
Major Findings and Recommendations

The central finding of this study is that under the primary set of assumptions, the Thai program to treat AIDS patients will save millions of years of healthy life at a cost of US\$2,145 (B 85,800) per life-year. This program is less cost-effective than a similar program with first-line therapy only but more cost-effective than some other types of health interventions for adults, such as treatment for end-stage renal disease or some forms of cancer. Another key finding is that Thailand should enhance its program to encourage early recruitment and to finance universal access to the groups of people living with HIV/AIDS, which can improve adherence.

Major Findings

Finding 1: NAPHA with First-Line Regimen Only Is the Most Cost-Effective Policy Option of Those Studied

NAPHA with first-line therapy only—at a cost of US\$736 (B 29,440) per discounted life-year saved—is the most affordable and cost-effective policy option modeled in this report. If cost-effectiveness were to be adopted as the single decision tool, then NAPHA with first-line only is clearly the superior policy. However, other considerations may weigh heavily on the government's final decision as to what policy to adopt. From the perspective of this study, affordability and equity are also relevant criteria.

An argument for horizontal equity would compare NAPHA with and without second-line therapy to the cost of saving life-years

through subsidized treatment of other adult illnesses, such as cancer, heart disease, or end-stage renal disease. This comparison would show that NAPHA with second-line therapy is cost-effective relative to those other interventions. Advocates of vertical equity would argue that the government should ensure that the people at the bottom of the income distribution have access to care that people in the top one-fifth will purchase for themselves (including second-line therapy).

Finding 2: NAPHA with Second-Line Therapy Is Still Affordable and Yields Larger Benefits in Terms of Life-Years Saved

By 2015, the current NAPHA policy will have added about 220,000 people per year to the living population. Even at the end of the projection horizon, when the Thai AIDS epidemic is predicted to slow, the NAPHA policy will save about 190,000 life-years each year. Hence, 10 percent more life-years would be saved under the current NAPHA policy than under the an equivalent NAPHA without second-line therapy. By keeping people alive longer, NAPHA will be associated with an increase in the number of HIV-infected people in Thailand, as well as with a significant increase in the number of people living with HIV/AIDS who are on treatment. As a result, prevalence rates will no longer be an adequate objective for national HIV strategy (because success in treatment will be tied to an increase in prevalence rate).

The total cost of NAPHA with second-line therapy reaches a ceiling at US\$500 million (B 20 billion) per year in 2008. Beginning in 2010, expenditures on second-line therapy account for more than one-half of total ART spending. By the end of the projection, the one-fourth of patients receiving second-line therapy absorb three-fourths of the treatment budget. The projected cost of NAPHA will increase Thailand's AIDS spending from its current level of about US\$100 million (B 4 billion) per year to more than five times this amount in 2020. However, even at its peak, total spending on AIDS treatment will require increasing the total health care spending by less than 25 percent. We judge this level of expenditure to be affordable to the Thai government.

Finding 3: Policy Options to Enhance Adherence and Recruit Patients Earlier Are a Good Public Investment

Timely patient recruitment and enhanced adherence buy additional life-years. If initiated now, the expanded voluntary counseling and

testing (VCT), augmented adherence, and “both” policies would benefit more patients each year until the approaches save, respectively, 18,000, 50,000, and 60,000 additional life-years in 2020, on top of the 210,000 life-years saved that were generated by NAPHA alone in that year. Thus, for 2020, the alternative policies offer the possibility of improving NAPHA benefits by almost 30 percent.

These expanded policies, however, involve additional costs. Of the four policies considered, the current NAPHA policy is the most cost-effective. The second-most cost-effective is the augmented treatment policy, which enhances patient adherence. We estimate that systematically adding patient support groups to all treatment sites in Thailand would increase the cost per life-year saved by less than US\$40 (B 1,600), thereby making this a good investment. Under the central assumptions of the model, spending the resources on expanded HIV testing in order to recruit patients in a more timely manner would increase the cost per life-year saved by only another US\$60 (B 2,400), which also seems like a good buy. Thus, we recommend that Thailand undertake both of the two analyzed policies to strengthen treatment, bringing the estimated cost per life-year saved to US\$2,243 (B 89,720).¹

Finding 4: Public Financing Will Help Ensure Equitable Access to ART for Poor Patients

Suppose that Thailand had reduced the price of first-line ART by authorizing the production of GPO-vir but had refrained from subsidizing treatment. For households in the top two quintiles in the income distribution, first-line ART could be affordable through user fees. Even for households in the poorest two quintiles, the US\$842 (B 33,680) cost of first-line therapy compares with the medical expenses of the sickest households for a single year. The problems for the poorest households are likely to be caused by two unusual features of the cost of treatment.

- First, the treatment must continue for the rest of the patient’s life. For households in the lowest 80 percent of the income distribution that are able to pay US\$842 for one year, the second and third years will become increasingly onerous.
- Second, poverty-induced laxity in treatment will lead to treatment failure, to development of resistant strains of the virus, to spread of

those resistant strains to others, and to the requirement that the patient move to second-line therapy.

Although it is conceivable that the cost of first-line therapy could be partially financed with user fees, second-line therapy is much more expensive, exceeding total household income of 40 percent of the population. Most people on first-line therapy will eventually need second-line therapy, and they will not be able to afford it without public support.

Finding 5: Public Financing Can Strengthen Positive Spillovers and Limit Negative Spillovers of ART

ART may be used to increase the effectiveness of prevention activities. However, this beneficial effect of ART requires greater integration of treatment and prevention efforts than currently exists in Thailand.

Poor adherence to first-line therapy will speed the development of viral resistance to those drugs and will hasten the day when the patient must move to second-line therapy. Public intervention to support adherence can limit the spread of resistant virus. From a social as well as an individual perspective, adherence support mechanisms such as the augmented public care we model in this report are likely to be cost-effective as well as therapeutically beneficial.

Finding 6: If the Success of ART Rollout Makes People or the Government Complacent about Prevention, Future Costs Could Rise Substantially

If the availability of ART is accompanied by a sustained government prevention program and if it leads people to reduce risk behaviors such as injecting drugs and having unprotected sex, then the cost-effectiveness of ART is improved by about 9 percent, and future government expenditures on ART will go down by US\$926 million (B 37 million), or by 14 percent.

Conversely, if the availability of ART crowds out government expenditure on prevention and leads people to increase their risk behavior back to its levels in the early 1980s, government treatment expenditure will increase more than threefold, increasing the cost per life-year saved from US\$2,145 to US\$6,243 (from B 85,800 to B 249,720).

Finding 7: Future Government Expenditures on ART and the Lives It Will Save Are Highly Sensitive to Negotiated Agreements on the Intellectual Property Rights for Pharmaceuticals

Because the drugs used in second-line therapy are patented, produced, and sold by multinational pharmaceutical corporations, Thailand must either pay the high prices demanded by those monopolies or exercise its rights under World Trade Organization (WTO) treaties to grant a compulsory license for the manufacture of the drug, subject to negotiated royalties.

Because Thailand stands to gain a great deal from bilateral agreements to reduce trade barriers with trading partners such as the United States, the Royal Thai government may be tempted to relinquish its rights to grant compulsory licenses for AIDS drugs in exchange for proffered trade advantages. The report finds that the cost of such concessions would be large. For example, by exercising compulsory licensing to reduce the cost of second-line therapy by 90 percent, the government would reduce its future budgetary obligations by US\$3.2 billion discounted (B 127 billion discounted) through 2025 and would cut by more than half the cost per life-year saved of NAPHA, from US\$2,145 to US\$940 (or B 85,800 to B 37,600) per life-year saved.

The size of royalty payments that the WTO mandates to accompany compulsory licensing is indeterminate and subject to negotiation. Thailand could enhance its bargaining power vis-à-vis the multinational pharmaceutical industry by coordinating its negotiations with other middle- and low-income countries.

Conclusions and Recommendations

In its current form, Thailand's NAPHA is affordable. Under the model's assumptions, it is also cost-effective relative to the baseline scenario. Furthermore, although the two enhanced policies we suggest (early recruitment through expanded VCT and improved adherence through PHA community support groups) are less cost-effective, they are still a good bargain, particularly if both are enacted.

Much of the cost of ART over the long term is associated with provision of second-line treatment. One way to limit the potential financial burden is for the Thai government to make explicit the scope of

its commitment to providing public ART: is it a limited commitment to provide only first-line treatment, or is it a more open commitment to provide whatever level of treatment is required by the patient? Estimates of cost-effectiveness show that a version of NAPHA that includes only first-line drugs is much more cost-effective, at only US\$736 or B 29,440 per life-year saved, than the policy with second-line therapy. However, NAPHA with second-line therapy saves a quarter of a million more life-years.

A second way for the government to limit its expenditures on second-line therapy is to grant compulsory licenses for the manufacture of patented second-line pharmaceutical products. Doing so will require high-level political resolve that is based on an accurate understanding of the costs to Thailand, the health benefits, the budgetary savings, and the trade repercussions of such action.

Another option would be for the government to explore other financing mechanisms for ART, including greater use of user fees and health insurance schemes. In view of the government's commitment to provide free and universal access to ART through NAPHA, any such plan would have to be carefully designed to avoid excluding people from treatment or discouraging treatment.²

Although affordable, expanding ART represents a long-term financial commitment that must be integrated into the budget processes. Once the Thai government begins to finance a patient's AIDS treatment, that access becomes an entitlement that cannot be sacrificed to budget cycles without incurring large political costs. Continuing to support existing ART patients for the rest of their lives and absorbing new ones while maintaining other health programs will require a 24 percent increase in the total health budget by 2013. Because no cure for HIV infection is in sight, NAPHA is a long-term government commitment.

The biggest challenge for Thai health policy makers will be to resist complacency and instead build a synergistic relationship between treatment and prevention. This approach may require devolution of responsibility for both treatment and prevention to provinces or lower levels of government so that government units that succeed with prevention will benefit from the saved treatment costs.

Success in rolling out treatment will make achieving the national AIDS strategy objective of less than 1 percent prevalence difficult to

attain, because people with HIV will live longer. The first objective of the national AIDS strategy should thus be redefined in terms of HIV incidence, and it should be accompanied by measures to strengthen prevention in light of expected (and already documented) changes in the risk behavior of both the vulnerable groups and the broader population.

The cost of US\$2,145 (B 85,800) per life-year saved through ART may be much more than Thailand would have to spend to save life-years with other interventions. The study recommends that Thailand accompany its expansion of the ART program with vigorous investigation of other promising opportunities to improve health cost-effectively. Prime candidates among those alternatives would be inexpensive HIV prevention programs, including condom distribution and peer education. Expansion of immunization programs, of traffic safety and trauma management, of nutrition programs, and of water supply are all candidates for cost-effective interventions that would save life-years at probably much less than US\$2,000 (B 80,000) per year.

Notes

1. These policies to strengthen ART are independent of and much less costly than the decision to finance second-line therapy. They would be even more affordable and advisable if public finance paid only for first-line therapy.

2. Inclusion of AIDS treatment within the “30-Baht” national health care plan, a policy currently under discussion in Thailand, must take into account both the large cost of NAPHA and its uneven geographic distribution across the country. Space constraints prevent an analysis of alternative financing mechanisms for ART in Thailand.

