

# Disinvesting from Low-Value Health Technologies in Low- and Middle-Income Countries

Between a Solution to the Current Fiscal Crises and a Costly Mirage?

ADRIAN GHEORGHE · PETER BAKER

## Abstract

In this policy paper we summarise what is known about healthcare disinvestment and outline documented experiences in low- and middle-income countries (LMICs) to draw insights on what has worked, to what extent, and under what conditions. We reviewed the published literature on documented experiences of attempted healthcare disinvestment in LMICs. We identified two common scenarios when disinvestment initiatives were attempted, namely “one-off” and “systematic” initiatives, and characterised them in terms of objectives, resources and political will. We found four documented examples of one-off disinvestment initiatives—Iran, Malaysia, Romania, and Vietnam, two documented examples of systematic disinvestment initiatives by health technology assessment (HTA) agencies in LMICs—Brazil and China, as well as a range of countries like Thailand, India, and Ghana that carry out systematic disinvestment through routine HTA processes. We conclude that disinvestment is costly, time-consuming, and rarely as successful as policymakers intend. Key considerations to improve the chances of success include whether strong pre-existing health prioritisation systems exist (such as an HTA agency) and whether the design of initiatives are tightly matched to the level of political will, the policy objective, and available resources.

# Disinvesting From Low-Value Health Technologies in Low- and Middle-Income Countries: Between a Solution to the Current Fiscal Crises and a Costly Mirage?

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## Introduction

Many low- and middle-income countries (LMICs) are now projected to spend less on health over the rest of this decade than they did pre-2020. The adage “[more health for the money](#)” is more meaningful than ever—but how do we act on it quickly? Disinvesting from low-value health technologies and interventions is one option. However, most research on divestment has been informed by experiences in high-income settings, as illustrated in a recent [scoping review](#). In this policy paper, we summarise what is known about healthcare disinvestment and outline documented experiences in LMICs to draw insights on what has worked, to what extent, and under what conditions. We identify two common scenarios when disinvestment initiatives were attempted (“one-off” and “systematic”) and conclude that disinvestment is costly, time consuming, and rarely as successful as policymakers intend. Policymakers should be mindful of these challenges before setting off on this path. Key considerations for successful disinvestment include matching plans to the level and duration of political will, the motivating policy objective, and resources available. Pre-existing strong prioritisation systems such as health technology assessment (HTA) agencies can make disinvestment more likely to be successful, as examples from Brazil and China appear to suggest—but with resources usually being reinvested in more impactful services, rather than released.

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## Disinvestment in healthcare: A brief introduction

Disinvestment [refers to](#) partially or completely withdrawing health resources from any existing healthcare practices, procedures, technologies, or pharmaceuticals that are deemed to deliver little or no health gain for their cost, and thus are not efficient health resource allocations. Disinvestment can include removing technologies completely from a health service, or restricting the indications for their use, or replacing them with other technologies. Disinvestment is not simply about cost-cutting, because, at least in theory, the resources can be re-invested in other more impactful services. Indeed, the objectives of disinvestment can be about improving the quality of care, maximising the value of available resources through optimal allocation, and accountability of resource use.

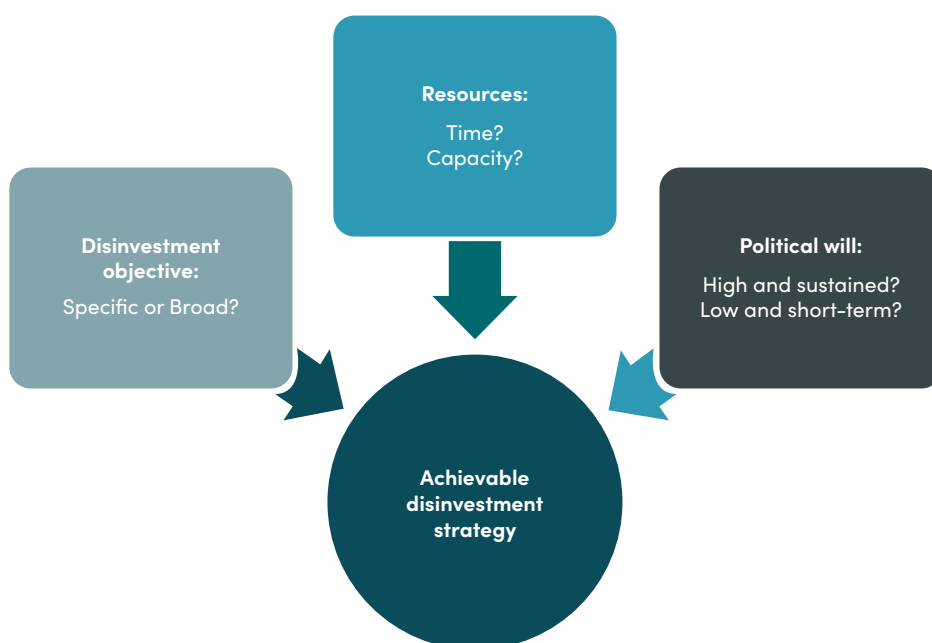
Previous review papers agree that healthcare disinvestment is difficult and costly—technically, organisationally, and politically. Even when such initiatives reach implementation stage, what gets done is usually a fraction or simplification of what was initially proposed and, consequently, benefits tend to be much less impressive than expected. For example, a recent review of a programme of comprehensive health benefits package revisions in LMICs found that implementation of the proposed disinvestments and reinvestments was [limited](#). Moreover, the promise of reallocating freed resources is contingent on having sufficient flexibility to reallocate health budgets. These conditions are not easy to meet, particularly in low-resource settings.

## Two applied scenarios of healthcare disinvestment in LMICs

We reviewed the published literature on documented experiences of attempted healthcare disinvestment in LMICs—see our search strategy in the Appendix. We found that success of a given healthcare disinvestment strategy is determined by the mutual alignment of three factors:

1. **The nature of the disinvestment objective:** is the disinvestment initiative focused on a single policy objective (e.g., cost cutting) or does it have multiple, explicit policy objectives, in which case a more elaborate design is often needed?
2. **The political will:** what is the extent of the mandate and support for the disinvestment initiative from senior leadership, and is it likely to be sustained?
3. **The resources available:** how much time is available before a decision needs to be made? Are there sufficient skilled people, relevant data, and financial resources available? How deep is the health system stakeholders' awareness of priority-setting? How acceptable is explicit priority-setting?

**FIGURE 1. Three factors to consider when designing an achievable disinvestment strategy**



From this analysis we concluded that there are two types of scenarios under which disinvestment happened in LMICs, summarised in Table 1 and developed in what follows.

**TABLE 1. Two common scenarios of health disinvestment in LMICs**

Scenario	Disinvestment Objective(s)	Resources	Political Will	Examples
1. One-off initiatives	Usually one primary objective, e.g., cost control	Urgent or time-limited initiative  Limited technical and institutional capacity, hence recourse to external experts or <i>ad hoc</i> structures  Scope may be restricted to few health technologies or disease areas	May start high but often not sustained	Vietnam  Romania  Iran*  Malaysia
2. Systematic disinvestment by HTA agencies	Usually two or more objectives e.g., value for money and quality of care	Long-term process, usually not urgent  Conducted by established institutionalised systems geared for priority-setting  Broad scope of health technologies	High and sustained	Brazil  China  Thailand  India  Ghana

Note: \*There are indications that Iran's experience has progressed towards systematic disinvestment, however the transition has not been documented to our knowledge.

## Scenario 1: One-off initiatives

Under Scenario 1, healthcare disinvestment initiatives usually focus on a single type of disinvestment objective, perhaps triggered by a budgetary crisis. Resources are usually limited: there may be limited experience with priority-setting and systematic evidence-informed decision-making, time is short, and there may also be limited domestic technical capacity. Political will may be high in the moment but may be related more to overcoming an immediate political obstacle than to making sustainable, wide-reaching health system improvements. The disinvestment process takes time and the political will may fade as a result, thereby reducing impact. We identified examples of this in Vietnam, Romania, Iran, and Malaysia.

In 2011, the government of Romania<sup>1</sup> sought technical assistance for reviewing the list of pharmaceuticals included in the health benefit package, which at the time was part of a broader financial agreement with international financing institutions. The exercise, supported by the World Bank and conducted by [NICE International](#), included a review of the approved indications for the top 50 medicines by expenditure in the previous year (2010) and the top 25 medicines in each of the formulary's sub-lists. One of the few recommendations implemented was the removal of ginkgo biloba from the drug reimbursement list in October 2015.

1 Romania is currently a high-income country but was upper-middle-income at the time of the documented case (2011).

In 2016, Vietnam sought technical assistance from the international Decision Support Initiative (iDSI) to conduct a [rapid review of its health benefit package](#), with a focus on high expenditure pharmaceuticals. The four-month study reviewed the approved indications of 14 medicines based on the international literature, consultations with local clinical experts, and analysis of hospital prescribing data. As a result, a fine-tuned list of indications was proposed and agreed by the Ministry of Health which would save about USD 150 million each year by reducing inappropriate prescribing—without sacrificing health outcomes. The recommendations were sent to hospitals but the extent of actual implementation is unknown.

We also identified two country examples of disinvestment initiatives in relation to specific health technologies or disease programmes—one for the multiple sclerosis (MS) programme in [Iran](#) and the other for respiratory inhalers in [Malaysia](#).

The Iranian example outlines a pilot exercise conducted in 2020–2021 to develop a deliberative, evidence-informed process for revising the health insurance benefit package. As part of the pilot, nine health technologies for MS were evaluated against pre-specified criteria. The project's technical working group initially proposed the exclusion from the benefit package of four of these health technologies, however after further deliberation the final decision was to opt for stricter coverage conditions at lower prices (based on the reference price of the cheaper alternative product). Based on correspondence with study authors, it is understood that this documented disinvestment exercise has been part of an ongoing HTA process appraising both investment and disinvestment decisions and positioned currently within the High Council for Health Insurance. Since 2020, the process has also evaluated health technologies for diabetes mellitus, hypertension, and neurological services, and will continue in the coming years to systematically address other disease areas, as well as expand to the Ministry of Health and Medical Education.

The Malaysian example outlines the application of a multi-criteria decision analysis (MCDA) framework to 27 respiratory inhalers, of which 24 were already listed in the Medicines Formulary and known to be procured in public health facilities. Following the development and application of the MCDA framework and deliberation of the evaluation results, the project's technical working group recommended delisting one entity (in one of two listed dosage forms) and not recommending procurement in public facilities of further two entities, thereby stopping short of recommending the complete removal from the formulary of any medicine.

These examples suggest that even with substantial constraints, achieving some disinvestment results may be possible—however the implementation of disinvestment recommendations is usually below what was intended. Targeting the disinvestment exercise on a clearly identifiable health technology with a simple objective (e.g., controlling pharmaceutical expenditure), for which some local data are available and international evidence can also be reasonably used, appears more effective. Rapid approaches (e.g., examining only the top 20–50 health technologies or only a disease programme/area) may be sufficient for identifying potential quick wins. However, such rapid

exercises can be quick fixes at best and usually do not build institutional capacity, with the Iranian case a positive exception. Without further investment and commitment, the scenario is bound to repeat itself when the next crisis or reform initiative arrives. One-off initiatives such as pilots are only likely to gain traction and be steps towards institutionalisation when their deployment follows good governance principles—accountability, transparency, and absence of conflict of interest.

## Scenario 2: Systematic disinvestment by HTA agencies

Under Scenario 2 we would expect to find countries with well-established evidence-informed priority-setting systems and long-term commitment to improving value for money in the health system. Disinvestment purposes are usually more complex, representing the full mandate these agencies have within the health system. Political will is high and sustained, often reflected in broad awareness and institutional mandate for routinely assessing the value of health technologies. The scope is broad, technologies are systematically reviewed over a long period. There is ample domestic capacity for such exercises and timelines are often of a bureaucratic nature rather than imposed by political urgency. Broadly there are two types of this process—firstly HTA agencies can have specific systematic disinvestment processes to identify low-value technologies, or secondly, systematic disinvestment can occur as part of their routine HTA-informed decision-making.

We identified two examples of specific systematic disinvestment processes conducted by LMIC agencies. The best documented examples come from Brazil, where healthcare disinvestment initiatives have occurred since early 2010s and have been analysed [systematically](#). Of 47 health technologies reassessed by the National Committee for Health Technology Incorporation (Conitec) between January 2012 and November 2017, nine were delisted from the Brazilian public health system and seven had an indication excluded, most often based on efficacy evidence.

In December 2016, national authorities approved a [guideline for “health technology performance assessment”](#) to inform decisions on whether to continue reimbursement of low-value or outdated health technologies; while the process of developing the guideline is well documented, its application is less so.

A more in-depth documented example concerns the [process of disinvesting from the use of intramuscular interferon-beta \(IFN-β-1a-IM\)](#) in MS. In 2015 and 2016, two rounds of technical assessments showed that IFN-β-1a-IM was inferior to the other IFN-βs. The final decision, published in June 2016, was to exclude the intramuscular presentation of IFN-β from the current MS treatment guidelines, giving patients who are currently on this treatment the option of continuing until treatment failure. Less than a year later (October 2017) the restricted indication for IFN-β-1a-IM was revoked following an [appeal](#) from the market authorization holder.

The other example is from [China](#), where [HTA capabilities have developed gradually](#) over the past decade. Since 2019, the National Healthcare Security Administration (NHSA) has sought to remove low-value medicines from its national drug reimbursement list at the level of the entire benefit



package—with a particular focus on traditional medicines. More than 160 medicines have since been delisted and more than 190 considered for price renegotiations. The details of the disinvestment process used to achieve these outcomes are unclear. Of note, NHTA also started [using HTA for pharmaceutical reimbursement decisions](#) in 2019.

The second approach is systematic disinvestment through routine HTA decisions, where better value health technologies gradually displace—albeit over a long period of time—lower value technologies. [Thailand](#) has long been acknowledged as a global leader in using HTA in this way to inform health policy decisions; by way of example, atorvastatin was withdrawn from the National List of Essential Medicines after an economic evaluation concluded that it was [no longer cost-effective relative to simvastatin](#). Countries such as India and [Ghana](#) are rapidly developing their own HTA systems. Robust priority-setting institutions take time and resources to build, but the effort pays-off; recent empirical work from [Thailand](#) and [India](#) suggest positive returns on investment and long-term efficiency improvements.

Broadly then, it does seem effective to operationalise disinvestment through HTA processes, either as part of specific systematic disinvestment processes or as part of routine HTA decision-making. However, documented evidence on how best to make this work in practice remains limited. In both Brazil and China, disinvestment was conducted by the institution with the capacity and mandate to conduct evaluations for reimbursement purposes—Conitec and NHTA, respectively—suggesting that there are potential synergies between disinvestment and “for reimbursement” HTA. The success factor is perhaps the long-term commitment to the development of HTA institutions with the mandate for evidence-informed priority-setting, mostly for reasons beyond disinvestment.

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## Conclusions and recommendations

Overall, we found four documented examples of one-off disinvestment initiatives, of which one appears to progress towards institutionalization on a condition-by-condition basis—Iran. We also identified two documented examples—Brazil and China—of systematic, specific disinvestment initiatives by HTA agencies in LMICs, as well as a range of countries like Thailand, India, and Ghana that carry out systematic disinvestment through routine HTA processes. In all cases, perhaps with the exception of Brazil, there was little information available on the tangible follow-up and health service impact of the disinvestment decision. Thus, whilst the case for disinvestment is strong in theory, the documented evidence on implementation and impact in LMICs remains rather thin, overall.

The evidence suggests that disinvestment is time and resource-consuming and results in less benefit than is expected at the outset. The opportunity cost needs to be weighed against other health policy reforms, particularly in low-resource settings. We also acknowledge a likely publication bias here,

with little incentive for policymakers to publicise unsuccessful initiatives. This would mean that disinvestment is likely to be even harder than the evidence shows in this paper.

Before beginning a disinvestment programme, we offer three recommendations for decisionmakers, based on the limited evidence available:

1. Consider which of the two scenarios you are in and make sure expectations and approach are well matched to three contextual factors—disinvestment purpose, political will, and resources. Aim too high or too low, and you will waste resources, damage credibility, and breed disappointment; aim at the right level, and you can achieve tangible gains (albeit not necessarily impressive in the short-run) and help set the stage for furthering a system-wide priority-setting culture.
2. Be strategic about restricting the scope to where disinvestment can lead to improvements. Pilot initiatives restricted to vertical disease programmes or specific types of health technologies as a stepping stone towards further developments. This can face less resistance, albeit it should be accepted that they may not produce large impact in the short-term. Large scale exercises at the level of the health benefit package can be more impactful but require substantial resourcing and careful sequencing.
3. Aim to invest in developing and resourcing legitimate priority-setting processes as the foundation for making difficult trade-offs, routinely and systematically. There are substantial synergies to be shared between disinvestment initiatives and developing HTA processes and systems with the development HTA processes and systems. That this process takes years should not be a discouragement; the case of [India](#) shows that rapid, consequential progress can be made within less than a decade.

Finally, this is an important and topical area that suffers from a limited evidence base to guide policymakers in LMICs on what works under which conditions. Leaders of disinvestment initiatives should seek to share evaluations of their work to enable other countries to learn from their experience.

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## Appendix: Literature search strategy

Our starting point was the scoping review of [Kamaruzaman et al. 2022](#), which synthesises the findings of previous systematic reviews and provides. We also identified and incorporated information from several other relevant systematic reviews not included in the scoping review, such as [Lewis et al. 2019](#).

We have also conducted a systematic literature search of disinvestment initiatives in LMICs. We searched in Medline (Ovid), Embase (Ovid), Global Health (Ovid), Web of Science and Scopus for articles published between January 2010 and June 2023. In the literature search strategy (below), we specified explicitly, by name, 87 countries that were classified by the World Bank as low-income, lower-middle income or upper-middle income status for at least eight of 12 years (not necessarily consecutive) between 2010 and 2022, the last year for when classifications were available as of June 2023. We made this choice to acknowledge that institutional development in healthcare in general, and in priority-setting particularly, progresses slowly over time and is not impacted immediately by income group changes. We assumed, therefore, that a country with a LMIC status for most of the considered time interval (75 percent, eight of 12 years) would be sufficiently informative to other LMICs even if it were borderline high-income in some years.

We included only documents (articles, reports) that refer to explicit disinvestment initiatives conducted by national or regional government bodies in relation to an explicit benefit:

- by “explicit disinvestment initiatives” we mean processes that have disinvestment as a clear potential outcome rather than “implicit disinvestment” where the adoption of a health technology or intervention would automatically lead to abandoning the less favourable comparator (usually routine practice).
- by “national or regional government bodies” we mean ministries or regulatory agencies in order to exclude initiatives of healthcare providers (e.g., hospital-based initiatives), which are not sensitive indicators of the consideration of disinvestment as a policy option.
- By “explicit benefit” we mean disinvestment initiatives that target explicitly covered health technologies or interventions, usually on a positive list e.g., for a health program or for a health benefit package.

Ovid MEDLINE(R) ALL <1946 to June 08, 2023>

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21. 17 or 18 or 19 or 20 1481893
22. 16 and 21 1382
23. limit 22 to yr="2010 -Current" 942