

Design, content and financing of an essential national package of health services*

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A minimum package of public health and clinical interventions, which are highly cost-effective and deal with major sources of disease burden, could be provided in low-income countries for about US\$ 12 per person per year, and in middle-income countries for about \$22. Properly delivered, this package could eliminate 21% to 38% of the burden of premature mortality and disability in children under 15 years and 10–18% of the burden in adults. The cost would exceed what governments now spend on health in the poorest countries but would be easily affordable in middle-income countries. Governments should ensure that, at the least, poor populations have access to these services. Additional public expenditure should then go either to extending coverage to the non-poor or to expansion beyond the minimum collection of services to an essential national package of health care, including somewhat less cost-effective interventions against a larger number of diseases and conditions.

Introduction

No country in the world can provide health services to meet all the possible needs of the population, so it is advisable to establish criteria for which services to provide. Two basic criteria are the size of the burden caused by a particular disease, injury or risk factor and the cost-effectiveness of interventions to deal with it. The World Bank's *World development report 1993: investing in health (I)* applies these criteria to the design of an *essential* national package of health services. Because epidemiological profiles differ among countries, even at the same income level, the national package must be tailored to a country's circumstances. However, it should always include a *minimum* package of both public health measures and individual clinical services which are highly cost-effective and help resolve major health problems. Governments should ensure universal access to its national package by financing it directly or, when public resources are inadequate, by promoting private expenditure on the clinical interventions in the package. This article makes a case to justify such a package. It explains what the minimum package contains and how the component services were chosen, and estimates what it could cost, how

much it could improve health, and what it implies for investment in facilities, equipment and personnel. Defining a package also clarifies the trade-off between coverage of the population and the cost-effectiveness of health care interventions that are provided, especially in poor countries.

Creating a package

Justification

Why is it advisable to collect various health services into a "package", and what does that mean? Governments could and often do proceed in other ways. They can simply agree to pay for, or guarantee to provide, any of a list of services, without considering possible relations between one intervention and another. Or they could choose not to specify outputs at all, and agree to pay for, or provide, a particular collection of inputs: medical professionals would then decide which services were actually provided, whether by delivering services they thought were justified or by responding to patients' demand. The second approach is incompatible with maximizing value for money, or getting the maximum health gain per dollar spent, because people often demand services offering little health improvement and do not always seek those that cost less or provide a greater health gain. Medical professionals also commonly seek to provide, and to generate demand for, services of questionable value. In any case, it is impossible to decide which inputs to finance without some idea of what services they are meant to provide. The first approach—choosing interventions but not packaging them—takes no account of joint costs or co-morbid-

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ty; so the interventions chosen in this way will cost more than they should, or will reach fewer people.

The principal argument for a collection of services to be provided jointly is to minimize the total cost of the package by exploiting the shared use of inputs and by reducing the cost to patients of obtaining services. Clustering of interventions improves cost-effectiveness through at least three mechanisms: synergism between treatment or prevention activities; joint production costs; and improved use of specialized resources through the screening of patients at the first level of care, to ensure that a small share of high-risk cases can be recognized and referred to hospital. Sometimes a cluster of diseases can be treated together, because they share diagnostic procedures or treatment protocols, or even the same drugs. And sometimes services can be organized to reach related individuals, e.g., integration of maternal and child care. Thus the package becomes more than simply a list of interventions: properly understood, it is also a vehicle for orienting demand and improving referral.

These are primarily medical reasons why services should be packaged in order to increase the health gain from a given collection of inputs. Other justifications for a package of care have to do more with the limited capabilities of governments to set priorities and to plan investment. The national package is a starting point, a way of assuring that the highest priority services are not slighted; governments that adopt it will have a better basis for setting other priorities and deciding what else to pay for in health care. It also simplifies the task of planning investment in buildings and equipment, in training people, and in purchasing drugs and supplies. The minimum output of services defines a minimum need for inputs. And in very poor countries, concentration on a package rather than on individual inputs or outputs makes it easier to estimate the need for external assistance and to use donor resources well. Finally, the definition of an explicit package of services for government to finance helps establish the boundary between the public and private sectors and may focus the attention of governments on their own capacities and responsibilities. When this boundary is not clear, governments easily waste resources by trying to do too much instead of doing what matters most.

Criteria for which services to be included

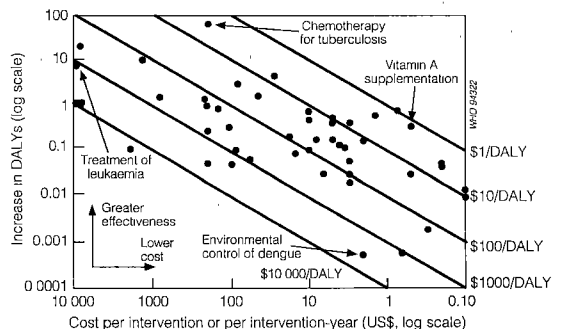
A health package could be designed purely to deal with a country's principal health *problems*; services would then be included to treat problems in descending order of importance, as measured by the loss in disability-adjusted life years (DALYs). (2). Unfortu-

nately, the only solutions for some such problems may yield very small health gains or very high costs, or both. An alternative is to design the package on the basis of *interventions*, according to their cost-effectiveness. This is the ratio of the cost of providing the intervention once (where that is appropriate) — or during a year (where treatment must be repeated) — to the health gain (in DALYs). The lower the cost per DALY obtained, the more cost-effective the intervention is.

Estimates of the cost-effectiveness of interventions, which were used to design the package come, with some modifications, from Jamison et al. (3). Fig. 1 shows dollar costs and health gains from 47 interventions: higher points represent most effective interventions and points farther to the right represent cheaper ones. The diagonal lines are contours of equal cost per DALY, decreasing away from the origin. Individual interventions can differ in cost from less than one dollar to more than \$ 10 000. They can differ just as widely in health gains: an intervention which saves one person's life and prevents infection of others can gain between 10 and 100 years of healthy life, whereas the improvement from some other interventions may amount to only a few hours or days of complete health. There is little correlation between what an intervention costs and how much additional health it provides: neither cost nor results alone is a guide to cost-effectiveness. The cost per DALY gained also varies greatly, by much more than the likely errors of estimation or the variation in cost-effectiveness from one country or epidemiological situation to another. It matters which services are included in a package; this would not be the case if the cost per healthy life-year gained were about the same for all services.

However, some cost-effective interventions deal with problems making only small contributions to ill health, because the condition is rare or the individual health loss from it is negligible. Including all such

Fig. 1. US dollar costs and health gains in DALYs from 47 interventions.



interventions would make the package very complicated to administer and might multiply the requirements for specialized, seldom used inputs, which could raise costs and overtax health system capacities. The World Bank's report therefore proposes a minimum package based on both problems and interventions: the services included are highly cost-effective and deal with major threats to health (1). (Cost-effective interventions against health problems, which cause large losses to individuals but are so rare as to produce little overall health loss, may belong in a larger, essential national package).

Content of the package

In communities with moderate or high mortality, a few causes typically account for a large share of deaths. The interventions included in the minimum package address such causes and some of the risk factors that produce them. In 1990 an estimated 55% of the burden of disease was concentrated in children under 15 years old, with 660 million DALYs lost. Just ten disease conditions or clusters cause 71% of this loss, as shown in Table 1. Except for congenital malformations,^a all these causes correspond to very cost-effective interventions, at less than \$100 per DALY. Protein-energy malnutrition and vitamin-A deficiency can produce death or disability directly or through other diseases; Table 1 counts only the direct loss. The total loss attributable to these conditions is five to six times larger when their indirect effect is included.

The burden of disease in the adult population is less concentrated than that of children under 15 years old: the ten main classes of disease and injuries account for only about 50% of the adult burden. Although most interventions to control these diseases are quite cost-effective, the impact is moderate because they prevent or treat only a small fraction of the problem. Overall, it is estimated that only 10–18% of the adult disease burden could be eliminated with the interventions in the minimum package, whereas the interventions for children could reduce their burden by 21–28%. Of course, separating the interventions for different age groups is artificial, because many services such as immunization with hepatitis vaccine are given to children but the benefits accrue throughout life. A similar but more indirect case can

be made for the effect of reducing infection in childhood on improved well-being in adult life (e.g., treatment of helminthic diseases improves cognitive abilities which in turn increases educational attainment). Mosley & Gray (4) and Elo & Preston (5) have identified many diseases in children that affect health in adulthood. Interventions applied to adults can also produce substantial benefits in children, as is the case with prenatal and delivery care and AIDS prevention programmes.

Another way of analysing the burden of disease is by way of risk factors. Current understanding of the attributable risk for most of the important risk factors is quite limited. There is no agreed classification of risk factors, nor is there a standard methodology to avoid double counting of deaths and disabilities when comparing disease burdens due to different risk factors. The *World development report 1993* estimated the DALYs lost to nine risk factors or clusters of risk factors, based on the evidence published in the scientific literature on the attributable risks. Indoor air pollution, the most important risk factor accounting for about 13% of the burden, cannot be matched with a cost-effective intervention, making it a high research priority. The second, inadequate water and sanitation, explaining about 10% of the burden, is matched with a well known intervention, but the cost-effectiveness is unfavourable, at more than \$1000 per DALY. The reason for this somewhat counter-intuitive result is that cost-effectiveness is able to capture only the health benefits of interventions; water and sanitation produce substantial non-health improvements in the welfare of households, and their provision or facilitation could be justified on those grounds (6). Protein-energy malnutrition and vitamin-A deficiency together explain about 10% of the DALYs in developing countries, unsafe sex 4%, alcohol abuse 3%, excess fertility 2.4%, and tobacco consumption only 1%. The interventions available to deal with these risk factors, with the exception of food supplementation, are included in the minimum package because of their favourable cost-effectiveness.

When diseases or risk factors change rapidly, the present burden of disease is not a good indicator of the priority for their control. Tobacco consumption and AIDS transmission through unsafe sex are increasing very rapidly in many developing countries; the priority for controlling these risk factors is high because in the next few decades the diseases caused by tobacco and AIDS will be among the main causes of death and disability. It is estimated that deaths due to tobacco consumption will increase from three million in 1990 to ten million in about 30 years, with most of the increase occurring in developing countries. Similarly AIDS is the first cause of

^a Potentially cost-effective interventions exist to prevent some of the congenital malformations of the nervous system and treat the most common congenital errors of metabolism, but they address only a very small fraction of the total burden due to this cluster of causes. Middle-income countries with low infant mortality should consider these interventions for inclusion in the national essential package.

Table 1: Main cause of disease burden in children and adults in demographically developing countries in 1990 and the cost-effectiveness of the interventions available for their control

Disease and injuries	No. of DALYs lost ^a (million)	Main intervention	Cost-effectiveness (\$ per DALY)
Children			
Respiratory infections	98 (14.8) ^b	Integrated management of the sick child (IMSC)	30-100
Perinatal morbidity and mortality	96 (14.6)	(a) Prenatal and delivery care (b) Family planning	30-100 20-150
Diarrhoeal disease	92 (14.0)	IMSC	30-100
Childhood cluster (diseases preventable through immunization)	65 (10.0)	Expanded programme of immunization EPI-plus ^c	12-30
Congenital malformation	35 (5.4)	Surgical operations	High (unknown)
Malaria	31 (4.7)	IMSC	30-100
Intestinal helminths	17 (2.5)	School health programme	20-34
Protein-energy malnutrition	12 (1.8)	IMSC	30-100
Vitamin-A deficiency	12 (1.8)	EPI-plus ^c	12-30
Iodine deficiency	9 (1.4)	Iodine supplementation	19-37
Subtotal	467 (71.0)	—	—
Total DALYs lost	660 (100)	—	—
Adults			
Sexually transmitted diseases (STD) and HIV infection	49.2 (8.9)	Condom subsidy plus IEC ^d	3-18
Tuberculosis	36.6 (6.7)	Short-course chemotherapy	3-7
Cerebrovascular disease	31.7 (5.8)	Case management	High (unknown)
Maternal morbidity and mortality	28.1 (5.1)	Prenatal and delivery care	30-110
Ischaemic heart disease	24.9 (4.5)	Tobacco control programme	35-55
Chronic obstructive pulmonary disease	23.4 (4.3)	Tobacco control programme	35-55
Motor vehicle accidents	18.4 (3.3)	Alcohol control programme	35-55
Depressive disorders	15.7 (2.9)	Case management	500-800
Peri- endo- and myocarditis and cardiomyopathy	12.4 (2.2)	Case management	High (unknown)
Homicide and violence	12.2 (2.2)	Alcohol control programme	35-55
Subtotal	252.6 (48.6)	—	—
Total DALYs lost	550.0 (100)	—	—

^a DALYs lost (for specific diseases and the total) are taken from the 1993 World Development Report (1). The total for children and adults include DALYs lost in 1990 due to all diseases and injuries.

^b Figures in parentheses are percentages.

^c EPI-plus includes the six vaccines of the Expanded Programme on Immunization (EPI), plus the vaccine against hepatitis B and vitamin A supplementation.

^d IEC: activities dedicated to information, education and communication.

death in many African cities and is likely to become a major cause of death in Sub-Saharan Africa, India and other Asian countries unless action is taken soon to prevent HIV transmission.

Table 2 presents the health interventions included in the minimum package, and some basic information on their cost and potential effect in low- and middle-income countries. These scenarios were modelled with data from Sub-Saharan Africa and from Latin America and the Caribbean, respectively. The

cost of labour and other health inputs, the epidemiological profile and magnitude of the burden of disease, and population age structure vary between the two cases. Low-income countries are characterized by younger populations and higher mortality and fertility rates; higher incidence of certain diseases; and lower labour costs. Two major contributors to the potential DALY gain in low-income countries are the prenatal and delivery care cluster and the treatment of tuberculosis, both of which are

Table 2: Cost-effectiveness of the health interventions (and clusters of intervention) included in the minimum package of health services in low- and middle-income countries

Interventions	Cost per beneficiary	Cost per capita	DALYs potentially gained ^a (per 1000 population)	Effectiveness ^b	Cost per DALY(\$)
Low-income countries					
<i>I. Public health</i>					
Expanded programme of immunization plus ^c	14.6	0.5	45	0.77	12–17
School health programme	3.6	0.3	4	0.58	20–25
Tobacco and alcohol control programme	0.3	0.3	12	0.14	35–55
AIDS prevention programme ^d	112.2	1.7	35	0.58	3–5
Other public health interventions ^e	2.4	1.4	—	—	—
Subtotal	—	4.2	—	—	14
<i>II. Clinical services</i>					
Chemotherapy against tuberculosis	500.0	0.6	34	0.51	3–5
Integrated management of the sick child	9.0	1.6	184	0.25	30–50
Family planning	12.0	0.9	7	0.70	20–30
STD treatment	11.0	0.2	26	0.42	1–3
Prenatal and delivery care	90.0	3.8	57	0.42	30–50
Limited care ^f	6.0	0.7	—	0.03	200–300
Subtotal	—	7.8	—	—	—
Total	—	12.0	—	—	—
Middle-income countries					
<i>I. Public health</i>					
Expanded programme of immunization plus ^c	28.6	0.8	4	0.77	25–30
School health programme	6.5	0.6	5	0.58	38–43
Tobacco and alcohol control programme	0.3	0.3	9	0.14	45–55
AIDS prevention programme ^d	132.3	2.0	15	0.58	13–18
Other public health interventions ^e	5.2	3.1	—	—	—
Subtotal	—	6.9	—	—	—
<i>II. Clinical services</i>					
Chemotherapy against tuberculosis	275.0	0.2	6	0.51	5–7
Integrated management of the sick child	8.0	1.1	21	0.25	50–100
Family planning	20.0	2.2	6	0.70	100–150
STD treatment	18.0	0.3	3.7	0.42	10–15
Prenatal and delivery care	255.0	8.8	25	0.42	60–110
Limited care ^f	13.0	2.1	—	0.03	400–600
Subtotal	—	14.7	—	—	133
Total	—	21.5	—	—	—

^a Sum of losses to premature mortality and to disability, including losses to others because of secondary transmission of disease.

^b Calculated by multiplying efficacy, diagnostic accuracy (when applicable) and compliance.

^c Plus refers to vaccine against hepatitis B and vitamin A supplementation.

^d DALYs lost from AIDS include dynamic effects (probability of transmission to others) only in the first year, which understates the value of preventing cases and thus the cost-effectiveness of preventive interventions.

^e Includes information, communication, and education on selected risk factors and health behaviours, plus vector control and disease surveillance.

^f Includes treatment of infection and minor trauma: for more complicated conditions, includes diagnosis, advice and pain relief, and treatment as resources permit.

largely neglected. Practically all the preventive and some of the therapeutic activities of the package involve behavioural changes. Since supplying services does not necessarily induce acceptance by the potential beneficiaries, much of the cost of these activities is dedicated to information, education and communication (IEC). These are sometimes needed

not only for the consumers but also for the providers of health services.

Cost and payment

For low-income countries, the minimum package is estimated to cost about \$12 per person per year. This

risers to an estimated \$22 per person per year in middle-income countries. About one-third of the total would go for public health activities and the remaining two-thirds for the essential clinical services. To verify the robustness of the estimates, the costs of the package were calculated in two ways. One approach was based on the cost of specific activities, estimated from existing studies in many countries of service delivery costs by type of intervention. In the other approach, costs were estimated for a prototype district health system able to deliver the minimum package, consisting of a district hospital, health clinics, and outreach activities. (The minimum package presented in Table 2 requires about one district hospital bed per 1000 population, 0.1 physicians per 1000 population, and between two and four nurses per physician). The two estimates were then compared to identify and correct errors or inconsistencies. Detailed cost estimates for specific countries must take into account prevailing demographic and epidemiological conditions and input costs. And it is important to recognize that the estimates should reflect what it would cost to carry out the intervention effectively, not what the intervention costs at present. For example, a country's tuberculosis programme may be treating only a small fraction of those with tuberculosis. The package should be designed not with these current programme costs, but with the estimated costs of effectively reaching a much larger population. The content of the package is chosen to provide the greatest possible health gain for a limited expenditure, independently of who is to pay for it.

Countries may choose to finance the whole package, for the whole population, from public resources. If they do not, there are still two criteria for what governments should finance. One is that certain services are so nearly public goods, or provide such substantial external benefits, that private markets will provide too little of them. For such interventions to be available, they must be financed by governments. The other criterion is that governments have a special responsibility for the health of the poor, who can pay for very little health care. User fees to recover part of the cost from poor people would have to be very low; they could only be justified by assuring greater technical efficiency in service provision, as for example if the revenues were retained and used locally to guarantee supplies of drugs. The contribution to total operating costs would be insignificant. The poor also tend to suffer worse health than the non-poor, but that would not matter if they could pay for the corresponding care. It happens that the services included in the package deal with problems which particularly affect the poor, but no intervention is included simply because

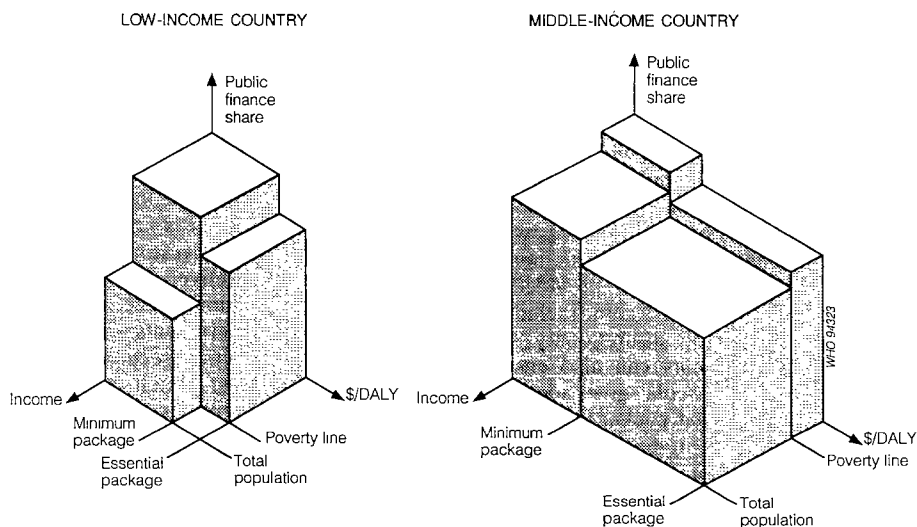
the corresponding problem is associated with poverty: it must also be cost-effective. Poverty, like public goods, is relevant to who pays for the package but not to what goes into it.

Beyond assuring the provision of cost-effective public health interventions to everyone, and the access of the poor to the entire minimum package of services, governments face two issues about what health services to finance. One is what to include in an *essential national package*, which would start with the minimum package but could be much larger, including a variety of other services. Everything beyond the essential set of services is considered *discretionary*, and should be financed entirely from private sources (out-of-pocket or through insurance) or by way of mandated social insurance. Such services should not be subsidized from general public revenues. The other issue is how far to pay for services, even those in the essential national package, for the nonpoor part of the population. This involves the choice of where to draw the poverty line between the two groups, and how in practice to distinguish the poor from the nonpoor. For a given level of public spending, the more the package is targeted to the poor, the more comprehensive it can be.

Most low-income countries currently need to use all their public expenditure on health, simply to pay for the minimum package for the poor. They cannot afford an essential package which includes much more than the minimum. And they may be unable to finance even the minimum package completely for the nonpoor: in low-income countries governments spend, on average, just \$6 per person for health and the total health spending (both public and private) is about \$14 per person. Funding the minimum package in these settings would require a combination of an increase in public spending for health, a reorientation of current government health outlays away from discretionary services, and targeting public spending on clinical services to the poor.

This situation is shown on the left side of Fig. 2: choices on the essential package and on priority for the poor define four combinations of a population group with a set of health services. The vertical axis indicates the degree of public subsidy, which should be equal or close to 100% for the minimum package for the poor. The subsidy should fall, perhaps quite sharply, as public expenditure is extended either to the nonpoor or to interventions outside the minimum package. This condition can be stated in the form of two rules for public expenditure: it should not pay for any services for the nonpoor which it does not also assure for the poor, and it should not pay for a less cost-effective service unless and until it has paid for all services which are more cost-effective. Anything else would be inequitable, favouring those who

Fig. 2. **Health care choices in a low-income and middle-income country.** The vertical axis indicates the level of public subsidy, the right-side horizontal axis refers to the population volume classified as poor and non-poor, and the left-side horizontal axis represents clinical health services divided into the minimum and the essential packages. Public subsidies should be close to 100% for the minimum package for the poor. In low-income countries the subsidy should fall, perhaps quite sharply, as resources extend to the non-poor or to interventions outside the minimum package. In middle-income countries the subsidy could extend to the non-poor and can finance part of the essential package only if the minimum package is assured for the poor and all cost-effective services are covered for the entire population.



can afford to pay over those who cannot, or inefficient, favouring interventions which yield less value for money over those which are more justified.

The right side of Fig. 2 shows the situation of a middle-income country, where current public spending on health averages about \$62 per capita. Such countries can afford an essential package which goes well beyond the minimum, to cover less cost-effective interventions that address a wider spectrum of diseases and injuries. The poor are a smaller share of the population, and resources are adequate even to subsidize less cost-effective services for the non-poor. There may still be differences in the degree of public subsidy, but they can be smaller, or involve less targeting to the poor, than in low-income countries.

Implications for public policy

A government wishing to adopt an essential national health care package faces a number of requirements and choices: these involve needs for information, choices about how to deliver and pay for services, and questions as to how to influence decisions in the private sector or in subnational levels of government.

Data needs for the design of the package. The analytical requirements for a rigorously designed nation-

al package are substantial. But countries can design provisional packages quickly while the analytical database is built up. They can develop a national essential package by using proxies for the data, or alternatively, by adopting the minimum package described above (perhaps with some adjustments) as the preliminary national package. Over the longer term, the package is best designed from results of a national burden of disease estimation and the local level analysis of the cost-effectiveness of interventions. The national burden of disease can be calculated over a period of months if data on morbidity and mortality are available. If these data are missing, indirect estimation can be used, or, as an interim proxy, regional disease burden estimates (*I*) can be adjusted for a particular country. Local estimates of intervention costs (and assumed effectiveness) should also be developed, at least for the most important health interventions. This can also take months, depending on the cost data available.

Implementation of the package. Once a national package is designed, the challenge is how to implement it. Government budgets are not organized by disease intervention: allocations are made across organizations (ministries of health, affiliated foundations, governmental research institutions, third-party

insurers), across facilities (hospitals and health clinics), and across input categories (personnel, supplies, drugs, maintenance, training, transport, and the like).

Where governments finance and provide health services, they can use input availability, norm setting, training, and consumer education to affect which services are utilized. It would be neither possible nor desirable for governments to supervise the providers' day-to-day clinical decisions. But governments can facilitate the delivery of the package by financing the inputs needed (drugs, personnel, supplies, equipment). Similarly, not financing specialist physicians, sophisticated equipment, and drugs for discretionary services diminishes the likelihood that services outside the national package will be provided at public facilities. "Essential equipment lists" can be developed to identify equipment needs for the essential package. Norm-setting also influences what is delivered. Governments usually establish norms about what types of services should be provided in different levels of public facilities. Again, including essential services and excluding discretionary services are important. Governments can also ensure that medical and nursing curricula give adequate attention to the national essential package. In many countries, the curriculum is not up-to-date regarding diagnosis and treatment of sexually transmitted diseases, tuberculosis treatment, and even family planning methods. And in-service staff training should support the essential package, to facilitate its delivery. Finally, governments can, through education campaigns, inform the public about the package—about the services guaranteed to be offered in different types of facilities, and when to seek such services.

Public finance and private provision of the package. Governments can also choose to finance all or part of the package through private providers. Reimbursement mechanisms can be designed in a variety of ways, including payment according to diagnosis or on a per capita basis. Governments can also contract with nongovernmental organizations or other private groups to provide care to subgroups of the population. In any event, monitoring mechanisms will be needed to ensure that the intended services are provided to the target population.

Mandating the package. In countries where states or municipalities are responsible for service delivery but funding is largely federal, the national government can require that lower levels of government provide at least those services in the national essential package, to qualify for federal transfers. And the cost of the package can guide per capita intergovernmental resource flows. The government can influence private as well as public finance of the nation-

al package, by requiring that all private insurers provide, at a minimum, the elements of the national package. This would in no way prevent insurers from providing additional, discretionary services, but it would ensure that the national package's highly cost-effective services are included in any insurance package.

Making the transition. In many developing countries the existing stock of health facilities, equipment, and health personnel is poorly matched to the requirements for delivery of a national essential package. Many countries have too many tertiary public hospital beds and physicians in urban areas, while rural areas still lack health clinics and primary care providers. Because it may be difficult politically to redress this imbalance in infrastructure by closing large public facilities, it is critical that new physical and human resource investments be directed at the inputs needed to deliver the national package in order to correct this imbalance over time. And to the extent feasible, governments can improve resource allocation by redirecting recurrent spending toward lower-level facilities, which provide most of the cost-effective interventions.

Achieving the potential health gains from the package. Designing a cost-effective package that addresses major disease burdens, and reallocating funds for that package, does not guarantee success. Programmes must also operate efficiently. The minimum package outlined in Table 3 assumes that a well-functioning referral system connects health outreach, health clinics and district hospitals. It assumes that vehicles are available to transport obstetric emergencies to district hospitals; that staff can be attracted to work in remote areas; that drugs are available when needed in the health system; and that operating rooms are available for obstetric emergencies, and are not closed because of a shortage of key supplies. Careful attention to technical efficiency is just as important as allocative efficiency to the successful implementation of the national essential package.

Discussion and conclusions

The notion of an essential national package of health services presented here derives from a series of efforts over the past decade and a half to determine health sector priorities. The earliest attempts usually refer to interventions characterized by low cost and a low level of complexity but not to well-defined packages. These efforts to define priority health interventions in order to make more efficient use of resources include the WHO primary health care

approach (7); the somewhat narrower selective primary health care proposal of Walsh & Warren (8), directed to children's health and selected tropical diseases; the UNICEF concentration on a small number of interventions directed at mothers and children (9); and a World Bank Policy Paper on health (10). A more complex exercise is the PAHO health sector planning approach (11), which starts with disease priorities and derives needs for such inputs as staff and facilities.

All these recommendations or partial packages were designed from very incomplete information on the burden of disease, particularly noncommunicable diseases among adults and other health problems that cause disability as well as, or instead of, mortality. Partly in consequence, and partly because of the emphasis on children, for whom most of the disease burden is due to premature mortality, health gains were measured chiefly or exclusively by reduction in deaths. Data on cost-effectiveness were also limited to a few childhood problems and some parasitic diseases. The minimum package proposed here represents an advance over earlier efforts because it draws on information about all the major health problems of low- and middle-income countries and all age groups, deals with disability as well as mortality, and is based on both disease burden and cost-effectiveness rather than on such partial criteria as cost alone or complexity of interventions. It also provides guidance for expanding from a minimum collection of services to a larger essential package, and relates this choice to decisions about public finance of health care.

One limitation on cost-effectiveness for allocating health resources is that many interventions significantly improve not only health but also income and welfare. Sometimes the health benefits alone justify the interventions (e.g., the education of girls). In other cases such as water and sanitation, the cost per DALY gained is high; but the consumers' willingness to pay for the associated non-health benefits may allow for part of the cost to be recovered, lowering the *public expenditure* per unit of health gain. More generally, cost-effectiveness alone is not a justification for public expenditure. Public finance needs to be justified by the additional health gains, compared to what would result from private finance; or by a reduction in costs; or because the intervention is at least partly a public good; or because the beneficiaries are too poor to pay for the intervention, even through insurance in some circumstances, cost-effectiveness may conflict with another objective of public spending on health care, which is to reduce inequities. Universal coverage with an intervention may raise marginal costs substantially above average costs, because part of the population lives in remote areas. Since such people are more likely to be poor,

concentrating public resources on the poor is a partial solution to this problem; but it still may be true that much more health gain could be achieved, even for the poor, if some otherwise cost-effective interventions were not extended to areas of very high cost. The relative importance of cost-effectiveness versus equity will then determine whether to modify the package by leaving out some interventions, providing mobile services rather than fixed facilities, concentrating on public health rather than clinical interventions for the high-cost population, or sacrificing some efficiency in order to preserve equity.

In exceptional cases paying a high marginal cost to cover the whole population may be justified on efficiency grounds, because the disease—like smallpox and perhaps poliomyelitis—can be eradicated. Such dynamic arguments, which are not based only on the present burden of disease and the cost-effectiveness of interventions, also underlie the package's emphasis on reducing tobacco use and controlling the spread of AIDS. Finally, since public budgets for health reflect the inertia of past investments, adoption of an appropriate package and the corresponding allocation of spending is also a dynamic problem: how quickly and effectively an essential national package can be introduced depends on how much new investment and training may be needed and on the technical, administrative and political capacity of the existing health system to analyse health problems and respond to them.

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Résumé

Structure, contenu et financement d'un module national de services de santé essentiels

Au cours des 15 dernières années, plusieurs propositions ont été faites pour identifier les interventions de santé qui devraient bénéficier de la priorité, parmi lesquelles les services pédiatriques, la prévention de la mortalité prématurée, les mesures de prévention et de santé publique, les interventions à faible coût, les soins médicaux de faible complexité et les gestes et interventions que le personnel des centres de niveau primaire

ayant relativement peu de formation peut réaliser. La présente étude utilise beaucoup de données nouvelles sur l'incidence de la maladie et de l'incapacité, et sur les coûts et les résultats des interventions, pour définir un module *minimal* de soins de santé. Ce module repose sur deux critères destinés à maximiser les bénéfices pour la santé et à maîtriser les coûts dans les systèmes de santé dont les capacités sont limitées: d'une part les problèmes de santé qui représentent une fraction importante du poids de la morbidité — y compris les conséquences de l'incapacité chronique et de la mortalité précoce — et, d'autre part, les interventions à bon rapport coût-efficacité destinées à traiter ces problèmes et qui apportent, à faible coût, une année supplémentaire de vie en bonne santé ou sans incapacité. La mise en œuvre de ce module minimal exigerait une dotation en personnel comprenant environ un médecin, deux à quatre infirmières et dix lits par hôpital de premier niveau pour 10 000 habitants. Quand les ressources le permettent, ce module minimal pourrait être élargi et devenir un module national *essentiel* de soins de santé, où les interventions pourraient être de rapport coût-efficacité légèrement plus faible et viser un plus grand nombre de pathologies.

Que de plus les autorités publiques soient ou non le prestataire de services, il leur est possible de financer la totalité du module national pour la population entière, et de laisser au financement privé tous les soins non essentiels ou relevant d'une libre décision. Lorsque les ressources publiques ne couvrent pas toutes les interventions à bon rapport coût-efficacité pour tous, il est souhaitable de concentrer les actions sur les plus défavorisés — lesquels ne peuvent payer qu'une très faible partie des soins de santé, soit directement, soit par un système d'assurance — et sur les interventions qui concernent le domaine public ou qui apportent des bénéfices extérieurs si importants que les marchés privés ne les assureront pas convenablement. Parmi ces interventions, plusieurs ont pour but l'information du public sur les risques pour la santé ou les changements de comportement. Les pouvoirs publics peuvent également exiger la couverture du module essentiel par les assurances privées ou un système d'assurance sociale obligatoire.

Le coût estimé du module minimal est de US\$12 par personne et par an dans les pays à faible revenu, qui tous actuellement dépensent moins que ça pour la santé. Le coût s'élèverait à environ US\$22 par personne dans les pays à revenu intermédiaire, ce qui permettrait de mettre sur pied un module essentiel plus généreux. Le module minimal permettrait à lui seul d'éliminer, en fonction de la situation épidémiologique existante, de 10 à 18% du poids actuel de la morbidité chez l'adulte de plus de 15 ans. Les bénéfices seraient encore plus élevés pour l'enfant: 21 à 38% du poids de la morbidité pourrait être éliminé.

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