S. situation since the introduction of prospective payment in hospitals (via Diagnostic Related Groupings or DRGs) may well be a forerunner of what Koreans will see. Once the constraints in the hospital environment reduced the opportunities there, physicians have turned to the ambulatory sector for a greater proportion of their income. While the increases in the proportion of GNP spent on hospital care has flattened out considerably since DRGs, there has been a precipitous increase in ambulatory care costs that has more than compensated for the slowing in the hospital cost area.

<sup>15/</sup> This characterization is not universally accepted. Pauly (1985) cites a number of studies which fail to reveal a positive relationship between physician stock and fee or utilization levels. He concludes that the "existence of demand creation remains an open question."

there are still unmet needs in Korea, and that they can most appropriately be met with the services provided by specialist physicians, is the extent to which further increases in physician supply would be to the advantage of the country. However, this also assumes that the additional specialists will direct their services to the areas of unmet need, and there are obvious problems with this assumption on at least two grounds.

3.72 First, one type of unmet need is that found in the remoter regions of the country. It is not likely that specialists will be willing to locate in these underserved regions, unless the government requires such service.16/ Presently, because of oversupply, specialists are being driven to seek practice outside the main urban areas, but are orienting toward locations to which they could commute from the city. This mirrors the findings in North America, i.e. that the cultural and professional environment of the city is the main magnet for physicians, and oversupply alone is rarely enough to draw them out to the remote regions to practice.

3.73 Second, the other likely source of unmet need is the population group with low incomes. Given the relatively large copayments in the Korean health insurance system, it is unlikely that this group will seek access to health care except in the case of major acute disorders. They will be the least desirable "customers" for the ambulatory-based specialists, because of their lower ability to pay, and therefore will not likely be sought out for the provision of service to address the chronic low-grade problems that accumulate in this population. And in any event, it is arguable that more basic services than specialists are advisable for this population, such as better housing, prenatal visiting, nutritional assistance and so on.

3.74 Therefore, the current supply of physicians may well be close to meeting all the previously unmet needs that can realistically and feasibly be addressed by physicians' services. The nature of the remaining unmet need means that it is unlikely to be addressed by the projected surge in total physician supply, and certainly not by the bias toward specialists in this new flow of stock.

3.75 There are other reasons to be concerned about the projected increase in the supply of physicians. A "slack" supply of physicians acts as a deterrent to the use of more cost-effective substitute personnel. Midwives, pharmacists, community health practitioners are all less likely to be able to expand their scope of practice. Further, the aging population and the increasing prevalence of chronic disease, may not be best addressed by more physicians. Rather, after an initial period of diagnosis and start-up of maintenance therapy by the physician, chronic diseases mostly require nursing

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16/ To the extent that the Korean education system subsidizes the training of physicians, this requirement for remote region service may not be unreasonable. In fact, through the use of physicians doing military service in rural clinics, this requirement is already being used to some extent. However, as discussed earlier, there are major shortcomings with this policy for underserved areas because of the low level of motivation and generally poorer quality of care found in these "captive" physicians.

care. By producing so many physicians, the limited resources committed to health care may be taken up paying physicians rather than providing nursing care.

3.76 Summary and Recommendations. This section has suggested there are reasons to believe that continued high growth of physician supply may become counterproductive after a point. First, it appears that the training capacity in place is not adequate for the increased enrollments and the quality of training is suffering. Second, slack supply of physicians acts as a deterrent to the use of more cost-effective substitute personnel; to the extent that medical education is partly subsidized by Government, this may not be an efficient outcome. Third, in the absence of comprehensive utilization controls and alternative reimbursement mechanisms, an increasing supply of physicians will lead to increasing expenditures on health as these physicians use their discretionary powers to induce demand and to protect their incomes. This pattern is uniformly observed in countries with health insurance and especially so in systems which reimburse on a fee-for service basis.

3.77 Accordingly, action must be taken on several fronts. First, the potential for cost-effective substitution among various categories of manpower should be assessed via specific studies and made known to the general public via education and "marketing" programs. Such programs could stress, for example, that midwives can deliver babies just as safely as obstetricians in the normal case, or that community health practitioners can provide primary care just as effectively as physicians. The use of cost-effective substitutes can also be promoted by ensuring that, if reimbursement is made on a fee-for-service basis, the fee is set at a level consistent with the normal income expectation of the lowest-cost fully-qualified provider who can deliver the service.

3.78 Second, the extent of "induced" demand by physicians should be reduced by imposing appropriate utilization controls or by altering reimbursement mechanisms to make such actions unprofitable. For example, a Diagnosis Related Groups (DRG) system can be introduced in which reimbursements are linked to the condition of the patient rather than to the treatment actually selected by the provider. Another option is to adopt a capitation system under which providers are paid a fixed (negotiated) amount per year for every enrolled patient.

#### Projections of Other Manpower Supply

3.79 Production policies need less precision for non-physician categories of manpower than for physicians because the training periods are much shorter, and it is easier to close down training places. It is therefore less problematic to adjust for over- or under-production. In the case of over-production, a decision to reduce training capacity can have an impact in only a year or two for nurses or technologists, compared to six years or more for physicians. With under-production, not only can increased training capacity have a quick effect, but increases in salary levels can immediately attract back individuals who have left the field.

3.80 Nurses appear to be a health manpower category with high levels of unemployment or alternative employment. Thus current production levels are likely to be more than enough, and might profitably be reduced. It may be more cost-effective to increase salary levels for nurses in the future to capitalise on the existing trained stock, rather than investing in more training capacity. As the elderly come to adapt to (and therefore use) health insurance, and as they increase in numbers, home nursing care may become a larger requirement, and might be addressed with higher nurse salaries for community-based nursing services.

3.81 Alternatively, the existing category of community health practitioners could have such home nursing introduced into their curriculum, and they could be used to meet the projected need for care of the chronically ill elderly. Projections of the supply of community health practitioners indicate that they may soon have difficulty finding employment in their currently restricted role of limited remote area primary care. The turn-over rate among CHPs in these remote areas is very low, and already the newly graduating CHPs are having difficulty finding posts. Therefore, a new role for them might preclude the necessity of reducing training places in the near future.

3.82 Pharmacists also appear to be in danger of over-production, especially if no mechanism for their reimbursement under health insurance is established. The changing pattern of use of pharmacists is reducing the demand for their services, while supply projections show continued increases over and above population increase.

3.83 It should be noted that these projections of potential over-production assume that the current distribution of roles across manpower categories will change little in the future. If measures were taken to increase the role of physician substitutes, and actively move health manpower supply toward a more cost-effect configuration, then very different production scenarios would be indicated.

3.84 Finally, the existence of health insurance, and its universal coverage by next year, suggest that there will be an increasing requirement for administrators and managers in the health care system. Current meagre production levels for these managers is unlikely to be enough to meet the requirement of a few years hence. It is recommended that programs to train more health administrators be encouraged.

#### E. Impact of Financing and Organization on Health Manpower

##### Financing

3.85 Any system of financing health care will provide certain incentives. Sometimes these incentives will be toward the appropriate use of manpower, while other incentives may work against desired manpower roles. These financial incentives will affect both who gets used and at what levels of use for particular health problems.

3.86 The most obvious impact is from who is financed. The exclusion of pharmacists from health insurance's remuneration policies in Korea has had an obvious impact in their use levels relative to physicians. Thus, despite a lower total cost for pharmacists' services, the financial incentives for patients favour the physician because they need pay only a small out-of-pocket cost for them.

3.87 The form of reimbursement will also have more indirect effects on manpower configurations. The reliance on fee-for-service payment to individual practitioners in the community means that (a) practitioners are rewarded for higher levels of servicing regardless of need, and (b) there are no incentives to encourage groupings of different types of practitioners such that the most cost-effective practitioner can be used for each type of service. Outside the hospitals, it is predominantly individual physicians who are seen as the recipients of fees from insurance plans.

3.88 One alternative is capitation reimbursement where a community based organization is identified as responsible for the care of a specified enrolled population, and receives a per capita sum each month (or quarter, or year) for each enrollee's care. The capitation sum is received regardless of use levels of the enrollees, thus encouraging the application of the most cost-effective means of service provision; there is no incentive for unnecessarily high levels of service or the use of over-qualified practitioners for services. This remuneration method also does not require that the service be delivered by a particular type of practitioner to be eligible for reimbursement. This form of financing has been shown in many jurisdictions to reduce overall levels of utilization, expenditures, hospitalization, and specialist use. Indeed, capitation funding has become identified as a major cost containment policy in both North America and Europe.

3.89 A hybrid version of this financing mechanism is found in the way that hospital care is reimbursed by Korean health insurance. Fee reimbursement is not paid to individual practitioners in the hospitals, but rather it is paid directly to the hospital for a service they have delivered regardless of who delivered the service. The individual practitioners are paid by salary from the hospital. Thus, the financing mechanism is in place in Korean hospitals to enable the use of the most cost-effective personnel for service delivery. Indeed, it is one of the surprises of the Korean health care system that hospitals are largely failing to use this potential to employ personnel other than physicians to deliver many of their hospital services; there is nothing in the current financing mechanism to prevent them from doing this.

3.90 The explanation of why these for-profit hospitals are failing to fully exploit the profit potential of the financing mechanism by employing more cheaper (but effective) non-physician personnel may lie in the current level of fees. The absolute and relative levels of fees are another way in which financing results in various incentives for manpower use. The current fees appear to have been calculated on the basis of an expected rate of return for the hospital after they have paid out salaries at the level enjoyed by physicians. Thus even though the funding mechanism may not be requiring the use of the most expensive personnel for all services, the fee levels have

built in an explicit expectation that this will be the case. Combined with the obvious patient preference for the use of physicians over other personnel, the reasons for hospitals to capitalize on the potential for more cost-effective use of manpower are not yet strong enough to overcome the inherent bias toward using only highly specialized practitioners. Also, it is probably not without relevance to note that most Korean hospitals are owned and operated by a physician or physician partnership.

3.91 One solution is to use the level of fees to better reflect the type of health manpower expected to be used for each type of service. The fee for each service could be set such that it provided a return only at the expected income level of the lowest-cost practitioner who was qualified to effectively deliver the service. Thus the income aspirations of midwives would determine the fee levels for uncomplicated childbirth, expected income levels of nurses would determine fees for well baby visits, and so on. This mechanism would almost require hospitals to employ the most cost- effective category of manpower for each service they provided. If they did not, they would have to subsidize the less cost-effective practitioners out of their own profits.

3.92 These are only a few examples of how the financing incentives of health insurance in Korea are affecting the deployment of manpower. They serve to highlight the importance of considering the impact of current and future financing policies on manpower roles and numbers. As health insurance becomes comprehensive, and as cost-containment concerns start to emerge, particular attention should be paid to such incentives as possible policy avenues to achieve cost control, as well as more efficient use of the existing pool of health manpower in Korea.

#### Organization

3.93 In a similar fashion to financing mechanisms, the organizational structure of the health care delivery system provides particular incentives for manpower use. One organizational alternative - capitation funded community-based facilities - has already been considered in the previous section. The current delivery of non-hospital services through private clinics reflects the pre-health insurance organization of the private system. They have retained their status as relatively unregulated facilities under health insurance, thus allowing the personal preferences of their owners (usually physicians) to sometimes override the health care needs of the population and the emerging economic concerns of the government.

3.94 The development of community owned and operated facilities funded by capitation might allow for greater use of a wide variety of practitioners on an ambulatory basis, as well as facilitating greater regulatory control over the potential over-provision of insured care. The over-provision concern is a very real one with the emerging over-supply of specialists flowing out of the urban areas. The lack of regulation on the start-up of clinics will potentially allow these "surplus" specialists to increase the availability of physicians' services in a community beyond "needed" levels of care. Even if capitation funded facilities are not introduced, serious consideration should be given to more effective regulation of the conditions under which private clinics can be opened in communities.

3.95 It is quite clear that there is an existing appreciation of the importance of organizational structure in determining use levels of health manpower. The extensive efforts to institute a formal referral system (called a "health care system initiative" in Korea), attests to this appreciation. The government should not be discouraged by the relative lack of success in formalizing their proposed referral system, but should continue to seek both financial and organizational means to implement referral streams.

3.96 As concerns about cost containment within health insurance overtake the historical concerns of putting in place a system of health insurance, the financing and organizational policies will become central to the success of maintaining a reasonable level of service at a reasonable level of cost to Korean society. Experience gained now with policy attempts in these areas, will be very useful for these inevitable later endeavours. It is quite clear that the objectives of health manpower policy in particular, and the health care system in general, have to undergo the transformation from a private to a public focus in the next few years. Financing and organizational policies will form a major part of that transformation.

#### IV. ISSUES IN THE SUPPLY AND USE OF HEALTH FACILITIES

##### A. Introduction

###### The Scope for Public Policy

4.1 The role for public policy in the matter of investments in medical facilities in Korea must be viewed in the context of two considerations: one is that such investment has typically been a response to rising demand, and the other is that it has typically been undertaken by the private sector. It is not self-evident, therefore, that it should become a concern for public policy.

4.2 Both points have validity. The demand for health services has been rising steadily and, while the availability of health insurance has provided a fillip to demand since 1977, the main driving force is likely to have been rising income. As noted previously, Korea has been distinguished by both a rapid increase in per capita income and a relatively high income elasticity of demand for health services. Furthermore, the bulk of the stock of health facilities (almost 90% of the hospitals, for example) in Korea are privately owned and most are organized as for-profit facilities which are subject to financial profits and losses just like any other business enterprise without recourse to subsidies or special treatment from Government.

4.3 Since the introduction of insurance, however, the private sector orientation of the health sector has been changing. Indeed, the extension of universal health insurance will make the health care business a completely government regulated one. Since almost all medical care transactions between consumers and providers will then be subject to prices set by government (via the fee for service system) the economics of investment in health facilities will come to be dominated by acts of public policy. Furthermore, government has accepted financial responsibility for a significant fraction of health expenditures by agreeing to share costs with certain insurance societies, such as the ones covering rural residents. To the extent that the expansion of health facilities in the future will be largely a consequence of government pricing policy and will affect government expenditures, a clear rationale exists for this to become a concern for public policy.

4.4 The implementation of universal health insurance in Korea will generate new demands on the existing health care delivery system. Incentives to make greater use of the health care system will be created and utilization patterns will change as a result of better financial access to health care. Incentives to offer different types of care, acquire advanced medical technology, and utilize different medical procedures will also be altered further. The challenge will be to ensure that health care can continue to be provided in a cost efficient and equitable manner while access is enhanced. Meeting this challenge will require that attention be paid to four concerns: the location of the delivery of specific medical services; the acquisition of new medical technology; the regional distribution of facilities; and the appropriateness of alternative medical procedures.

4.5 It is expected that hospitals and especially the more technologically advanced general hospitals will experience increased demand as more and more people obtain greater financial access. This pattern has already become established and can only be expected to become more prominent. Accordingly, it will become more important to monitor the types of patients which are seen at these very sophisticated facilities to make sure that they need to be treated there rather than at a less sophisticated facility where they might be treated at a lower cost and more effectively. Making sure that patients are seen in the most appropriate settings is going to be one of the major challenges of the next several years.

4.6 Investments in new buildings and new technologies represent a large proportion of spending by hospitals and clinics. Capital spending determines what services can be performed in which settings, and who has access to certain procedures. More importantly, capital spending can have long run implications for operating costs. The health industry is characterized by complementarity rather than substitutability between capital and labor: increased capital spending has been found to result in additional operating expenditures (Anderson, Erickson, and Feigenbaum, 1987). As a result, it is imperative to examine the capital acquisition process and to develop a mechanism for technology assessment if costs are to be contained and capital distributed in the most cost efficient manner.

4.7 A further concern is the distribution of health care facilities. Health facilities are seldom distributed evenly in any country; typically there are more facilities available in urban and more affluent areas and fewer services available in rural and poorer neighborhoods. This is as true in countries with national health insurance programs as in countries with decentralized free enterprise systems. Korea has an uneven distribution of health facilities among provinces and between rural and urban areas. The challenge will be to ensure that the distribution of health facilities does not become so uneven as to result in serious deprivation for significant groups of the population.

4.8 A final concern is the appropriateness of care. It is difficult to determine when a particular technology or medical practice is appropriate and even more difficult to control inappropriate practices when they are identified. In most countries, including Korea, the physician-patient relationship is sacrosanct, and it is difficult to regulate the practice of medicine. Nevertheless, the issue of what medical procedures are used for particular problems is likely to be an issue of primary importance given the strong link between procedures and costs on the one hand and the uncertain link between certain procedures and cures on the other.

#### Organization of the Chapter

4.9 The remainder of this chapter is organized into three sections. The first section examines supply issues. Specifically, it looks at the current growth of health facilities, regional variations in facilities, utilization patterns, technology acquisition, and the promotion of primary care through community health facilities. The second section looks at the effect of insurance on the supply and use of facilities. It examines the link between

utilization and insurance, and reviews ways to change utilization patterns through the insurance system as well as through other mechanisms. The final section consists of specific recommendations in the areas of cost and utilization control, and further expansion of facilities.

#### B. Supply and Utilization Patterns

##### Growth in Facilities

4.10 Compared to industrialized nations, Korea has a limited number of health facilities. A standard comparison of health facilities is the number of persons per hospital bed, and in Korea, there are 411 persons per bed. This compares to 246 in Japan, 245 in Hong Kong, 171 in the United States, and 129 in Canada. There is a concern in many of these countries, however, that the presence of too many hospital beds is leading to unused capacity and inappropriate utilization of hospital facilities. The World Health Organization has established a standard of one bed for every 333 persons. Korea is not very far from that standard and should reach it within a few years.

4.11 Korea has been expanding the number of health facilities rapidly in recent years. Between 1976 and 1985, the number of hospital beds increased 15 times faster than the overall population growth and the number of medical facilities increased 3 times faster than population growth. The increase in the supply of medical facilities is shown in Table 4.1. The table shows significant increases in the number of general hospitals (tertiary care institutions), hospitals (community hospitals), clinics, and dental clinics. The only facility not experiencing rapid growth is the midwifery clinic (not shown in table).

Table 4.1: TREND IN THE SUPPLY OF MEDICAL FACILITIES

Year	General Hospital	Hospital	Private Clinic	Dental Hospital	Oriental Hospital
1955	42	90	2800	596	1284
1960	22	128	3683	757	1779
1965	24	182	5074	1079	2247
1970	12	223	5513	1344	2443
1975	37	128	6290	1614	2382
1980	82	240	6610	2028	2328
1985	183	317	8069	2998	2791

Source: FKMIS, 1987.

4.12 The overall rapid growth rates suggest that a large future facilities expansion program could be unnecessary. Aggregate statistics, however, may be misleading if there are areas where the population is underserved. This is especially likely to occur in a sector dominated by for-profit hospitals which tend to locate in areas where they can earn a profit.

#### Regional Distribution of Facilities

4.13 There is significant variation in the availability of hospital services by province. According to Table 4.2, there are significant differences in the bed to population ratios among the provinces. For example, the bed to population ratio is twice as large in Inchon than in Choongchungbuk-Do. In analyzing this data, however, it must be recognized that certain provinces contain facilities which attract patients from outside their own province. The distribution of facilities by use can thus be different from the distribution of facilities by location. Unfortunately, existing data do not permit adjustments for referral and patient flow patterns.

Table 4.2: DISTRIBUTION OF MEDICAL FACILITIES  
PER 100,000 PERSONS BY REGION, 1983

Province	Number of Sick Beds	General Hospitals and Hospitals	Private Clinics	Dental Hospital
Total	208.7	1.2	19.3	6.8
Seoul City	261.0	1.6	30.1	15.2
Pusan City	259.7	1.7	27.3	8.3
Taegu City	256.0	0.8	26.5	9.7
Inchon City	335.6	1.5	22.0	6.8
Kyunggi-Do	179.0	1.4	15.7	4.8
Kangwon-Do	191.8	1.1	12.4	3.1
Choongchungbuk-Do	150.9	1.0	13.0	3.5
Choongchungnam-Do	169.4	0.9	15.7	4.2
Chollabuk-Do	135.9	0.6	13.0	2.3
Chollanam-Do	238.5	0.6	13.0	3.0
Kyungsangbuk-Do	125.7	0.9	10.3	3.2
Kyungsangnam-Do	199.2	1.1	13.7	3.7
Cheju-Do	220.0	1.9	14.9	4.3

Source: FKMIS, 1987.

4.14 As far as the urban-rural distribution of facilities is concerned, while there remain considerable differences, there have been significant reductions in the disparity of resources between 1975 and 1986. This is most apparent in the bed to population ratios (see Table 4.3). While the bed to population ratio has risen modestly in urban areas, it has increased dramatically in rural areas. Another measure of relative access is provided by the proportion of the population that is within a given time-distance of health facilities. Table 4.4 shows that almost all urban residents and 70% of rural residents are within an hour of a primary facility. The expansion and improvement of transportation will undoubtedly continue to enhance rural access.

Table 4.3: DISTRIBUTION OF HEALTH RESOURCES IN URBAN AND RURAL AREAS

	Urban		Rural	
	Number	Percent	Number	Percent
<u>1975</u>				
Population ('000s)	16,820	48.5	17,870	51.5
Beds	41,260	86.7	6,322	13.3
Beds per 1000 population	253		28	
Medical Facilities	9,166	84.0	1,746	16.0
<u>1986</u>				
Population ('000s)	28,292	68.1	13,277	31.9
Beds	91,205	85.3	15,662	14.7
Beds per 1000 population	310		85	
Medical Facilities	12,685	87.9	1,908	12.2

Source: Moon, 1987.

Table 4.4: PROPORTION OF POPULATION WITHIN SPECIFIED TIME DISTANCE OF PRIMARY CARE FACILITY (%)

	Urban	Rural	Total
Within 30 minutes	97	38	66
Within 60 minutes	99	70	89

Source: KIPH Survey, 1983

Table 4.5: HOSPITAL OCCUPANCY RATES

Year	Occupancy Rate
1981	60.2
1982	61.3
1983	60.4
1984	61.6
1985	60.3
1986	60.0

Source: FKMIS, p. 361.

Utilization

4.15 While the supply of health facilities has increased substantially in both urban and in rural areas, it is important to recognize that many of the existing facilities are under-utilized. A good indicator of how well a facility such as a hospital is being utilized is the occupancy rate. The overall hospital occupancy rate in 1986 was 60.0%. The generally accepted international standard for hospital occupancy rates is 80.0%. The data in Table 4.5 show that Korea is not moving towards that standard.

4.16 The optimal occupancy rate varies by size of hospital, with larger hospitals having a slightly higher standard. In Korea, there is significant variation in occupancy rates by hospital type with larger, more sophisticated hospitals having the highest rates. General hospitals rank the highest at 85% with some sophisticated facilities, typically university related general hospitals, reaching 95%. Regular hospitals have lower occupancy rates, averaging 70%, with small hospitals (30-40 beds) which tend to be located in rural areas averaging less than 40%. Many clinics, which can have beds, have even lower occupancy rates.

4.17 The lower occupancy rates of the smaller rural hospitals appear to be influenced by a number of factors. First, the size of the insured part of the market has been smaller in the rural areas, because of lower insurance coverage until recently. Second, the low population density in rural areas has become even lower in recent years. The rural population decreased in real terms from 17.9 million people in 1975 to 13.3 in 1986 (Moon 1987:23). Third, random fluctuations in occupancy activity are usually greater the smaller the market, resulting in lower occupancy rates. Fourth, small scale of operation prevents the supply of some diagnostic and treatment services which reduces the attractiveness of the facility to certain consumers.

4.18 Accordingly, the size of the local market influences the scale of operation. In turn, scale influences the range of services available. Thus, the ability of rural suppliers to generate revenues is hindered by the smaller scale of their operation. Additionally, small scale also prevents the generation of income from the training of medical personnel as an activity

associated with inpatient care, which is usually carried out in larger hospitals. These economic disadvantages of small hospitals should be considered when evaluating the political demand for a hospital in every county.

4.19 The coexistence of a rising trend in number of beds with relatively constant occupancy rates may be interpreted in two ways. One is that the new hospital beds are fulfilling unmet needs, needs which are being satisfied through enhanced access (made possible by health insurance) at about the same rate as that at which beds are being added. A second interpretation is that the new beds are creating their own demand. It is impossible to determine which hypothesis is correct; however, in either case, the data suggests that many hospital beds are not being used for some reason. Unfilled beds are very costly to a health care system and should be monitored closely. A careful examination of unused capacity is warranted before new facilities are added.

Table 4.6: GROWTH IN NUMBER OF BEDS  
(1981 - 1986)

	1981	1986	Percent Increase
General Hospitals	23139	54986	137%
Hospitals	16596	24322	47%
Clinics	23549	26122	11%

Source: FKMIS, p. 348.

Growth in Hospital Facilities

4.20 The supply of hospital services has risen especially rapidly in recent years. The number of hospitals as well as the number of hospital beds has been increasing faster than the population growth rate thereby resulting in a substantial increase in the number of beds per person. The number of beds rose by 137% during 1981-86 in the most expensive and sophisticated type of facility, general hospitals. Spending on general and other hospitals rose from 26.5% of the total expenditure on health care to 33.5% while spending on other types of facilities declined in relative terms.

4.21 This rapid rise in the supply of hospital facilities and in expenditure thereon should be a cause for concern because experience in most advanced countries suggests that the hospital sector is typically the dominant source of cost escalation. The control of hospital utilization and expenditures has been the key to the containment of the rise in overall health expenditures there. Deliberate intervention by governments in Australia and Canada were successful in containing health expenditure, through the reduction or containment in the rise of the supply of hospital beds, at the level reached at the time of intervention. Germany also introduced legislation in

1981 to ensure that hospital costs were contained, through negotiation at regional level between suppliers and regional (state) organizations. If continued, the rise in capacity and utilization of hospital services in Korea could lead to further increases in health care expenditure, above the rate of growth of GNP. The number of hospital beds in Korea has reached a stage which appears to be at the threshold of a sensible level of supply: 2-3 hospital beds per thousand population.

#### Technology Acquisition

4.22 In Korea, hospitals compete primarily on the basis of new and sophisticated technology. Because prices are set by the government, hospitals cannot compete for patients on the basis of price and must do so on some other basis. Given the strong cultural preference towards the senior physician and the availability of new technology, it is not surprising that hospitals are acquiring more and more technology.

4.23 An example of the proliferation of new expensive technology is the CT scanner used in radiology. It has diffused so widely that nearly every hospital with more than 200 beds has a CT scanner. However, because the demand for CT scanners is relatively small, many hospitals are not able to achieve the expected break-even point of eight scans per day. This is at an average cost of \$200 per scan, a price which is almost three times the rate charged in the United States. CT scanners serve as a loss leader, however, to attract patients to the hospital.

4.24 A second example is heart transplant centers. In the United States, the federal government has approved less than twenty centers. This is based on the recognition that the availability of donor hearts is low and should be used in facilities most able to use them. It also recognizes that quality of care improves as more procedures are done in the hospital. In Korea, on the other hand, there are 38 hospitals with approved heart transplant facilities. This is not necessarily beneficial from the patient's perspective, and leads to higher health care costs due to duplication of expensive machinery.

#### Community Health Facilities

4.25 The government has established numerous health clinics, subcenters, and community health centers whose purpose is to provide primary care. These have been upgraded continually for the last 10 years. Expansion into isolated communities and islands is continuing.

4.26 Analysis of the utilization rates of these facilities suggests that most of them are overstaffed and/or under utilized. The 294 health centers see an average of 60 patients per day. The staffing of the health center typically involves two physicians, one dentist, one laboratory and one X-ray technician and eight or nine nurses. The responsibility of these professionals is solely to care for the patients entering the clinic. In public health subcenters the average work load is 30 patients per day. These centers are staffed with one physician, one dentist, one physician aide and one dental aide, and possibly other support personnel. The work load in urban

area is much greater. Average workloads per physician is between 50 and 70 outpatients per day, compared to 20-30 outpatients in health centers and health subcenters.

4.27 The government spent \$100 million to construct, renovate, and operate these facilities in 1988. This is a 600% increase from 1981. It is anticipated that, as a result of this program, all counties will have a hospital by 1990. Given the low rate of utilization, it is unclear whether these resources were well spent. With the advent of health insurance in rural areas and the demonstrated preference for more sophisticated facilities, the prospects for future utilization increases appear to be minimal. Many of the physicians in these facilities are only there to fulfill their military obligation and are not committed to building reputations and practices. Nearly all leave after their obligation is fulfilled.

4.28 This phenomenon is not uncommon in other countries. Most countries have difficulties attracting physicians to rural areas and have employed either compulsory service or loan forgiveness to promote service in rural areas. In nearly all cases, the programs have not been successful in retaining physicians in the rural areas or in providing a high quality of medical care. It is also probable that the provision of health insurance to the rural communities and the coming physician surplus will encourage more providers to locate in rural areas. This will reduce the need for the provision of public health care.

4.29 In the United States, for example, there is a great disparity between the availability of providers in rural areas. The United States government tried a program of putting physicians in a rural area (the National Health Service Corps) but the results have been generally poor in the sense that few physicians remain in the rural communities once their obligation is completed. The United States also tried a hospital building program (Hill Burton program). In 1987, the average occupancy rate of rural hospitals was only slightly above 50%. In both Korea and the United States it appears that consumers prefer to be treated in the more advanced urban hospitals. Similar experiences in Canada and Western Europe may be described as well.

4.30 In summary, public facilities appear to be underutilized with poor prospects for future increase. This is especially true in rural areas. The ongoing program of constructing, renovating and operating these facilities would benefit from a reassessment. The program could be modified to sponsoring only those facilities where no providers are in the immediate area. Where private facilities are available, public facilities should be gradually eliminated rather than upgraded to compete with the private sector.

#### Key Issues Restated

4.31 The foregoing review of the supply and use of health facilities in Korea may be summarized as follows: The supply of facilities has been growing rapidly and so have expenditures on them; in particular, the supply and use of general hospitals has been increasing rapidly, reflecting a strong patient preference for relatively expensive care delivered by specialists and senior physicians using advanced medical technology. However, occupancy rates

suggest that considerable excess capacity exists. If present trends continue it is possible that significant cost escalation could occur as universal health insurance brings expensive care within reach of more and more people.

4.32 Korea should carefully monitor the growth and utilization of medical facilities and, in particular, of large sophisticated general hospitals. Very large hospitals tend to be less efficient than average size hospitals (optimal size is between 250-300 beds). Specialists have a tendency to utilize too many services when treating patients. Careful attention must be given to ensure that only patients requiring specialized services are treated in general hospitals, especially university-based general hospitals. Methods to keep "normal" patients out of university-based centers should be a priority.

4.33 Continued growth may lead to supplier induced demand. In most countries, there is a strong correlation between the availability of services and the utilization of services. Known as Roemer's Law, it suggests that "a built bed is a filled bed." While this law has never been proven, numerous studies in a variety of countries have found a strong correlation between the number of beds in an area and hospital utilization rates.<sup>1/</sup> Korea is rapidly approaching the World Health Organization (WHO) standard for the number of beds per capita and should not make the mistake of many other countries - that of having more beds than are necessary. Although most of the empirical work on this issue has focused on beds, the diffusion and subsequent utilization of new technology may actually be more important.

4.34 A major reason why supplier induced demand can operate in the health care industry is that insurance reduces the out of pocket cost to the patient. A 20% coinsurance rate for inpatient care suggests that the patient will be less concerned about the cost of care than if he or she paid the whole cost. In addition, the appropriateness of health care services is extremely difficult for the consumer to judge and the implications of an incorrect decision are significant. As a result, consumers tend to have a trust in the medical profession which they would not normally extend to providers of other services in the economy.

#### C. Effects of Insurance on Supply and Use of Facilities.

##### Effect on Utilization

4.35 Precise estimates of the effect of health insurance on utilization are difficult to obtain in Korea. Because of concomitant changes in transportation, per capita income, and increases in the availability of services, it is difficult to separate the effect of health insurance on the utilization of health care facilities from these other factors. Therefore, estimates must be developed from a variety of sources.

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<sup>1/</sup> Among the numerous studies which have arrived at the conclusion that the most significant correlate of hospital utilization tends to be the availability of beds, one might cite the following: Feldstein, 1967; Fuchs, 1972; Wilensky and Rossiter, 1983; May and Anderson, 1988.

4.36 One such source is a utilization model developed by the Institute of Hospital Services at the Seoul National University Hospital. One of the statistically significant independent variables used in the equation to predict health care utilization is health insurance coverage. An analysis of the regression coefficients in their model suggests that the move from 0 to 100% insurance coverage will increase utilization by 50%. The model predicted a doubling of health care utilization during the same period so that half of the increase in utilization can be attributed to the expansion of health insurance.

4.37 Among other sources of information are studies carried out by various research teams. In one, comparison of the demand for medical care between the insured and the uninsured showed that outpatient usage was 2.7 times higher and inpatient usage was 2.1 times higher among the insured population (SNUH, 1983). A potential problem with these results is that the insured population may have shared their insurance card with their uninsured friends and relatives, thereby inflating the magnitude of the differences.

4.38 A study of the effect of health insurance on one rural province suggests that a 37% increase in inpatient admission rates and a 66% increase in average length of stay is attributable to changes in insurance status (Kim, et. al., 1985). Combining these two factors results in a 127% increase in the number of days of care. The number of visits to outpatient departments at clinics and hospitals increased by 80%.

4.39 The foregoing suggests that projections of an 80 to 100% increase in ambulatory care and a 70 to 80% increase in inpatient care attributable to the introduction of health insurance are reasonable (Yu, 1988). It is important to recognize that these increases will take several years to work through the system completely as people take time to become accustomed to having health insurance coverage. Depending on a variety of cultural and economic factors, it is possible that health insurance will have a larger impact, but is impossible to be more specific at this time. Much depends on the supply response of providers.

#### Effects on Delivery Location

4.40 The introduction of health insurance is also partially responsible for the recent changes in where care is being delivered. Most studies of the determinants of where health care is provided suggest that the prestige of the provider is the most important variable. Patients prefer more sophisticated providers to less sophisticated providers. As a result, general hospitals have shown the most growth, followed by hospitals, then clinics, and finally midwifery clinics (Table 4.1).

4.41 The growth of insurance is a primary reason for the change in number of general hospital beds. Table 4.7 shows that percentage of patients using general hospitals has more than doubled between 1979 and 1985. Sophisticated and therefore more expensive hospitals are clearly the preference of most insured patients and there is every indication that the trend will continue.

4.42 Another important factor is travel time or ease of access to the facility. The growth in transportation has made access to general and other hospitals easier even for rural residents. Continued improvements in transportation will increase the demand for urban hospitals at the expense of rural hospitals.

Table 4.7: PERCENTAGE OF INSURED PATIENTS USING GENERAL HOSPITALS

	Inpatient Care	Outpatient Care
1979	29.8%	12.6%
1980	49.8%	14.6%
1981	52.0%	13.7%
1982	55.0%	14.8%
1983	59.6%	16.0%
1984	62.8%	15.9%

Source: Seung Hum Yu, unpublished data.

Effect of Utilization on Health Status

4.43 On a theoretical level, most health economists agree that investments in health facilities have diminishing marginal returns in health status. Generally, the initial investments are believed to have a significant impact on health status because they provide access to essential services which were not available previously. Furthermore, the investment which requires more highly skilled professionals to operate it is, in most cases, preferred by all since a technological "advance" should provide an unconditional means to better health status. In reality, this may or may not be true. As investments are made in more specialized services, more advanced technology, or upgrading the amenities of service, the return begins to diminish (Fuchs, 1972). Doubling the cost of a service due to an advance in technology does not necessarily mean that increases in health will double as well.

4.44 Thus, the uncontrolled expansion and use of sophisticated medical technology may not be optimal from a cost-benefit point of view. There may be significant economic arguments for limiting the availability of advanced equipment. In most industrialized countries, it is believed that the returns to the expensive advanced technological services such as CT scanners, magnetic resonance imagers, and some of the new antibiotics are minimal. Especially in smaller facilities, any equipment that is rarely used is wasteful of resources since, in medicine, as technology becomes more advanced, more sophisticated labor requirements are necessary. Additionally, the cost of such expensive technology increases the charges that all patients incur, not

just those who receive the benefit of the advanced technology (Fuchs, 1974) a tendency that is exaggerated by the availability of third party payment as under an insurance arrangement.<sup>2/</sup>

#### D. Methods of Changing Utilization Patterns and Costs

##### Referral Requirement

4.45 Good medical practice generally requires that the patient be seen first by a primary care physician, and if necessary, referred to a specialist or hospital to receive care. This prevents patients from going to more expensive facilities or specialists when they have a common medical problem.

4.46 A number of factors prevent such a system from working effectively in Korea. First, there are no referral requirements for most of the insured. In urban areas the patient has complete freedom of choice and therefore can seek care at the most advanced treatment center for the most mundane illness. In the rural self-employed insured group, however, patients must see a primary care practitioner to get a referral to another facility. The lack of consistency between the urban and rural systems has generated complaints and changes in referral arrangements may be necessary.

4.47 Another problem is that clinics can function as hospitals and are therefore reluctant to refer patients to such facilities in general. Given the low occupancy rates in most clinics, the financial incentive to retain patients is strong. This leads to poor referral patterns between clinics and hospitals.

4.48 A complicating factor is the strong cultural preference towards treatment by a senior physician who is located in a facility with the most advanced technology. This preference leads to inappropriate use of the most technically advanced physicians, poor referral patterns and generally higher health expenditures. A final problem is that there are no affiliation agreements among hospitals or between hospitals and clinics. In most countries, hospitals and clinics would have formal or informal arrangements which would serve as referral networks. In Korea, however, since hospitals and clinics compete for the provision of many services these affiliation arrangements have not evolved. It may be worth instituting referral requirements for both urban and rural residents, at least to control access to tertiary care at sophisticated general hospitals.

##### Fee Schedules

4.49 The government plays a major role in establishing fee schedules to providers but the present system seems to have evolved without careful analysis of the objectives which should be promoted. Given the powerful

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<sup>2/</sup> Concern is also rising about medical problems caused by too much intervention by the health care system in the form of unnecessary surgery, inappropriate use of new drugs whose side effects are not well-understood, and faulty operation of advanced medical technology.

incentives created by the payment system and the likely impact on the delivery of health care services and ultimately health status, a careful review of the objectives is warranted. The insurance and hospital payment system can be used to alter hospital and patient behavior.

4.50 The government appears to set fees on a cost-plus basis at a level which allows most hospitals to earn a profit. This strategy can be counter-productive in the long run. It gives the hospital industry few incentives to behave efficiently. By investing in new technology and hiring more personnel, hospitals are able to increase costs. To the extent that fees are set on a cost-plus basis which also includes a margin for profits, hospitals have little economic incentive to control costs.

4.51 The government should also decide whether it wants to use the fee schedule to influence health practices. By paying more for primary care services or consultative services and less for advanced technological services, the government could influence the direction of the health care system. The government could use the fee schedule to influence the infusion of new technology or help determine where the patient will receive care.

4.52 The fee schedule could also be used to influence what services are provided. For example, the government could use it to influence the diffusion of new technology or where the patient will receive care. The lack of control of the price of CT scans has meant that they are much more expensive in Korea than they are in the United States. In the United States, the average charge for a CT scan is \$75 compared to over \$200 in Korea. By choosing not to cover CT scans in the fee schedule, the government has allowed the price to be much higher than it would be as part of a regulated system. This discourages the use of CT scans but does little to control aggregate health care costs and may reduce access to CT scanners by low income patients.

4.53 The problem with not covering CT scanners under the health insurance program is that they may not be used for cases where they will be appropriate (Steinberg, Anderson and Steinwachs, 1987) because of the high out-of-pocket cost. Based upon utilization data, it appears that only patients involved in auto accidents whose insurance pays 90% of hospital charges are receive a CT scan. It also appears to have done little to discourage the diffusion of CT scanners. Many other countries have adopted the policy of deciding when a particular technology is appropriate to use and paying for the service only under those circumstances.

4.54 The government currently allows differential fees for identical services to general hospitals, hospitals, and clinics (see Table 4.8). Supposedly, these adjustments are based on actual cost differences and are the result of more specialists and technology being available in hospitals and general hospitals. Whether or not the cost differences are justified is difficult to determine without detailed cost data. Accordingly, the systematic collection and assessment of such data should be given high priority.

Table 4.8: FEE DIFFERENTIALS AMONG FACILITIES

	Relative Prices
Clinic	100
Hospital	106
General Hospital	115

4.55 Because the government sets prices for each insured service delivered in a medical facility it plays a major role in influencing the health care delivery system. It could use the same power to influence where services are provided, what types of services are expanded and what services are reduced in scope and quality. Unfortunately, the lack of data on price elasticities for the demand for medical services, distinguished by provider type and location, prevent definitive recommendations in this area. If the fee for service system is to be retained it is imperative that appropriate data be collected and analyzed so that this system is used to best advantage.

Coinsurance

4.56 A similar set of questions is appropriate for coinsurance rates. It is unclear whether the government has a comprehensive plan for setting coinsurance rates. Under current policy the effective coinsurance rate for an outpatient visit to a general hospital is 65%, to a hospital 53%, and to a clinic 45%. These differentials are designed to discourage the use of general hospitals and encourage the use of clinics but are not actually based upon empirical data linking use patterns to effective costs to the consumer.

4.57 Studies should be conducted to examine the effect of insurance rates on the demand for health care and utilization of health facilities. Recent relative growth rates in general hospitals, hospitals and clinics suggest that previous coinsurance rates have not discouraged treatment in general hospitals. In fact, general hospitals have shown the fastest growth rates since the period when health insurance was introduced. While present utilization patterns may suggest that a greater disparity in price between clinics and general hospitals is needed, it is difficult to be definitive about this in the absence of a careful study of the link between utilization patterns and coinsurance levels.

4.58 Coinsurance differentials could also be used to influence the acquisition and use of advanced equipment. In order to discourage the proliferation of new technology and prevent the diffusion of certain techniques to all hospitals, coinsurance rates for certain complicated procedures could be higher in clinics than general hospitals. This would discourage clinics from purchasing all the sophisticated equipment.

Certificate of Need

4.59 The government has recently required that governmental approval be sought to build a hospital in an overbedded area. The hospital must apply to the provincial government which must receive approval from the Ministry of Health. This policy is in response to rapid growth of hospital facilities in most urban areas.

4.60 A major loophole is present in the existing certificate of need regulations in that clinics are able to expand without receiving approval. Thus, while hospitals and general hospitals which have high occupancy rates are prevented from expanding, the same is not true for clinics, which on average have low occupancy rates. Including clinics in the regulations would certainly be warranted on fairness grounds; furthermore, given that supplier induced demand may be prevalent in clinics under universal insurance, restrictions on their growth may be a useful cost control device also. However, implementing capacity controls on clinics is likely to be expensive in terms of administrative costs.

4.61 The government has also recently established a Board for Examining the Purchase of High Priced Equipment. The board is comprised only of physicians who review items whose purchase price is very high, which are likely to be used by a limited number of patients. Generally, this review applies to imported products. Examples of products under review are CT scanners and lithotripters. Unfortunately, the decision criteria are not well articulated. It is unclear which products come under the preview of the Board and what the criteria are for evaluating the need for a new technology. There is widespread agreement, however, that the Board has done little to control the infusion of these technologies into Korean medicine.

4.62 The inability of the Board to control the infusion of technology can be attributed to three factors. First, only physicians are on the review panel, and they lack an economic incentive to control utilization. If insurers or government representatives were placed on the panel, the infusion rate is more likely to be controlled. A more balanced panel has worked in most European countries in controlling this effectively. Government and consumer representation are important additions to this panel.

4.63 Second, since most of the technologies involve uncovered services, the public policy concerns are reduced. This leaves little public accountability. Third, by not controlling the prices of these technologies, the government allows hospitals to earn substantial profits. This encourages expansion in the technological area. In addition, hospitals appear to compete on the basis of the availability of new technology, so it is not surprising that there is enormous pressure to approve new technology. For this reason, it is necessary for government at least to control the prices of these technologies.

4.64 It would be useful to set up a new body to advise on technology acquisition matters. Such a body could patterned after the U.S. Office of Technology Assessment or the technology assessment activities of many Scandinavian countries.

4.65 Probably the best example of where this board is successful is Sweden. This country has established the three components of a successful technology assessment program. First, there are analysts studying specific technologies. Second, they have data sets which allow them to study the appropriateness and outcomes of specific technologies on a large number of patients. Finally the results are incorporated into the coverage policy decisions. All three components are necessary for the technology board to be effective. The last two components are the most difficult to achieve. Many countries have the information but lack the data or regulatory apparatus to enforce the decision.

4.66 The primary role of the Office of Technology Assessment would be to evaluate new and existing technologies and provide this information to hospitals and physicians. The cost effectiveness of new technologies would be examined to see if they should be purchased and the cost-effectiveness of existing products would be periodically reviewed to see if any should be discontinued. The United States Office of Technology Assessment evaluates approximately ten products per year and has a major influence on the diffusion of technology. It provides a valuable service to hospital and physicians who do not have the resources to evaluate each product.

4.67 The Office of Technology Assessment would also evaluate current medical practice along the same criteria. Wide variations in medical practice are often found within most countries. For example, children may be much more likely to have their tonsils removed in one part of the country than another. The reasons for this variation are not understood completely, but seem to be correlated with where the physician was trained and the number of facilities and clinicians in the area. However, when physicians and hospital administrators are brought together, a discussion of variations in practice styles can result in considerable reductions in health care utilization. The role of the Office of Technology Assessment is simply to gather information about the variation in utilization rates and to provide a forum for the conferences.

#### Controlling Hospital Costs

4.68 Attention has been directed to the fact that the hospital services component of total health costs in Korea has been rising faster than other components. Universal health insurance combined with patient preference could cause this component to grow even faster in the future. It has also been noted that hospital costs have typically been the most important source of cost escalation in the developed countries. Accordingly, it would be appropriate for Korea to monitor the pattern of hospital costs and to consider ways to prevent these from becoming a serious budgetary problem in the future.

4.69 Opportunities for controlling hospital costs are principally to be found in the manner in which hospitals are reimbursed for services. Reimbursement may occur by means of negotiated budget (per patient or total), or through fees.

4.70 If the hospital system is constrained by fixed budgets, cost containment could be attempted by deliberately "steering" high cost procedures into the hospital sector, where their frequency of performance is more

controllable, through providing insurance coverage for such procedures only if performed in hospitals. Accordingly, a major avenue for procedural expansion, for evading controls on fees by increasing utilization, can be largely shut off.3/

4.71 If, however, the hospital is itself reimbursed by fees, as is the case in Korea at present, this approach may not be appropriate. Constraining the escalation of costs outside the hospital is a hollow victory if it simply creates further opportunities for escalation in the institutional setting. Moreover, one's options are limited by the obvious fact that even the highly discretionary, expensive, and easily manipulable services have to be carried out somewhere--at least some of them do.

4.72 There seem to be only two possible approaches to this problem, which are not mutually exclusive. One is to modify the reimbursement of the hospital away from fees for specific services--as the United States Prospective Payment System does for part of the patient population.4/ Reimbursement by patient or case is part way between procedural reimbursement and budgetary allocation. The second is to place controls, either financial or regulatory, or both, on the capital base and thereby the capacity of the hospital.

4.73 There is a parallel between the principles of successful cost control in the physicians' services sector, and that in hospitals and other institutions. To control overall costs, one must constrain the billing level per physician (through both fee controls and utilization/activity controls) and control the numbers of physicians. Similarly in hospitals, if the hospital is paid fees for service, one must constrain the hospital's fees and output level for a given capacity, and over the longer term, control the capacity level--restrict the numbers of beds and the amount and types of equipment available in the hospital.

4.74 The most difficult situation to control is that in which the institution is paid fees for service which cover not only operating costs, but also the replacement of and return on capital. In this situation, long-run expansion of the institution is essentially unbounded, because, as service levels increase, they generate the resources to finance their expansion. Efforts to regulate the hospital's expansion when it is spending "its own" money are typically difficult and contentious, and vulnerable to the end run

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3/ Numerous studies have shown that physicians who can set up their own laboratories and bill for such services, and who take a relatively unconstrained attitude toward testing, can increase their incomes substantially. There are significant possibilities for income and cost enhancement when physicians "resell" the results of private laboratory procedures to their patients--or their insurers. A uniform fee schedule provides the possibility that the reimburser can shut off this loophole by providing that such activity is reimbursed only in the hospital, where the budget is globally constrained.

4/ Under the Prospective Payment system, hospitals are only permitted to charge a fixed amount per covered patient per case.

that whatever is specifically constrained--such as hospital beds--the hospital finds other ways to spend the money and provide more services--generate more billings--through unconstrained channels.

4.75 A more successful approach, in both fee reimbursed systems and budget reimbursed systems, is to separate the funding of operating costs from that of capital costs. This gives the capacity control process real financial "teeth", because when the reimbursing and controlling agency refuses to approve an expansion, it also refuses to supply the funding. Conversely, if it approves an expansion, it must provide all or part of the necessary funds. By contrast, a purely regulatory body is not fiscally liable for any projects it may approve, and so has quite different incentives.

4.76 Any system of institutional finance which reimburses both capital and operating expenditures through fees for service must therefore rely on very strong administrative control structures, backed up by powerful and sustained political will. Efforts to establish such regulatory controls in the United States during the 1970s are generally considered to have been failures, although perhaps in retrospect they may have been more successful than the "competitive" strategy which followed them.

4.77 But there is a linkage between the choice of budgetary or fee reimbursement, and the structure of the reimbursement process. If, as in the United States, there are numerous and competitive private insurance agencies, it is hard to separate the capital and operating funding processes. Otherwise, the private insurers will not be paying full cost, their subscribers will be subsidized by whatever public process pays for capital acquisition. On the other hand, when all funding comes from either one source, as in Canada, or a closely coordinated set of non-competitive sickness funds, as in West Germany, then it may be operationally feasible to separate these processes.

4.78 From the long term perspective, control of the entry of new capital may be the most critical part of cost control. We have already emphasized the increasing difficulty, both administratively and politically, of maintaining controls on overall outlays on physicians' services if the supply continues to grow faster than the population. This growth of the "human capital stock", however, is relatively slow, because the training process is so long. It is correspondingly very difficult to change in a short time period.

4.79 In the institutional sector, however, the accumulation of costly physical capacity can take place much more rapidly. Utilization and operating costs can therefore expand much more quickly, if new buildings and particularly new procedures and equipment, and/or new drugs, are added. The explosive cost potential of advances in diagnostic imaging, or of organ transplants, is well-known, and this does not depend on an increased supply of physicians, or even hospital beds.

4.80 In both the budget reimbursed and the fee reimbursed institutional hospital systems, therefore, the reimbursing agency will have to struggle with the process of controlling the expansion of the capital base.

Organizationally, this process of control will be easier and more successful in a system in which capital funding is separated from the operating budget, and in which operating revenues are supplied through a budget rather than by fees for service.

#### E. Selected Proposals

##### Regulation of Utilization

4.81 The review of the health care delivery system and utilization patterns in Korea suggests that the regulatory system may have to be used to influence consumers to use the most appropriate providers. It may also be necessary to tinker with the fee for service system which creates powerful economic incentives for physicians and hospitals to prescribe unnecessary services and to keep patients in the hospital longer than necessary. This is especially true when there is excess capacity in the system as would appear to be case in Korea where the average hospital occupancy rate is only around 60%.

4.82 In designing a system to control unnecessary utilization, there are several approaches. One is to monitor utilization by some type of review process. The second option is to change the payment system. Another alternative is to change the system of coinsurance.

4.83 Monitoring Utilization. It is recommended that a utilization review program be instituted. Currently the only monitoring of the appropriateness of care is to verify that a covered service is provided and that the bill is accurate. Individual reviewers perform 1300 reviews per day which does not permit careful monitoring. What is necessary is a system to ensure that each admission is appropriate, the tests ordered are appropriate, and the length of stay is necessary.

4.84 Probably the easiest way to accomplish this function is to have the physician community in conjunction with the proposed Office of Technology Assessment develop a list of diagnoses and procedures which have a high probability of being inappropriate. Computers would screen all bills and physicians and/or hospitals would have to justify why one of these procedures was performed before the claim would be paid.<sup>5/</sup> This can have major changes in how medical care is delivered. In most European countries governments make the decision about which procedures and diagnoses to monitor in conjunction with the physician community.

4.85 This type of regulation is not without its costs. There is a high administrative cost since individual cases must be reviewed. It is viewed by clinicians as interfering with the practice of medicine. Little is known about what is appropriate care, and frequently there are disagreements over the proper course of treatment. It may also be opposed by the general public

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<sup>5/</sup> The review can also be conducted to screen for care in inappropriate settings. A routine cataract operation performed in a major teaching hospital in an inpatient setting, for example, may be an inappropriate use of sophisticated technology. It could be done in another hospital, clinic or even on an outpatient basis with probably the same result.

who wants access to all physicians and services without restrictions. However, the benefits in terms of cost reduction and the prevention of unnecessary procedures may outweigh the difficulties.

4.86 Utilization review could also be achieved via the requirement of second opinions from different physicians for certain procedures. This is designed to make sure that procedures are medically necessary. It is less intrusive than a complete utilization review. Most private insurers in the United States have instituted this type of program and found that it is cost effective. The major liability with this option is the physicians grant approvals quite easily and so the cost benefit is not as great as could be expected.

4.87 It is also recommended that a referral system be used to restrict access to university hospitals. Patients should be seen at university hospitals only if they have a referral slip from a hospital or clinic. This would channel the most expensive and busiest hospitals into providing only those services which these hospitals are equipped to handle most efficiently. Patients who choose to use tertiary facilities without a referral should be liable for the entire payment.

4.88 Changing Incentives for Providers. A second method of controlling utilization is to change the incentives given to providers. Various methods have been tried in different countries, each designed to solve a slightly different problem. For Korea, two approaches are recommended. First, it is recommended that the Diagnosis Related Groups (DRG) system be adopted for in-patient care. Second, it is recommended that pilot programs be developed to pay some providers on a capitation basis. Experience with these pilot programs can then be used to guide the selection of reimbursement mechanisms in the future.

4.89 Reimbursements according to DRGs are designed to prevent unnecessary care and costs once the patient has entered the hospital.<sup>6/</sup> This approach replaces incentives created by fee for service to order more tests with a prospectively set price which is based on the condition of the patient and not on the treatment given.

4.90 Price setting should not give incentives for increases in the utilization of services. Per diem fees, separate fees for diagnostic and treatment procedures, and for medications seem to provide such incentives. The use of the episode of hospitalization for a specific condition, as the basis of payment to suppliers, appears to be a way of reducing wasteful practices. However, monitoring of the rate of admissions should take place; and discounting for the transfer of services from inpatient to outpatient

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<sup>6/</sup> Diagnosis related groups are used in the United States to classify patients into homogeneous groups. Patients are grouped based upon their diagnosis, procedure, presence or absence of complications, age and discharge status. There are currently 475 categories.

settings should be instituted, to avoid maximization of revenue in the two settings.<sup>7/</sup> Diagnostic work-up prior to admission and follow-up care may need to be included in the payment for the episode of inpatient care. At the same time, the quality of services provided would also need to be assessed, to ensure that services are of adequate quality and effectiveness.

4.91 A pilot program to pay hospitals a capitated rate should be developed. The hospital would enroll patients and all of the hospital care would be provided by that institution. The hospital would receive the same level of payment regardless of whether the patient was hospitalized or not. The incentive, therefore, is to prevent hospitalizations. Many European countries have been successful with this approach.

4.92 Changing Incentives for Consumers. Another approach to controlling utilization and cost is to change the amount the consumer pays directly out of pocket. Further refinement of coinsurance and deductibles could influence utilization patterns.<sup>8/</sup> It may be desirable to increase the amount of money paid out of pocket for routine care in university-based medical centers. This can be accomplished by lowering the amount paid in clinics or by raising the amount paid in general hospitals. Given the already high rate of coinsurance in Korea, it would seem most equitable to reduce the level of coinsurance in other facilities and to freeze in place the level of coinsurance in general hospitals. However, this should be done only for routine patient care.

#### Government Hospitals

4.93 Generally, public hospitals are not competitive in the market place. Despite the infusion of public funds and the lower prices, the utilization of public hospitals declined relative to private facilities. Occupancy rates in

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<sup>7/</sup> In the United States, the introduction of the DRG system resulted in an immediate reduction in length of stay of two days and considerably fewer tests being ordered to inpatients. However, it also encouraged moving the hospital's diagnostic services to ambulatory facilities "across the street" where they could be billed as physicians' services, not as hospital services. Such costs were then additional to the fixed payment for the hospital stay, implying that while the hospital component of the costs of an illness episode might be reduced, the total outlays could increase.

<sup>8/</sup> Changing coinsurance and deductible rates has been shown to affect the demand for medical services in some countries. However, the price elasticities estimated tend to vary considerably and may not be suitable for guiding Korean policy. In the Korean case we must await the results of appropriate research into the matter before arriving at definite conclusions. The collection of appropriate data and the funding of appropriate research analyses must be given high priority since the potential returns to design improvements in the insurance system may be considerable.

small, rural hospitals are very low, and utilization of outpatient facilities in rural areas is much below the level in urban areas. In addition, the limited patient migration data suggest that patients located in rural areas who have access to urban hospitals prefer to use urban hospitals because they believe that the quality of care there is higher.

4.94 Studies suggest that there is enough existing capacity in primary care clinics to handle expected demand. One study estimated that present capacity would be sufficient if the rural population has an average of four clinic visits per year and 40% of the patients are seen in public clinics (Yu, 1987).

4.95 Support of a public facility is necessary as long as it is the only facility in the immediate area and the loss of governmental support would reduce access for the community. In many cases, the provision of health insurance to rural areas and the expansion of the private health sector has meant that public and private facilities are competing with each other. When this occurs, there is no reason for the public sector to subsidize the cost of providing health care in public facilities. The rural residents now have insurance which can be used to purchase health care.

4.96 The government, therefore, should institute a program of reviewing the need for each health facility. The program should assess whether there are private clinics in the area to handle the patient care needs of the community. If there are other available services, the government should consider whether or not the funds could be spent more effectively in other areas. It should be noted, in particular, that improvements in transportation and the ongoing process of rural-urban migration are changing the picture of relative access to facilities in significant ways. The continuation of a rural public facilities building program should be reviewed in the light of such developments that are accompanying rapid economic growth in Korea.

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