HEALTH SERVICE DELIVERY REFORMS DURING AND AFTER ECONOMIC CRISES

RAPID EVIDENCE REVIEW AND COUNTRY CASE STUDY ANALYSIS

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Acronyms and abbreviations

Acronym	Definition
ANC	Antenatal care
ARVs	Antiretroviral medication
CHC	Community health centre
DoH	Department of Health
DOHA	Direction of Healthcare Activities
GDP	Gross domestic product
GNP	Gross national product
HITAP	Health Intervention Technology Assessment Program
HPET	Health Professionals Education and Training
HTA	Health Technology Assessment
IMF	International Monetary Fund
JPS	Jaring Pengaman Sosial
MoH	Ministry of Health
MOPH	Ministry of Public health
NCD	Non-communicable disease
NGO	Non-government organisation
PHC	Primary health care
PMCI	Primary medical care institution
PPP	Private-public partnership
TB	Tuberculosis
UHC	Universal health coverage
USD	United States Dollar
VAT	Value added tax

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The George Institute for Global Health acknowledges the Gadigal People of the Eora Nation as the Traditional Custodians of the land on which our Australian office is built and this submission is written. We pay our respect to Elders past, present and emerging.

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Executive summary

Sri Lanka is facing its most profound economic and financial crisis since independence. The economic crisis has compounded health system pressures arising from the COVID-19 pandemic, leading to reduced provision of public services, increased unmet need, growing out-of-pocket expenditure, and increased risk of catastrophic health expenditure and impoverishment.

Health system reforms to restore essential service provision will require judicious use of scarce resources. Past economic shocks and recoveries may offer important lessons and opportunities for reform. We conducted a rapid review of grey and empirical literature from four countries – Indonesia, Thailand, Vietnam and Greece – to identify health service delivery reforms implemented to improve health system efficiency and support universal health coverage in the context of economic shocks.

First, we charted the immediate and long-term health system reforms taken by each country during and after the economic shocks, focussing on strategies applied to improve efficiency. Second, the policy outcomes of those strategies were assessed to determine which were most impactful, for which population groups, and under what circumstances. Priority was given to reforms that have been implemented at a national or sub-national scale and evaluated for health, quality, access, equity, and cost outcomes. Third, the most relevant reforms were then discussed with key stakeholders in Sri Lanka to determine their applicability in the context of the current crisis, with a particular focus on primary health care delivery.

Key findings

The country case studies highlight a process of reforms over many years, some of which can be directly attributed to crisis events, but the majority were independent of specific crises. Nonetheless, all countries took actions during their respective crises which have had enduring impacts on the resilience of their health systems to future shocks, including the COVID-19 pandemic.

In the case of Thailand, the 1997–98 Asian Financial Crisis accelerated policies to achieve universal health coverage (UHC), with an initial focus on health insurance expansion and financial protection for the poor. Conversely in Greece, the 2007 Global Financial Crisis precipitated a range of austerity measures which had mixed outcomes, including raised user fees, reduced government spending on public services, capitation-based funding for primary health care, purchasing reforms to support evidence-based procurement of medicines and diagnostics, and introduction of case-mix funding in hospitals. The findings from each case study suggest that a 'long-haul' perspective on health reform is needed to build health system resilience – defined as the ability to prepare for, manage (absorb, adapt and transform) and learn from economic shocks.

Absorptive response – As part of the initial absorptive response and within the first year of the crisis event, immediate action is needed to ensure access to essential, affordable health services. This includes basic public health functions, immunisation services and reproductive, maternal and child health services. It requires investment of scarce resources in maintenance of and support for the current health workforce. While most essential preventive health services can be provided in the primary health care sector, specialist, emergency and elective procedural services also need to be rationalised, particularly in the context of reduced supplies of essential medicines and diagnostics. Health system preparedness prior to the crisis events was a strong determinant of how well these absorptive measures were implemented. Vietnam had already commenced extensive reforms and health insurance expansion prior to the 1997–98 crisis, which helped mitigate its immediate pressures on access to services. However, in Greece there were mounting pressures on the health system before the crisis due to rising costs and inefficiencies, particularly in the hospital sector.

Adaptive response – Key elements of the adaptive response appear to take longer to implement and in all four countries were accompanied by ongoing UHC expansion. Allocative efficiency mechanisms, in particular Health Technology Assessment (HTA), were introduced in all four countries to ensure that the prioritisation of scarce resources was evidence-based and optimised health sector investment decisions. The initial focus of HTA functions tended to be essential drugs and technologies. However, as HTA processes have become institutionalised, there is potential for strategic purchasing functions to be included to define benefit packages. This allows payers to shift from purchasing inputs toward payment for outputs and health outcomes. Strategic purchasing arrangements as part of private-public partnerships have potential to improve service efficiency in this area, although this remains nascent in all countries. Other reforms included integration of vertical programs into primary care functions, however this needs to be implemented cautiously when health care and health outcomes can be maintained through provision of alternative services. Another critical but challenging integration reform relates to improved coordination of service delivery between public and private sector providers.

Transformation response – Transformative reforms take longer to realise, but Thailand and Indonesia in particular used the crisis period as an opportunity to reinforce or initiate reforms in the immediate crisis period. The most common transformative reform taken by all four countries was the shift of services from the specialist and hospital sector to the primary health care sector. Introduction of gatekeeping roles and investments in strengthening the primary health care sector, particularly to manage non-communicable diseases (NCDs) and other chronic conditions, were key elements supporting this shift. Indonesia invested heavily in

frontline community health workers and developed task-sharing models of care in which roles traditionally played by doctors were implemented by other health workers at a lower cost. As a result, there was a transition away from doctor-centric care delivery models toward team-based approaches to care delivery. Such strategies need strong engagement with the community and civil society sector to optimise demand generation and instill confidence that primary health care services are not inferior to those provided in the hospital. Investment in digital health and strengthening information systems were typically introduced later in the reform journey of each of the countries studied. Although this often initially required large investments to establish the infrastructure and standards, there have been major opportunities to improve health system efficiency through digital health interventions.

Implications for Sri Lanka's primary health care reforms

Sri Lanka's shared care cluster policy, initially introduced in 2017, seeks to address many of the key considerations highlighted in this review and aligns closely with the policies implemented by countries featured in this case study analysis. In many respects it represents best practice in transitioning away from hospital-centric models of service delivery to integrated primary health care services that are supported by secondary and tertiary level facilities. The financing reforms needed to support implementation and expansion of shared care clusters are critical. Given the relative underinvestment in the primary health care sector prior to the crisis, this needs to be a core element of the finance reforms.

Workforce considerations to support effective primary care teams are also a central element of the shared care cluster approach. It is necessary to optimise the roles assigned to each team member based on their skill level. Consideration could be given to developing formal task sharing policies in which these responsibilities are more clearly articulated. Close collaboration with professional peak bodies to develop locally tailored treatment protocols for management by each cadre in the primary care team can also help to institutionalise roles and minimise the risk of role conflict. This would need to be accompanied by appropriate supportive supervision and professional development opportunities to allow for career progression.

A range of key enablers are also needed to support implementation. These include: digital health reforms to improve health information systems; use of electronic health records and access to clinical decision support for each cadre of the primary care team; and adequate access to essential medicines and supplies in the primary medical care institution (PMCI) that is aligned with treatment protocols and guidelines. Engagement of community groups and civil society advocacy for the organisation and delivery of services could enhance social participation in these reforms, and community health workers can play a critical role as ambassadors for new service delivery models. Integrated service provision between providers in the shared care clusters and private sector providers will also be important to reduce fragmentation and support the notion of one health system, regardless of the entry point. Finally, given the model is emergent and the current crisis is highly dynamic, theory-based implementation frameworks and formative evaluation activities will help identify adaptations needed to enhance adoption of the service delivery model. The timely and accurate collection of health service delivery and health outcome data is essential to such evaluation and to support real-time course correction where needed.

Background

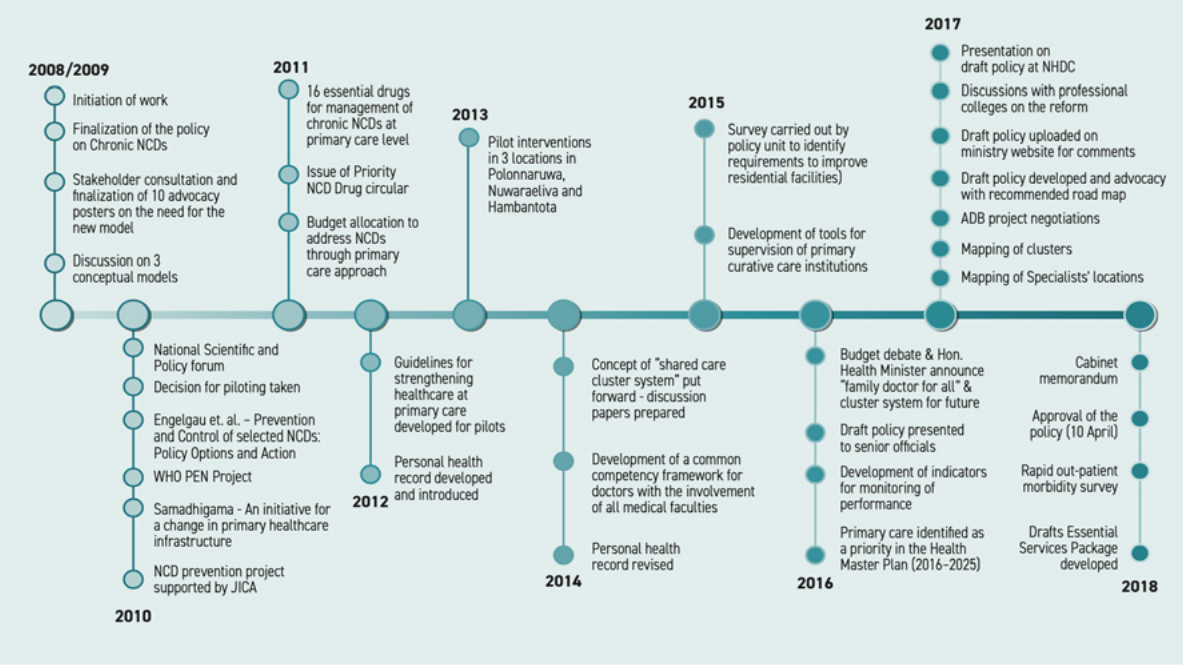
About the review

This rapid evidence synthesis was commissioned by the World Health Organization (WHO) Sri Lanka office to appraise existing evidence on health system efficiency interventions taken by countries in the context of an economic crisis. It forms part of a suite of activities undertaken to provide technical guidance to the Sri Lankan government as it embarks on health reforms. Technical guidance being conducted by other groups includes financing, workforce, and medicines policy reforms. The findings from this review on service delivery take into consideration the recommendations from all technical guidance activities.

The context

The focus of this review is on primary health care service delivery. Our objective was to examine the literature to provide assistance for the ongoing primary healthcare reforms that are being put into effect by the Sri Lankan government. Figure 1 charts the evolution of primary health care policy reforms in Sri Lanka over the period 2009–2018.

Figure 1: Primary health care reforms in Sri Lanka (2009–18)[1]



Source: Compiled by Organization Development Unit, MoHNIM (2018)

A key element of these reforms is the concept of a shared care cluster system, first proposed in 2014 and formulated into policy in 2017. In this policy, district hospitals and primary medical care units are being grouped together as primary medical care institutions (PMCIs). Each PMCI will have an empanelled population from a defined geographic area and be charged with delivery of comprehensive primary health care services. The PCMI is supported by secondary and tertiary level services from the nearest Base Hospital and above, thus forming a shared care cluster. There will be a particular focus on development of multidisciplinary primary care teams, introduction of a package of essential services for NCDs, and integration with Ministry administered vertical programs such tuberculosis (TB) programs. People will receive a unique ID and smart health card to enable movement across the public and private sector and allow for identification across multiple health information systems.[2]

Efficiency in service delivery models in Sri Lanka

In 2019, WHO worked with the Sri Lankan Ministry of Health (MoH) to conduct a cross-programmatic efficiency analysis, which examined health programs in Sri Lanka, with an initial focus on HIV, TB and NCD programs and related services to identify areas of overlap or misalignment that constrain the implementation of service delivery arrangements needed to effectively deliver the Sri Lanka Essential Health Services Package (SLESP).

Key findings included:

(1) ***Over-specialisation in service delivery functions,*** with HIV and TB treated and managed in specialised facilities while NCDs are managed in separate facilities, which in turn are separate from screening conducted in Healthy Lifestyle Centres;

(2) ***Disconnected laboratory services,*** with HIV and TB largely having separate laboratory networks while NCD-related laboratory services are relatively less well-developed;

(3) ***Fragmented data and information systems,*** with no way to combine or analyse information across the three programs of interest, as well as across the entire system; and

(4) ***Separate procurement systems,*** with a need to shift to a more integrated approach to supply chain distribution across disease programs, particularly as testing and treatment protocols shift from specialised clinics to primary care.

In response to the current crisis, WHO has been coordinating a range of activities to assist the MoH with formulating its health system response, including:

- an update of the 2019 cross-programmatic efficiency analysis;
- a population representative household service of essential service disruption during both the pandemic and economic crisis periods;
- an evidence review of human resources for health for strengthening primary health care;
- a "stocktake" of the health workforce through an update of the National Health Workforce Accounts (NHWA) and Health Labour Market Analysis (HLMA);
- an evidence review of financing interventions and a fiscal space analysis for Sri Lanka; and
- an evidence synthesis on improving efficiency through the rational use of medicines, as relevant for the Sri Lankan context.

Robust policy is needed that can mitigate the impact of the economic crisis and help bring about a 'new normal' associated with COVID-19. Health system reforms to restore essential service provision will require judicious use of scarce resources. Economic shocks and recoveries have been successfully managed elsewhere and may offer important lessons. This rapid evidence synthesis focusses on country experiences of health service delivery reforms to improve health system efficiency in the context of economic shocks. It aims to synthesise learnings from other countries that may have applicability to Sri Lanka and discuss the policy implications as Sri Lanka implements its health system response to the current crisis.

Approach

For the purposes of this review, we consider health system efficiency to be the ability of a health system to allocate resources in the best possible way to meet population needs and health system goals; maximise value for money in terms of the resources spent; contribute to improving quality of care for health services users; and improve population health outcomes.[3]

Objectives and scope of the review

We conducted country case studies supported by a rapid evidence review of empirical and grey literature to synthesise evidence about service delivery reform and strategies that countries undergoing economic crises have taken to improve health system performance.

For identified strategies, we sought to understand the detail and outcomes of the service delivery strategies, guided by the following questions:

(1) Which service delivery models were implemented in the context of the crisis?

(2) What efficiency gains and other outcomes were achieved?

(3) What were the contextual factors that influenced/hindered uptake?

We then synthesised the available evidence to discuss the implications for service delivery models in Sri Lanka.

Search strategy and data sources

Our search aimed to develop country case studies outlining the actions taken across the key functions of health systems (service delivery, financing, generating human and physical resources/inputs, and stewardship/governance), either in response to, or during economic crises.[4]

An initial environmental scan was conducted to identify suitable countries for case study analysis. We looked at a diverse sample of high, upper-middle and low-middle income countries who had implemented health reform initiatives in the context of either the 1997–98 Asian Financial Crisis or the 2007–09 Global Financial Crisis. After consulting with WHO Sri Lanka colleagues, an extensive list of countries was developed. Following that, we undertook a review of related empirical literature. A description of the search strategy we employed can be found in Appendix 6.

We then met with WHO staff to review a sample of the literature retrieved and achieved consensus to focus on four countries – Indonesia, Thailand, Vietnam and Greece – as these were considered to be most relevant to informing Sri Lankan health policy. We combined the empirical literature for these four countries with a grey literature review of the following organisational websites: International Monetary Fund, World Bank and World Bank country sites, Asia Development Bank, WHO, Overseas Development Institute (ODI) Asia-Pacific, and European Observatory Health Systems in Transition (HiTs) reports. We also conducted extensive online searches, focussing on government websites and other materials describing service delivery models from credible national and international organisations. This included citation tracking of relevant articles to identify additional articles of interest.

Approach to evidence synthesis

To understand the detail and outcomes of the health reform strategies, we used questions proposed by the Sparkes et al framework to guide the extraction of information (Box 1).[4]

Box 1: Indicative guiding questions to map service delivery functions[4]

Box 4: Indicative guiding questions to map service delivery functions and sub-functions

- To whom are the services delivered?
  - To groups or the entire population (e.g. vector control, billboards)
  - To single individuals/clients/patients (e.g. treatment with pills, personal advice on lifestyles)
- Characteristics of benefits
  - Benefits accrue largely to the individual received services ("Private goods", e.g. a surgical operation)
  - Benefits accrue to all ("Public goods", e.g. air pollution control)
  - Benefits extend beyond the individual receiving the service but not the entire society (services with "positive externalities", e.g. communicable disease treatment)
- Organizational arrangements
  - Separate facilities and providers: facility and provider are specialized to provide care for a specific disease, population group or intervention (e.g. separate facilities and providers for the services associated with the programme)
  - Integrated facilities and providers: facility and provider serve more than one given disease, intervention, or population (e.g. integrated service delivery, incorporating the services associated with the programme and other health services as well)
  - Mixed units: specialized units that are housed in a coordinated/integrated facility or network.

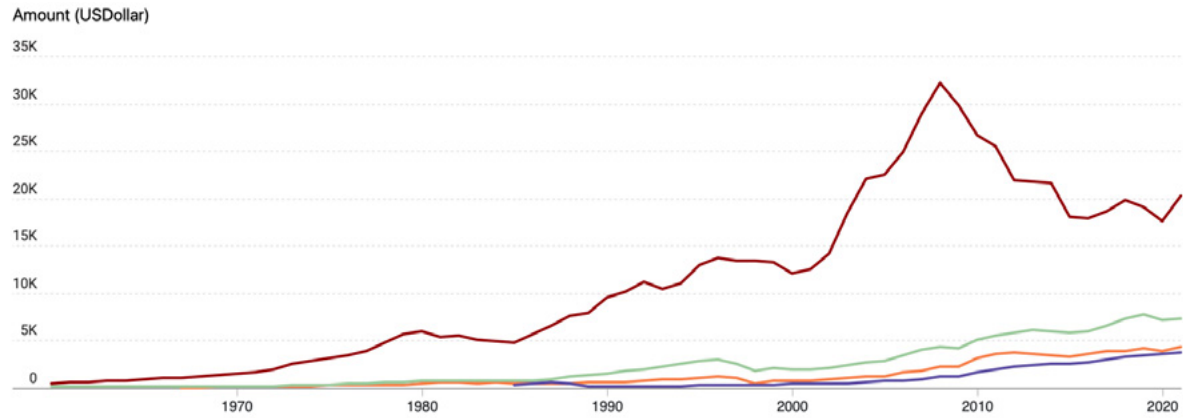
Source: https://apps.who.int/iris/handle/10665/254644

Findings from country case studies

Appendix 6 provides a detailed summary of the articles included in the review. Overall, the literature retrieved for each country case study was predominantly sourced from the grey literature, with a relatively small number of empirical studies identified from the search strategy. Of those empirical studies identified from the database search, the vast majority pertained to analyses of the impact of the Greek financial crisis and policy measures taken. In part, this is explained by the tendency for empirical articles to focus on discrete interventions rather than a more holistic evaluation of policies. Such policies tend to be introduced in a staged manner, over many years and are best considered as evolving interventions rather than discrete activities evaluated over a relatively short timeframe. For the same reasons, it was difficult (and not useful) to disaggregate service delivery reforms from other health systems reforms, particularly those relating to finance, workforce and medicines and technologies. Consequently, in synthesising the evidence for each country, we sought to identify a broad package of policy interventions introduced over a long-term period that impacted service delivery.

Figure 2 charts the economic development for each of the countries included for case study analysis between approximately 1970–2021. It demonstrates the major contractions of the Asian country economies during the 1997–98 Asian Financial Crisis and the 2007–09 Global Financial Crisis. Despite being a high-income country with a considerably higher GDP per capita than the other three nations, Greece has encountered the most significant economic decline overall, which has endured for a decade following the Global Financial Crisis. Indonesia, Thailand and Vietnam experienced economic contraction at the time of the Asian Financial Crisis and a slowing of the economy during the Global Financial Crisis, but they demonstrated relatively rapid recovery after both of these periods. Detailed reports and references for the country case studies are included in Appendices 1–4.

Figure 2: Economic development for case study countries 1970–2020[5]



In the following section we highlight some of the key findings for each country.

Indonesia

Indonesia's decades-long investment in primary health care provided a strong basis for its response to the financial crisis of 1997–98. The basic structure of the primary health care system, which has puskesmas or community health centres as the backbone to service design and delivery, was maintained during and after the crisis and continues to the present day. A critical workforce element at the primary health care level are community-based midwives and health workers (kadres). The village midwives' program was largely protected from budget cuts during the crisis and was successful in maintaining access to accompanied childbirth. However, lack of access to higher level specialist obstetric care for women requiring emergency care during labour, particularly access for the poorest, remains a contributor to Indonesia's disproportionately high maternal mortality rates relative to other countries in the region.

The decline in childhood immunisation rates seen in Indonesia during the crisis, and the stagnation of childhood immunisation rates over the following decades, suggest that strategies to sustain focus on this critical element need further development. In the context of the decentralisation that followed soon after the Asian Financial Crisis, Indonesia's experience suggests the importance of ensuring a shared understanding about which actors in the health system have ultimate ownership and accountability for childhood immunisation and other essential and cost-effective health interventions. Ensuring ongoing service delivery at the most accessible 'lowest' tier of the health system (village level) appears to be a key element in effectively delivering immunisation programs during a crisis and was possibly insufficiently resourced by government and donors in the crisis response.

Indonesia's large and diverse population also faces challenges with geographic inequities, and the decentralisation that followed the Asian Financial Crisis provides lessons for countries embarking on similar efforts to improve health system efficiency. Key among these is the importance of having clear institutional arrangements and strong oversight mechanisms in place. Indonesia's experience shows that a challenge for the optimal delivery of health programs in the context of a decentralising system is that of striking the right balance between 'accountability' and 'autonomy'.

The expansion of social safety nets that occurred during and following the economic crisis have endured and formed the basis for progress towards UHC. However, during the economic crisis, the ability of the public sector to maintain quality service provision was compromised by the spiralling costs of medicines and supplies. Public health care utilisation declined because of these cost barriers, impacting health outcomes – particularly for the poorest. More than a decade on, fragmentation of the health system, poor development of the health information system, and still nascent HTA and cost containment strategies are some of the technical elements constraining health system effectiveness and efficiency. Nonetheless, despite substantial challenges, Indonesia continues to develop and test models of primary health care delivery to reach its diverse and large population. Table 1 summarises the key policy reforms and outcomes in Indonesia since the Asian Financial Crisis.

Table 1: Key policy reforms and outcomes – Indonesia

Event/action	Outcomes
GOVERNANCE & LEADERSHIP Abrupt decentralisation, with sub-national governments gaining responsibility for provision of health services (1999) Ongoing decentralisation over the next 10+ years (1999–2009)	Experimentation with different health system models at the district level Improved primary health care performance due to greater local accountability Learnings not systematically spread to other areas
FINANCING Social safety net programs for the poor launched (1999) and expanded (2005) Capitation-based funding for primary health care, hospitals case-mix funded (2008) National health insurance program is launched (2014), with goal to cover all citizens by 2019	Marked reductions in out-of-pocket costs and increased funding from social insurance payers Relative flattening of health expenditure since 2010 Preserved basic maternal and child health services but reduced access to specialist care – maternal mortality ratio high in the region
SERVICE DELIVERY Minimum Service Standards (MSS) established (2008) National accreditation standards introduced (2014) Gatekeeper role for General Practicioners (2014)	Increased health system performance monitoring against these standards Decreased self-referrals to hospital
MEDICINES & TECHNOLOGY HTA committee formalised to analyse health technologies covered under the national insurance scheme (2014)	Evidence-based investment decisions, cost-containment through centralised purchasing

Thailand

At the start of the Asian financial crisis in 1997, the Thai health system was reasonably resilient to shocks due to significant strategic investment in strengthening the economy during the three decades prior to the crisis. The availability of a high number of skilled health and medical professionals, the extensive rural infrastructure to reduce disparities in care access and provision, and the introduction of health insurance for the poor all served as critical assets to support the health system through the crisis period.

Strong political leadership and historical political commitment to the health sector was also an important contextual factor to protecting population health during the economic crisis. The adverse health impacts of the crisis were minimised because of a pre-existing national commitment to and competency in collective action towards promoting, protecting and maintaining population health. The substantial level of community engagement in the health sector fostered a strong foundation for public participation in and ownership of the public health sector. This has also been credited with contributing to Thailand's success in achieving UHC through sustained political pressure and accountability mechanisms.

The Asian Financial Crisis necessitated cost containment, and this created opportunities for strategic investment in mechanisms to ensure evidence-based prioritisation of limited resources, such as the creation of a health data unit within the Ministry of Public Health and a specific HTA function within this unit, which is now a model of excellence internationally.[6] The double-pronged approach of enhanced collection and analysis of service provision and health outcome data, and the specific commissioning of local HTA studies to inform strategic purchasing decisions enabled stronger financial stewardship in the health sector and the ability to maintain tight budget control. This HTA function was especially important to mitigating the inflated prices of pharmaceuticals by generating local evidence that could be used in price negotiations and strategic purchasing of certain drugs on the national list of essential medicines.

There are important lessons in relation to budget cuts to health programs during the economic crisis. No adverse consequences were observed in terms of case detection or mortality of HIV/AIDS in Thailand in the years after the crisis, despite substantial budget cuts. The impact of these cuts was mitigated by substantial prior investment in health education and promotion activities before the crises, and to a lesser extent, reduced demand for commercial sex services

and recreational drug use as a direct result of reduced household income. The reduced investment in family planning and ante- and peri-natal services, however, may have had adverse effects such as rising costs of contraceptives due to reduced purchasing power, and increased prices for treatment and services. Furthermore, the protection of immunisation services only extended to vaccines and delivery, meaning that the cold chain on which vaccine delivery relies was not uniformly protected. This led to a reduction in the quality of vaccine delivery programs, as evidenced by inequitable delivery across the country and increased vaccine wastage.[7] A short-term reduction in antenatal care attendance was also observed, which resulted in an increase in low- birth-weight infants and anaemic mothers.

Finally, whilst the marketing of domestic health services to foreign tourism increased international capital investment in the Thai health sector, it has also led to potentially negative consequences such as the migration of healthcare professionals from rural to urban areas where private clinics are concentrated, resulting in 'brain drain'.

Table 2 summarises the key policy reforms and outcomes in Thailand since the Asian Financial Crisis.

Table 2: Key policy reforms and outcomes – Thailand

Event/action	Outcomes
FINANCING Expansion of existing social health insurance schemes (reforms initiated pre 1997–98 crisis)	Increased use of public health facilities – mitigating impact of crisis on demand for health services
Strategic reduction of program funding for HIV/AIDS	Maintenance of health outcomes in relation to HIV/AIDS despite funding cuts
SERVICE DELIVERY Protection of primary health care services, with greater share of resources allocated to rural areas	Maintenance of access to essential health services without worsening equity gaps in care
MEDICINES & TECHNOLOGY Policy uptake of HTA evidence for drug price control and strategic purchasing	Ability to engage in evidence-based priority setting of health budget led to greater value for money of investment decisions
	Increased purchasing power of select pharmaceuticals on national list of essential medicines through bulk strategic purchasing
HEALTHY WORKFORCE Increase in marketing for and provision of foreign investment in medical tourism	(neg outcome) Increased strain on domestic healthcare workforce, migration of rural public doctors to urban private care clinics

Vietnam

A major economic crisis in the early 1980s precipitated the 1986 Doi Moi health reforms in Vietnam, which laid the foundation for the health system structure that is in place today. The reforms established a small but significant role played by the private sector, together with essential public health and service delivery functions, as part of a four-level tier system, with grassroots commune health stations at the base level. A gradual transformation in healthcare insurance coverage took place alongside these reforms, which combined voluntary and mandatory programs and steadily increased the number of people covered. These reforms have made major impacts on the path to UHC, however, out of pocket costs remain a major challenge in providing financial protection for the poor. Testament to the resilience of the Vietnamese economy and its health system, it has remained relatively robust during the 1997–98 Asian Financial Crisis, the 2007–08 Global Financial Crisis and the 2020 COVID-19 pandemic when compared with similar economies worldwide. Consequently, health system expenditure has steadily grown over the last 20 years and not suffered dramatic spending cuts as seen in other countries that have experienced major economic crises.

Like many health systems worldwide, Vietnam has traditionally had a hospital-centric health system, with over-reliance on hospitals to provide services that could be adequately provided by lower levels of the health system at lower cost. Administratively, it has also had a top-down structure, with relatively under-developed regional and local accountability

and decision making. Recognising these factors as major challenges to improving health system performance, the government has embarked on several workforce reform initiatives to strengthen lower levels of the health system and increase demand for primary health care services. In more recent times, there has been an increase in policies to improve health information systems and establish a more cohesive digital health ecosystem to overcome data siloes, data entry burden and use of data to improve health system efficiency.

The prolonged duration required to implement and deliver the country's health system reforms indicates that the returns on investment may not be realised for several years after the initial crisis period. Furthermore, it highlights a state of continual evolution of health policies that advance and receive greater investment as the economy grows. Despite its many successes, substantial challenges remain with addressing equity gaps in access to quality care, limited primary health care capacity to manage the rising burden from NCDs and the ageing population, a persistent reliance on hospitals and specialists for outpatient services that could be managed in primary health care, and relatively underdeveloped enabling structures such as national health information systems to address changing health needs.

Table 3 summarises the key policy reforms and outcomes in Vietnam since the Doi Moi reforms.

Table 3: Key policy reforms and outcomes – Vietnam

Event/action	Outcomes
GOVERNANCE & LEADERSHIP Increase in health care spending, introduction of universal basic health care, four-tier health system structure introduced, private sector development (1980s)	Private sector established for those willing to pay Freed up public sector spending on rural poor
FINANCING Health insurance reforms for civil servants and pensioners (1992) Expanded to low-income people and children under 6 (2009) Elimination of voluntary insurance scheme (2014)	Reduction in financial barriers to accessing care
HEALTHY WORKFORCE Policies to reduce hospital demand Training programs launched to increase primary health care workforce capacity (2014)	Shifting services to primary care and increased capacity to manage people in the community
MEDICINES & TECHNOLOGY HTA introduced to inform health insurance packages (2014)	Increased allocative and technical efficiency of resources. Outcome-based payments, price reductions in medicines
SERVICE DELIVERY Family medicine models established and increased scope of practice in primary health care facilities, including NCDs (2016)	Increased out-of-hospital care provision
INFORMATION Electronic health records developed (2019)	Improved information management and performance monitoring

Greece

Greece's economic crisis was preceded by a sustained period of rising expenditure and inefficiency in the health system. Some of this inefficiency was masked by times of relative economic prosperity, particularly in the decade pre-crisis in which the economy grew substantially.

The impact of reforms introduced in response to the crisis in turn had major effects on the health sector. A series of austerity measures introduced in 2010, 2013 and 2015 sought to streamline health insurance schemes, rein in escalating expenditure, especially on medicines, while also cutting funding for prevention and disease control programs. In the second round of reforms, hospital pricing systems were introduced based on diagnosis-related group (DRG) reimbursement. Much of these reforms were influenced by Greece's regional membership in the Eurozone.

Greece planned staged reforms and built on them incrementally over time. For example, insurance mergers and coverage for uninsured were introduced six years after the onset of structural adjustments. However, the "shock doctrine" and austerity approach of the reforms – often implemented in the absence of robust data and modelling of potential social and health impacts – resulted in a major contraction of public sector services, exacerbation of inequalities due to rising out-of-pocket costs, and a lack of financial protection for the lowest wealth quintiles. By 2018, total private expenditure had risen to 3.1% of GDP, driven by a lack of coverage among the uninsured, rising unemployment and increased unmet need. This led to a rise in activity by civil society and other stakeholders to restore essential services and fill gaps left by the reforms.

More than a decade later, the consequences and impact of the crisis and subsequent reforms persist, and Greece's economy remains substantially contracted from where it was pre-crisis. This poses ongoing challenges to expand insurance coverage and address inequities, rationalise pharmaceutical expenditure, reduce inefficiency in the hospital sector, build and ensure a gatekeeping role for primary health care services, and promote better use of health information systems and data for decision-making.

Table 4 summarises the key policy reforms and outcomes in Greece since the Global Financial Crisis.

Table 4: Key policy reforms and outcomes – Greece

Event/action	Outcomes
GOVERNANCE & LEADERSHIP	
Attempts at increased role of regional health authorities but limited implementation (2010)	Lack of regional accountability pre-crisis, inflated prices and wasteful expenditure Weak primary health care sector, high dependence on hospital care Rise in NGO 'patient solidarity clinics'
FINANCING	
Initial 12% staff salary cut and another 8% cut later (2010) User charges and prescription fees for public outpatient care, admission fees for hospitals (later repealed) (2011) Streamlined health benefit packages and reimbursement of services by the various health insurance funds via a centralised system (2011) Compulsory e-prescription system and physician prescription to control volume and cost (2012) DRGs introduced in hospitals to control hospital budgets (2013) Adoption of UHC law, including for migrants and refugees (2016)	Rising out-of-pocket costs, 20% reduction in government spending and reductions in social insurance expenditure Marked reduction in spending on health (from 9% to 6% of GDP) Rising poverty, increased morbidity and mortality, especially in older and low-income populations (242 excess deaths per month after the crisis)
MEDICINES & TECHNOLOGY	
Policies to promote the use of generic medicines via a published list (2011) and price controls on medicines introduced (2012)	Expenditure on pharmaceuticals reduced by more than 50% of 2009 levels by 2013

Considerations for Sri Lanka

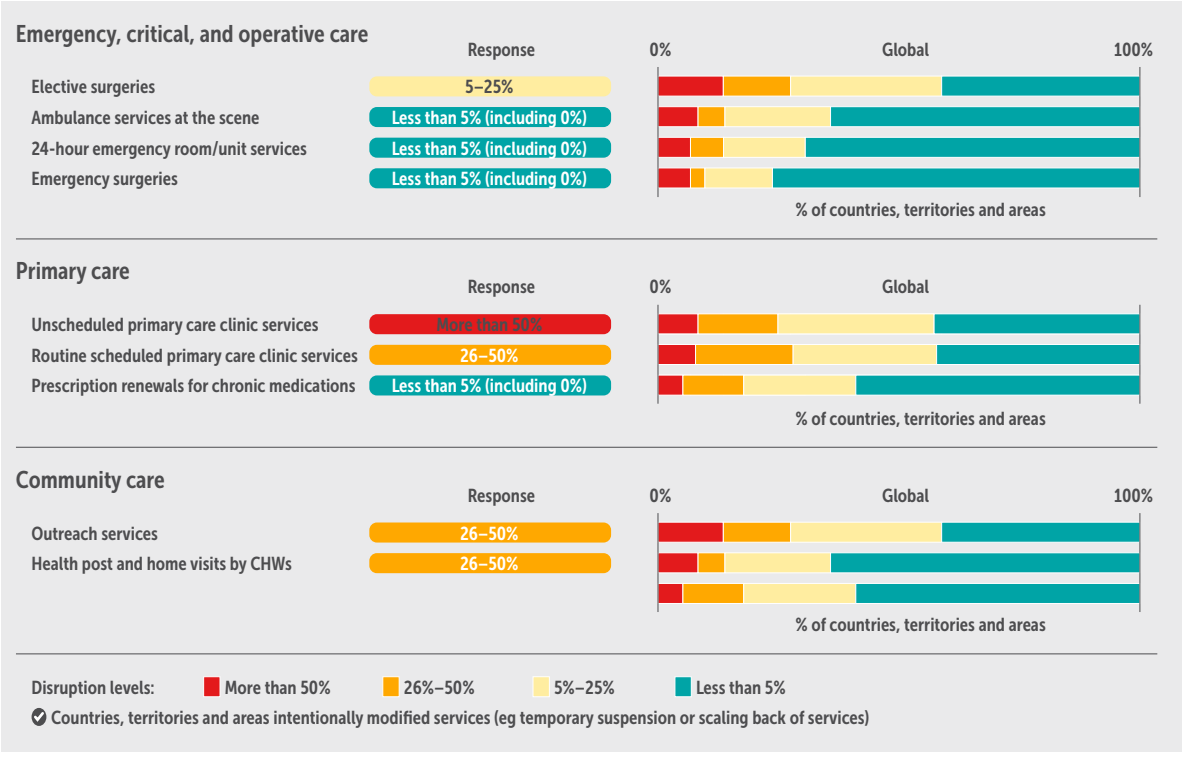
The country case studies highlight a process whereby a series of reforms were taken over many years, some of which can be directly attributed to crisis events, but the majority are part of a longer health system reform process that was independent of specific crises. Nonetheless, all countries took specific actions during the crisis which have had enduring impacts on the resilience of their health systems during the COVID-19 pandemic. In the case of Thailand, the Asian Financial Crisis accelerated policies to achieve UHC, with an initial focus on health insurance expansion and financial protection for the poor. Conversely in Greece, the Global Financial Crisis precipitated a range of austerity measures which raised user fees, cut government spending and reduced social health insurance coverage. The findings from each case study suggest that a 'long haul' perspective on health reform is needed to enhance health system resilience, defined as the ability to prepare for, manage (absorb, adapt and transform) and learn from shocks.[8]

We discuss the actions taken during the management phase in more detail below. Although the outcomes from such reforms have different time horizons, it is important that they commence concurrently and not sequentially.

Absorption (activities commenced within one-two years of the shock event)

Investment in health system resilience building activities begin immediately during the onset of the shock. Within the first year of the crisis, absorption of the immediate shocks to the health system is needed to ensure the provision of essential health services that are accessible and affordable to the poor. This includes basic public health functions, immunisation services and reproductive, maternal and child health services. Health workers need to be adequately remunerated and supported to ensure there is sufficient human resources to provide these essential services. Health workers have already endured considerable stress during the COVID-19 pandemic and close attention to their wellbeing is essential as they will inevitably need to take on additional burdens to support health system absorption and adaptation. Data from the WHO Pulse survey suggest that primary health care services in Sri Lanka have been greatly compromised during the COVID-19 pandemic period (Figure 3).[9]

Figure 3: Disruption to essential services in Sri Lanka[9]



This is likely to have been exacerbated with the current economic crisis. The experience from Greece suggests that actions taken during this immediate phase could have direct morbidity and mortality consequences and therefore it is of the greatest priority that essential services are not compromised over the next 12 to 24 months. While most essential preventive health services can be provided in the primary health care sector, specialist and hospital services also need to be rationalised, particularly in the context of reduced supplies of essential medicines and diagnostics. Again, difficult decisions need to be made on determining which services are evidence-based and most likely to yield the greatest health benefit, and which services require disinvestment. Close consultation with health professional bodies to provide updated clinical care guidelines that reflect efficient, equitable service delivery in the acute care sector is needed. Similarly, decisions on planned service delivery such as elective surgery need to be carefully assessed to determine which services have the greatest health benefit and should be prioritised for maintenance. Crisis periods are opportune times to have these challenging discussions as there is a more conducive political environment for reforms and stakeholders are often less resistant to change.

Given the stabilisation of Sri Lanka's economy is expected to take some years to take effect, finance reforms that maximising revenue generation, efficient pooling of available resources and judicious procurement of services that generate outputs directly attributable to improved morbidity and mortality are major priorities and are the subject of separate technical guidance work being conducted by The ThinkWell group.

Adaptation (activities commence now, with benefits realised in next five years)

In parallel with prioritisation of essential health service provision, all countries in our case studies introduced intermediate-range reforms to enhance financial protection, reorient service provision away from hospitals to primary care facilities, and implement interventions to enhance hospital efficiency. To ensure the continued use of public health services by households experiencing economic strain, efforts were made to expand existing social health insurance schemes for low-income families, which allows for distributional efficiency of service delivery. Particular attention is needed to ensure rural and urban poor beneficiaries can access these services to keep levels of catastrophic household expenditure to a minimum.

Use of allocative efficiency mechanisms, in particular HTA, can also ensure that priority setting of scarce resources is evidence-based and maximises value for money in terms of health sector investment decisions and capacity. The initial focus of HTA is to support the purchasing of essential drugs and devices. However, as HTA processes become institutionalised there is the potential for strategic purchasing functions to be expanded to define benefit packages. This enables a shift beyond purchasing inputs toward payment for outputs and health outcomes. Sri Lanka does not have a dedicated HTA unit, however some of HTA principles are incorporated into developing its essential medicines list and procurement of supplies. In the hospital sector, the shift to funding for activity, determined by a centralised efficient price for specific DRGs, is another key reform strategy to improve allocative efficiency in the system.

Integration of vertical program delivery into primary care functions is needed in the longer term, however this should be implemented only when there is clear evidence that health outcomes can be maintained by absorbing these programs into horizontal services. Although there is an understandable motivation to cut program-specific funding as part of austerity measures, this has the potential to be highly disruptive to the provision of essential services. Careful monitoring of health outcomes and evaluation of direct and indirect health consequences should be undertaken to ensure that population health is not adversely affected by cuts to vertical program funding.

Private sector care providers are integral to reform efforts but there remains substantial debate on how best they can be engaged to improve overall health system performance.[10] A recent Health Labour Market Analysis conducted in Sri Lanka suggests there are around 55,000-

60,000 part-time and full-time employees working in the private sector, with 424 full-time and 4,845 part-time medical officers. The majority of this workforce are providing outpatient, ambulatory care services, which comprise around 50% of all such services. These services are primarily paid for out-of-pocket, with limited private health insurance schemes available to cover the costs.[1] With such a large proportion of outpatient care delivered through the private sector, it is essential that mechanisms are established to improve its performance. As mentioned above, strategic purchasing is one such emerging mechanism that can support private-public partnerships to enhance service delivery efficiency in the private sector. Again, close engagement with professional colleges is essential to ensure support for such arrangements.

Reliance on the private sector and foreign tourism to inject new money into the health sector is inadvisable in the context of a pre-existing under-supply of healthcare practitioners and infrastructure, particularly in rural and remote regions. This places additional strains on human resources for health and public health infrastructure to deliver essential care for local populations. Furthermore, migration of medical professionals from rural areas to high-density urban centres, where foreign investment drives medical tourism, is likely further disadvantaging rural populations.

Transformation (activities commenced now with benefits realised beyond five years)

The most common transformative reform taken by all four countries was a shift of services from the specialist and hospital sector to the primary health care sector. Investments in strengthening the primary health care sector focus on workforce capacity strengthening, particularly to manage NCDs and other chronic conditions. Many countries worldwide are investing in frontline community health workers and developing task-sharing models of care in which roles traditionally played by doctors are being implemented by other health workers at lower cost.[11] There is also increased emphasis on team-based approaches to care delivery, where each member of the team is practising at the "top of their license" delivering services up to (but not beyond) the level they are trained for. These issues are discussed in considerably more detail in another technical guidance report conducted by the Nossal Institute.

The introduction of a primary health care gatekeeping role and structured referral guidelines is also a central reform being taken to reduce dependence on hospital services for frontline services. However, demand generation for high-quality services in the primary health care sector is needed as communities may perceive such care to be inferior to that available in the specialist and hospital sectors, particularly in settings where direct presentation to specialists has been the norm for many years. Sri Lanka established over 900 Health and Wellness Centres as part of an NCD prevention project supported by the Japanese International Cooperation Agency. Despite large-scale implementation, participation in screening services, particularly by men, was low,[10] indicating that demand generation activities are critical to the success of novel primary health care services. This requires close engagement with community and civil society organisations to ensure that communities can fully participate in the restructuring of services. An empowered civil society sector can also ensure local and national accountability and an economic crisis is a critical moment to stimulate more inclusive decision-making in health policy reform.

Reforms in digital health and strengthening information systems have been typically introduced later in the reform journey of each of the countries studied. Although this often requires large initial investments to establish infrastructure and standards, there are major opportunities to improve health system efficiency through digital health interventions. Priorities include: establishing disease registers and surveillance systems; strengthening medication supply chain monitoring to reduce the risk of stock outs and wastage; providing clinical decision support tools for health workers to improve adherence to local treatment protocols; conducting audits and providing feedback to engage health staff in performance management; and

centralising health system performance reporting to foster a learning health system that is continuously adapting as new information comes to light. Better use of routinely collected data and linked data from multiple sectors in the health system allows for a whole-of-system analysis of health system performance and an ability to assess the quality, safety, accessibility, equity and efficiency of the system. This supports the recovery and learning phase of building resilient health systems. Sri Lanka has well-developed information systems for population-level reporting of immunisation and reproductive, maternal and child health services. Opportunities for improvements include increased meaningful use of electronic medical records by providers; improved NCD surveillance; better quality data on outpatient services, which is currently limited to attendance rates only; improved access to information in the private sector; improved diagnosis recording in hospital systems; and enhanced interoperability between systems.[1]

Limitations

This rapid review initially sought to focus on service delivery reforms taken during the context of an economic crisis. However, as we progressed in analysing and synthesising the evidence, it became clear that health reforms are rarely discrete interventions that can be studied using empirical study designs. Rather, they represent a slow evolution of policies introduced at varying times, which often pre-date the crisis. Assessing the impact of those interventions is therefore a complex task. Similarly, although economic crisis events typically last for up to two years, the effects endure for years to come and therefore it is not clear which interventions were introduced directly because of the crisis. Due to these limitations, we considered it more expedient to document the trajectories of health reform policies over a long period of time and chart critical moments in their evolution. We make some inference on outcomes associated with these policies, based primarily on grey literature, and consequently caution is advised in interpreting the findings. We also found it difficult, and ultimately not useful, to focus narrowly on service delivery interventions outside of broader health system support functions, in particular financing, workforce, and medicines and technologies. Reforms in these areas all directly impact service delivery models and consequently we have included substantial material on these reforms, taking an integrated approach to service delivery reform. Finally, we relied primarily on English language literature and are likely to have missed key reports and studies that were published in government and local scientific journals.

Implications for the shared care cluster model

The shared care cluster policy seeks to address many of the key considerations highlighted in this review and closely aligns with the policies taken by the countries featured in this case study analysis. In many respects, it represents best practice in transitioning away from hospital-centric models of service delivery to integrated primary health care services that are supported by secondary and tertiary level facilities. The financing reforms needed to support implementation and expansion of shared care clusters are critical. Given the relative underinvestment in Sri Lanka's primary health care sector prior to the crisis, this needs to be a core element of the finance reforms. The opportunities to raise and pool revenues highlighted in the report provided by ThinkWell will be key enablers to direct scarce resources into primary health care.

The workforce considerations to support effective primary care teams are also a central element to the shared care cluster approach. It is important to ensure that the roles played by each team member are commensurate with their skill levels and integrated into the team to support person-centred care. Consideration could be given to developing formal task-sharing policies in which these roles are more clearly articulated. Close collaboration with professional peak bodies to develop locally tailored treatment protocols for management by each cadre in the primary care team can also help to institutionalise roles and minimise the risk of role conflict. This would need to be accompanied by appropriate supportive supervision and

professional development opportunities to allow for career progression. Further attention could also be given to enhancing the role of community health workers, who can play a vital role in delivery of frontline health services at low cost. There is now a considerable body of evidence indicating that such a workforce can increase access to higher quality services.

A range of key enablers are also needed to support implementation. These include digital health reforms to improve health information systems, use of electronic health records and access to clinical decision support for each cadre of the primary care team member. Adequate access to essential medicines and supplies in the PMCIs is also key and needs to align with treatment protocols and guidelines. Engagement of community groups and civil society advocacy for the organisation and delivery of services is also crucial, given prevailing perceptions that hospital and specialist services may be of superior quality to those delivered in the primary health care sector. Community health workers can also play a critical role as ambassadors for the model. Integrated service provision between providers in the shared care clusters and private sector providers will be important to reduce fragmentation and support the notion of one health system, regardless of the entry point. And finally, given the model is emergent and the dynamic nature of the current crisis, employing theory-based implementation frameworks and formative evaluation activities will help identify adaptations needed to enhance adoption of the service delivery model. There is likely to be substantial regional variation and potential differences in outcomes based on equity considerations. Monitoring and evaluation frameworks, and the data that underpins them, will need to be attentive to these issues when reporting outcomes.

Appendices

Appendix 1: Case study Indonesia

Health system delivery design and major reforms prior to the crisis

During the late 1960s to 1970s, Indonesia focussed its health system development efforts on integrated service provision at the primary health care level.[12] Such services were, and still are, delivered through puskesmas, or public health centres providing primary health care, including curative and preventive care, information campaigns and community empowerment. Service coverage of puskemas ranges from 25,000 to 40,000 people. Puskemas may have auxiliary centres at the village level to enable village outreach. In areas with large distances to the nearest hospital, puskemas are equipped with a small number of beds (around 10) for in-patient care.

From the 1980s, puskemas were able to open branches (pustu), in each village and/or use mobile clinics (puslings) for areas with no formal facilities. In 1989, the government launched a village midwife program,[13] which aimed to equip every village in the country with a trained midwife. By 1991, there were some 15,000 community midwives in villages, which increased to 54,000 by 1997.[13] With a total rural population of 129 million, this represents a ratio of one village midwife per 2,389 people, or around one per 54 births per year – more than three times the accepted WHO norm of one midwife per 175 births.[14]

Until the early 1990s, all medical school graduates automatically became civil servants and were obliged to serve two to five years at a puskesmas, which helped to ensure coverage in remote and very remote areas. Largely as a result of this focus on primary health care, by the 1980s, Indonesia's health system was close to providing universal coverage for primary and basic care.

The country's assertive attempts to implement recommendations from the 1978 Alma Ata declaration on primary health care yielded early improvements in health outcomes. From 1970 to 1996, life expectancy at birth had increased from 48 to 64 years, and infant mortality declined by over 50%, from 118 to 52 per 1,000 live births. The total fertility rate decreased from 5.5 to 2.8 live births per woman.

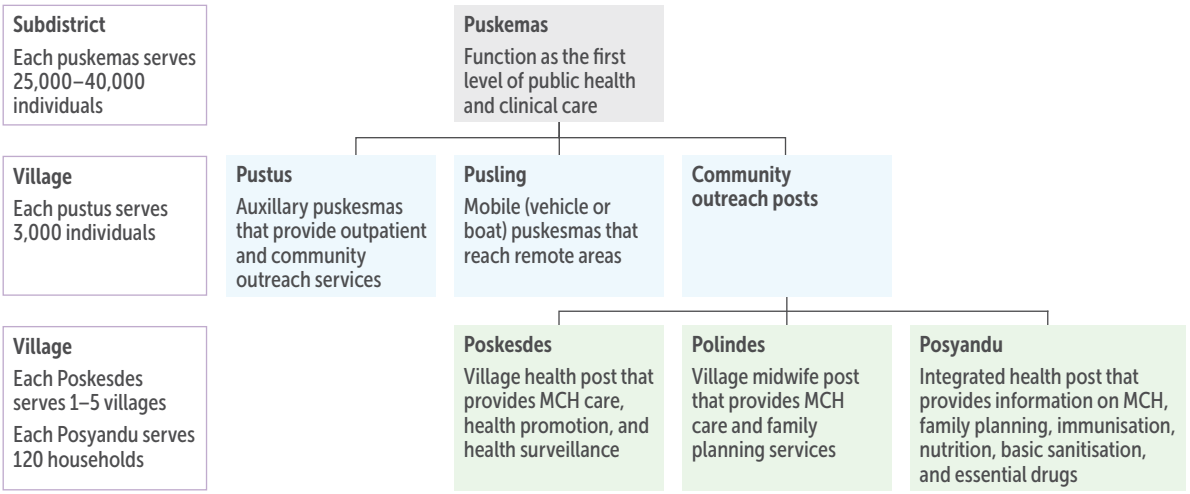
In the early and mid-1990s, the government made several policy adjustments to improve health system performance: hiring doctors and a new cadre of village midwives on fixed term contracts; piloting health cards (Kartu Sehat) for the poor; investing in water and sanitation facilities in low-income rural communities; decentralising budgeting and spending responsibilities; implementing quality assurance mechanisms; improving the MoH health information system[A]; and increasing the number of autonomous public hospitals.[15] During this period, public spending on health rose in real, per capita terms, although relatively less compared to other countries in the region.[15] Despite the increase in government spending, out-of-pocket costs remained high. Nearly all public health facilities still charged user fees to supplement their revenue, and most medicines were paid for by patients.

Health insurance coverage expanded gradually in Indonesia – only civil servants had social security in the 1960s. This was expanded to include the military in the 1970s and then to workers in the mid-1980s with industrial development. Extension to cover the poorest only started after the financial crisis.

Dual public and private practice for health care providers has been allowed by law in Indonesia since the 1970s. However, there has historically been little oversight of private providers by the public system and the dual practice compensation strategy, along with other factors, is considered to have created systematic and perverse incentives, contributing to the inability of public health services to attract and keep clients both before the financial crisis, and beyond it.[16]

A In August 2000, the Ministry of Health was combined with the National Social Welfare Agency (BKSN), which itself had been created when the previous Ministry of Social Welfare was dissolved. Health became the major responsibility of the new Ministry of Health and Social Welfare (MOHSW). We refer to Ministry of Health to maintain consistency with the terminology used at the start of the Asian Financial Crisis, the main period of interest of this case study.

Figure 4: Puskesmas network in Indonesia[17]

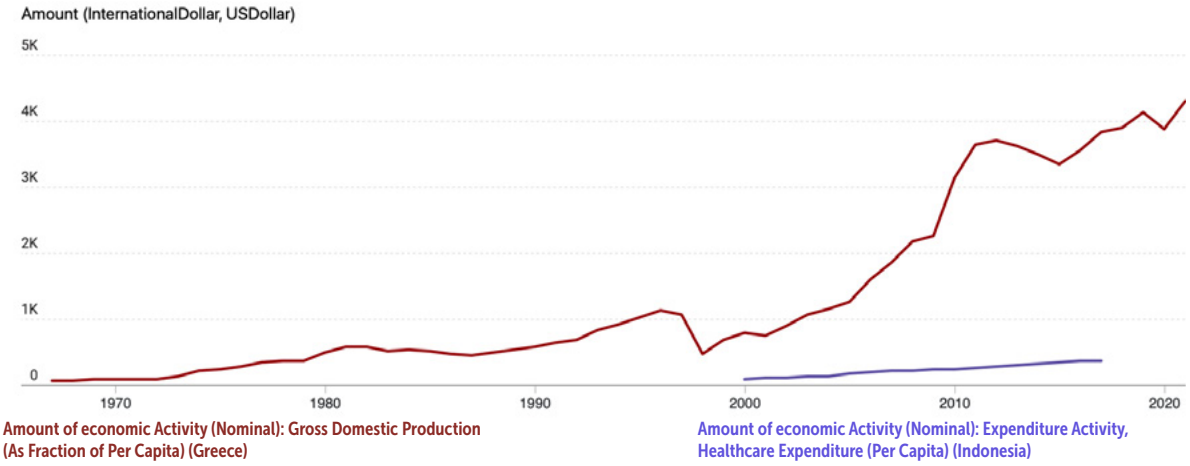


Key characteristics of the economic crisis influencing health system delivery design

The economic crisis affected Indonesia from 1997 and was accompanied by extensive political and social unrest, which complicated the response. Indonesia's currency, the Rupiah, quickly depreciated – by January 1998 it was worth only 20% of its peak value in 1997 (UNFPA 1998). In late 1997 and throughout much of 1998, economic growth was negative.[18]

Prior to the onset of the Asian Financial Crisis in late 1997, Indonesia had experienced more than a decade of steady economic growth (Figure 3).

Figure 5: Indonesia GDP per capita (1968–2021) and health care expenditure per capita (2000–17)[19]



Inflation ran at 58% for the first eight months and food prices increased by an estimated 80% during that year.[20] An estimated 8 million workers lost their jobs in the period up to March 1998, and the unemployment rate rose to 15%. The overall poverty level almost doubled from an estimated 11% prior to the crisis to 18–20%.[18] The impact of the crisis varied by geography and was particularly severe in Java.[21]

Prior to the crisis, Indonesia imported around 60–80% of pharmaceutical products and raw materials for local manufacturing of drugs.[18] Given commodity prices were highly vulnerable to local currency devaluation, prices of health inputs increased dramatically. For example, the price of antibiotics doubled between October 1997 and March 1998. The rise in medicine prices was the main driver of increasing treatment costs at Indonesian government health centres, which grew by an estimated 67% during the crisis.[22]

Total out-of-pocket and public health spending per capita fell in real local currency units, and even more sharply when considering expenditure at the average dollar exchange rate. The

share of household expenditure spent on health care decreased by 0.3 percentage points from late 1997 to early 1999 – from 1.9 to 1.6% of total household expenditures in urban areas, and from 1.6 to 1.3% in rural areas. The decrease was greater among wealthier Indonesians, narrowing the overall differences between economic groups in terms of budget share devoted to health.

The overall decrease in real public health spending per capita constrained the ability of the government to provide services. During the crisis, the government introduced an overall policy of zero growth of the civil service to control public spending. Unlike some other countries that introduced such measures, this zero-growth policy included public medical doctors, which led to contractions in the number of health workers in the public sector, especially doctors in rural areas. The combination of medicine stock outs, staff shortages and increased out-of-pocket costs led to a marked decline in health service utilisation during the crisis.[7] Unlike other countries such as Thailand, health service utilisation in Indonesia declined more in the public than private sector.

Service delivery reforms and strategies to protect or maintain efficiencies during and after the crisis

The government introduced several reforms that aimed to protect population health during and soon after the economic crisis. While it is difficult to rigorously assess the health impacts of the crisis and the effectiveness of policy responses in mitigating them, some key strategies and general lessons are outlined below.

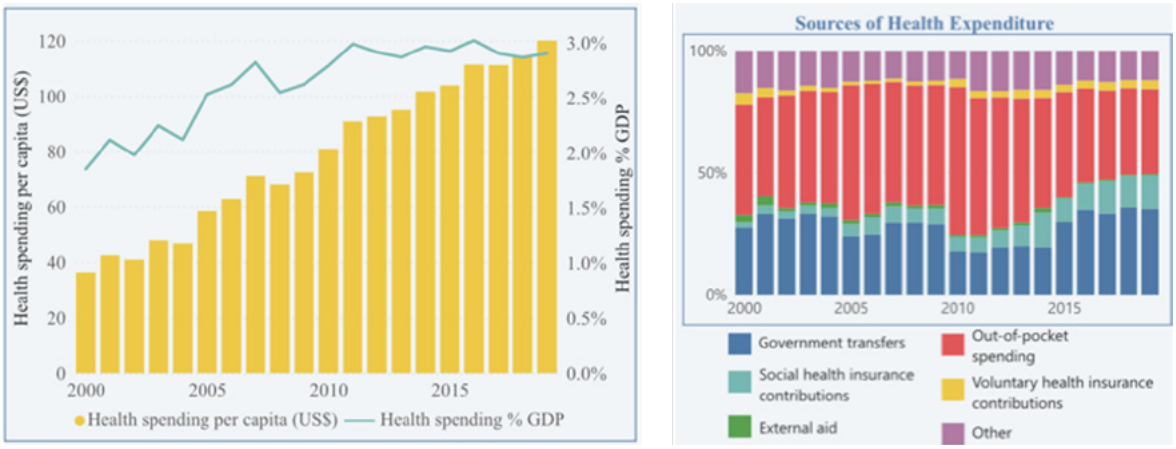
Protecting health expenditure with targets and mitigating the impact of rising prices of imported drug components, medicines and supplies

The government sought to protect health expenditure (along with education) by setting a target for health spending as a proportion of GDP.[23] Unfortunately, this was insufficient in preventing a decline in health expenditure in real terms during the crisis – as outlined above, both government expenditure per capita and household expenditure per capita declined substantially.

The largest component of reduced expenditure was non-salary spending. Reductions in non-salary expenditure, coupled with the reduced purchasing power of imported products due to currency devaluation, resulted in shortages of medicines, equipment and other supplies.[7] In the first quarter of 1998, the government took steps to mitigate the impact of the rising prices of imported drug components and imported medicines and supplies, including earmarking subsidised foreign exchange for pharmaceutical raw materials and lowering essential drug prices in government-run facilities. This stabilised drug price increases and contributed to restoring real outlays on essential generic medicines to pre-crisis levels after an initial 15% decline.[15, 16]

Following the financial crisis, health expenditure per capita slowly increased, although by 2019 per capita expenditure was still substantially lower than that of many other countries in the region. There have been substantial reductions in the proportion of expenditure coming from out-of-pocket sources, with a concomitant rise in social health insurance (Figure 4).

Figure 6: Indonesia health spending per capita and sources of health expenditure (2000–19)[24]



Scaling-up and re-structuring existing social safety net programs

The government launched the Indonesia social safety net initiative, Jaring Pengaman Sosial (JPS) in 1998,[23] which was a precursor to the current JKN social health insurance program (see Table 2). The largest contributing donors were the World Bank and the Asia Development Bank (ADB) through long-term loans rather than grants. UN agencies provided expertise in various areas and targeted programs. Social safety net funding was for an initial crisis response period of two years (1998–2000), with a further round available thereafter. All funds were intended to target poor households only.

Crisis responses to protect health through the JPS included further support to the village midwives program, health grants and the health card program (Kartu Sehat). Resources allocated to village midwives were protected, and unlike other areas of health care utlisation, previous gains in professional attendance at birth among the poorest quintiles were sustained during the economic crisis[13]. As part of the JPS, health grants were also provided to primary health puskesmas and village midwives (Bidan di desa). The 1998/1999 budget for JPS health grants amounted to US$29 million, financed by the government and the ADB.

Established in 1994, the national health card program, Kartu Sehat, pre-dated the crisis but had been seldom used. During the crisis, the health card program was expanded to include a decentralised targeting process identifying households that were considered most vulnerable to economic shocks. Health cards entitled all household members to a price subsidy at public health care providers, with some services provided for free. Households were identified using a combination of geographic and community-based targeting instruments.[25] In addition to providing eligible households with health cards, and thus the opportunity for free or heavily subsidised services, public providers were given additional funding based on the estimated number of households eligible for the health card program in their area.[25] There was an expectation that providers would play an active role in administering the scheme in terms of identifying poor households, recording details and issuing cards.[21] Other elements of JPS included its use of postal accounts to channel funds to health centres and village midwives, safeguarding measures such as client complaints and grievance resolution process, and oversight by NGOs or other independent bodies and public information campaigns. During the second year of implementation, some JPS funds were directed to communicable disease control and strengthening of posyandu-based services. Support was also provided for food and nutrition surveillance, staff training, and specified pro-poor activities of district level bodies.

An analysis that sought to disentangle the direct effect of allocating health cards from the indirect effect of government transfers to health care facilities found that the largest effect of the program seems to have come from a general increase in the supply of public services resulting from the budgetary support to public providers rather than the health card allocation

itself.[25, 26] The study also found that non-poor received most of the benefits of the increased supply of public services, suggesting that the targeting approach used was not optimally pro-poor.[25, 26]

Health system response to crisis recovery in the context of decentralisation

Indonesia embarked on a process of fiscal decentralisation very soon after the economic crisis and a change in government. The implementation of decentralisation in 1999 was quite abrupt, providing autonomy in public financial management to sub-national governments, and transferring responsibility for provision of health services to districts, albeit with some strategic vertical programs and centralised features retained. For example, maternal and child health and communicable disease control programs were retained centrally, and national government also set the conditions of employment for civil servants.

Decentralisation in Indonesia was a massive undertaking, and its implementation and evolution are an important backdrop to the health system delivery reforms that were implemented during more than a decade after the economic crisis. While decentralisation led to experimentation with multiple models of health provision at the district level, most of this experimentation was conducted without guidance, technical input, or rigorous evaluations of the effects of the various service delivery models that were tried.[27] Features of successful or popular models were spread to other districts, and some adopted at the national level, but lessons and outcomes of the various models were not systematically identified and shared.[27]

While decentralisation provided a basis for policy experimentation, it also provided some challenges to the ongoing delivery of some programs. For example, early decentralisation reforms undoubtedly posed some challenges to the immunisation program.[28] Immunisation against childhood diseases is one of the most important means of preventing childhood morbidity and mortality, and immunisation coverage is often used as an indicator of a health system's capacity to deliver services to the most vulnerable.[29] During 1995–99, the proportion of children in Indonesia fully vaccinated against tuberculosis (with BCG), diptheria, pertussis, tetanus (DPT), poliomyelitis, and measles in accordance with immunisation schedules, declined by around 25%. The reduction was most notable in 1999. Rokx et al[28] highlight that a lack of clarity around ownership of the immunisation program and varied local priorities may have contributed to the stagnation. Under decentralisation, responsibility for the supply and cold chain maintenance of vaccines was retained by the central government, while district governments were tasked with supplying health facilities, health professionals, and the equipment needed to carry out vaccination.

Others have suggested that in the years following the crisis, donor funds were channelled disproportionately to hospitals and curative facilities, rather than supporting essential priority services such as childhood immunisation.[30] The importance of investing in frontline service delivery is illustrated through an analysis of variations in childhood immunisation across Indonesia by geographical area and over time, which found that increasing the number of village health centres (posyandu) per 1,000 population raised the probability that children would receive full immunisation, while increasing that of hospitals and health centres (puskesmas) had no significant effect.[31]

Miharti et al analysed lessons from successive waves of decentralisation and concluded that successful improvement of primary health care system performance was fostered by a combination of devolved decision-making and strong accountability.[32] According to their analysis, the first wave of decentralisation (2000–04) was not successful in fostering innovation at the primary health care level, largely due to inadequate accountability requirements. Following reforms in 2004, the central government obliged local governments to provide health insurance for the poor (Law 40/2004 on the national social security system) and a decree by the MoH granted puskesmas with the authority to propose their own programs and budget allocation, based on the health needs of their community and capacities. Every local

government was required to allocate at least 5% of its total budget to the health sector.[32] The second wave of reforms (commencing in 2004) had greater accountability pressure on local governments in terms of provision of health services, and this fostered greater innovation at local level.

Minimum service standards, capitation and empanelment

A decade after the financial crisis, the Government of Indonesia established a set of Minimum Service Standards (MSS) for health to address some of the challenges presented by decentralisation. Established in 2008, the MSS focused on four types of service primarily delivered at primary health care facilities: 14 basic services at the primary care level; appropriate referral services; outbreak management; and health promotion and community empowerment.[33]

Achieving the targets set under the MSS was found to be challenging for some of the poorer communities, and they were revised in 2016 for implementation from 2019. The new MSS model includes a focus on equity and implementation of innovative community outreach strategies. It covers 12 areas ranging from providing continuous health care across the lifespan, chronic disease monitoring and treatment, HIV and TB monitoring and treatment, and mental health care. Facilities are required to meet their targets or face administrative punishment and eventual replacement.

Following the launch of the national health insurance program Jaminan Kesehatan Nasional (JKN) in 2014, puskesmas were mandated by law to be JKN providers in addition to implementing the MSS, and private providers have the option to participate. Through this contract, capitation payments were established to improve the quality of care. Examples of performance goals include number of visits, non-specialist to outpatient ratio, visits of patients with chronic diseases such as diabetes and hypertension, and home visits. Furthermore, community members are required to register with a puskesmas, primary health care clinic or local physician within the first three months of enrolling in JKN. The primary health care provider acts as a gatekeeper for higher levels of care, except in the case of emergency. However, an ongoing challenge for the JKN is that the focus of increased spending on health through the program tends to be on curative care services and health infrastructure for curative care, with relatively low allocations for public health and prevention.[34]

Table 5: Major health system reform events in Indonesia's health system relevant to service delivery design (1960s–2022)

Date	Event/action
1960s–70s	Puskesmas are established as the central element of efforts to improve primary health care. There is gradual expansion of these facilities over time to over 9,700 puskesmas by 2015.
1997	Asian Financial Crisis severely affects Indonesia.
1999	Government of Indonesia launches a series of social safety net programs (JPS), including the social safety net in health (JPS-BK) for the poor.
1999	Abrupt change to decentralised form of governance with sub-national governments gaining autonomy in public financial management, which changes the way the health system is organised. Responsibility for provision of health services is transferred to districts, albeit with some strategic vertical programs and centralised features (e.g., maternal child health, communicable disease control). Progressive development of systems and guidelines for implementing decentralisation in the health system continues over the following 10+ years.
2003–09	Public sector management reforms provide greater autonomy for public service organisations, including public health facilities.
2004	Social security framework initiative includes a plan for UHC.
2005	Social safety net is expanded to include targeted social health insurance scheme for the poor, Askeskin.

2008	Askeskin is transformed into Jamkesmas, a tax-based fee waiver scheme managed by the MoH. Under this scheme, puskesmas receive funds based on capitation, and hospitals are reimbursed on an Indonesian case mix-based group package cost. Some local governments developed their own social health insurance schemes to cover the near poor.
2008	Minimum Service Standards (MSS) for health established, focusing on primary health care, referrals, epidemiology and prevention, health promotion, and community empowerment.
2014	The national health insurance program, Jaminan Kesehatan Nasional (JKN) is launched. Contributions from members and the government are pooled under a single health insurance implementing agency (BPJS Kesehatan). Incremental expansion of coverage aimed to include all Indonesian citizens by 2019. Puskesmas required by MoH to be accredited according to national standards. Private providers and clinics also required to follow an accreditation program to service JKN patients. HTA committee formalised under the MoH with a mandate to analyse health technologies covered/not covered under the JKN scheme.

Conclusion

Indonesia's decades-long investment in primary health care provided a strong basis for its response to the financial crisis of 1997–98. The basic structure of the primary health care system, which has puskesmas or community health centres as the backbone of service design and delivery, was maintained during and after the crisis and continues to the present. The village midwives' program was largely protected from budget cuts during the crisis and was successful in maintaining access to accompanied childbirth. However, lack of access to higher level specialist obstetric care for women requiring emergency care during labour, particularly for the poorest, remains a contributor to Indonesia's disproportionately high maternal mortality rates.

The decline in childhood immunisation rates seen in Indonesia during the crisis, and the stagnation of childhood immunisation rates over the following decades, suggest that strategies to sustain focus on this critical element need further development. In the context of the decentralisation that followed soon after the Asian Financial Crisis, Indonesia's experience suggests the importance of ensuring a shared understanding about which actors in the health system have ultimate ownership and accountability for childhood immunisation and other essential and cost-effective health interventions. In Indonesia, ensuring ongoing service delivery at the most accessible 'lowest' tier of the health system (village level) seems to be a key element in delivering immunisation programs during a crisis and was possibly insufficiently emphasised and funded by government and donors in the crisis response.

As a huge and populous nation, Indonesia faces challenges relating to geographic inequities, and the decentralisation that followed the crisis provides lessons for countries embarking on similar efforts to improve health system efficiency. Key among these is the importance of having clear institutional arrangements and strong oversight mechanisms in place. Indonesia's experience shows that a challenge for the optimal delivery of health programs in the context of a decentralising system is that of getting the balance right between 'accountability' and 'autonomy'.

Finally, the expansion of the social safety nets that occurred during and following the economic crisis have endured and formed the basis for progress towards UHC. However, during the economic crisis, the ability of the public sector to maintain quality service provision was compromised by the spiralling costs of medicines and supplies, and public health care utilisation declined due to these cost barriers, impacting health outcomes – particularly for the poorest. More than a decade on, fragmentation of the health system, poor development of the health information system, and still nascent HTA and cost containment strategies are some of the technical elements constraining health system effectiveness and efficiency. Nonetheless despite substantial challenges, Indonesia continues to develop and test models of primary health care delivery to reach its diverse and large population.

Appendix 2: Case study Thailand

Health system delivery design and major reforms prior to the crisis

Thailand has weathered multiple economic crises over the past four decades and has managed to build and maintain a strong and resilient public health system capable of protecting and maintaining population health. In 1975, the Thai government made health services available and free of charge to the poor, marking the first major step in the country's trajectory towards achieving UHC. At around the same time, the government also implemented a program of financial incentives for rural doctors, including hardship allowances, no-private-practice allowances, overtime payments and non-official-hours special service allowances to bridge the urban/rural divide in access to high-quality essential health services and improve rural population health outcomes.[35]

Thailand experienced an economic downturn in 1981 and had to negotiate an IMF loan, which included an agreement for zero budget growth for five years. Despite this, the government continued its expansion of rural health infrastructure. Between 1982–86, the government froze all new capital investment in urban hospitals and invested these funds in building rural district hospitals and health centres, as well as mass training and employment of doctors and community health workers.[35] Alongside this infrastructure expansion, the government established a compulsory "public work" placement of three years for medical graduates and four years for nursing graduates to ensure adequate human resources for health within the public sector. Emphasis was also placed on strengthening primary health care by recruiting and training volunteers in villages across the country to engage in health promotion and prevention campaigns – a workforce that continues to be active today.[36]

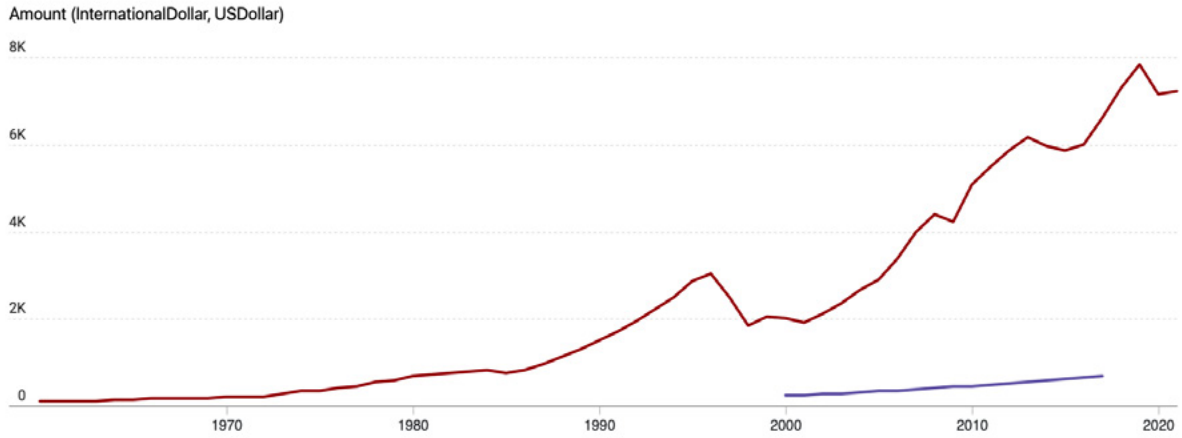
From the late 1980s, the government promoted foreign trade in health services through tax incentives for investment in private hospitals. This resulted in the mushrooming of urban private hospitals and a rapid influx of foreign health tourists. During the early to mid-1990s, the government invested substantially in the health workforce, increasing the production of physicians by 600 per year during 1993–95.[37]

From 1970 to early 2000s, the government placed substantial importance on the health sector and committed to the expansion of population insurance coverage towards the achievement of UHC. The expansion of coverage was incremental, targeting certain populations with each phase of growth, starting with people on low incomes, then the formally employed, children and the elderly, and finally, reaching full coverage in 2001, in the period immediately following the 1997–98 Asian Financial Crisis.

Key characteristics of the economic crisis in Thailand

Between 1985–94, the Thai economy recorded the highest growth of GNP per capita in the world. The average annual growth rate in GDP between 1991–95 was over 8% (World Bank Atlas, 1996). The proportion of the rural population living in poverty declined from 36% in 1988 to 11.4% in 1996.[38] Increased competition in the export of manufactured goods (especially from China) led to a slowdown in exports in the early 1990s (Figure 5).

Figure 7: Thailand GDP per capita (1960–2021) and health care expenditure per capita (2000–17)[39]



The Asian Financial Crisis began in mid-1997 because of poor management of the financial sector, excessive investments by private companies, and inappropriate supervision of foreign currency exchange by the Bank of Thailand. It resulted in huge foreign debts and currency deficits[38] and prompted the Thai government to secure a loan of US$17.2 billion from the IMF. The crisis had significant implications at both macro- and micro-levels,[40] including sharp reductions in the value of currency and assets, a sudden increase in unemployment, and severe household income contraction. Poverty increased from 17% in 1996 to 21% after the crisis,[41] while inflation rose to 8% in 1998 compared to 5.8% and 5.6% in 1996 and 1997. This caused a substantial increase in the price of commodities and services, especially in relation to pharmaceuticals, and a shift in health resource consumption from private sector services towards public health services.[41]

Table 6: Key timeline of events and outcomes related to the 1997–98 economic crisis in Thailand

Timing	Event	Outcome
July 1997	Bank of Thailand announces managed floating of the Thai Baht	Uncertainty exacerbated in Thai economic market
December 1997	Value of the Thai Baht dropped >50%	Significantly impaired capacity for international exchange
Late 1997 to early 1998	Value Added Tax (VAT) increased by 3% from 7% to 10%	Substantially increased price of goods and services, most notably pharmaceuticals[B]
Mid 1998	IMF agrees to provide a rescue package in the form of a 'Structural Adjustment Program'	Ability to maintain essential health service provision but necessitates budget cuts to numerous programs

Service delivery reforms and strategies to protect or maintain efficiencies during the crisis

During the economic crisis, the government made several service delivery reforms, which are summarised below by type of intervention. However, it is important to note that each intervention was part of a package of mechanisms put in place by the government to protect and maintain population health.

Strategic program budget safeguarding and expansion of social health insurance

At the beginning of the crisis, the Thai Ministry of Public health (MOPH) safeguarded the budget allocation for the national immunisation program and the polio eradication program. However, this safeguarding only extended to vaccines and delivery, meaning that the cold chain which vaccine delivery relies on was not uniformly protected. This resulted in a reduction in the

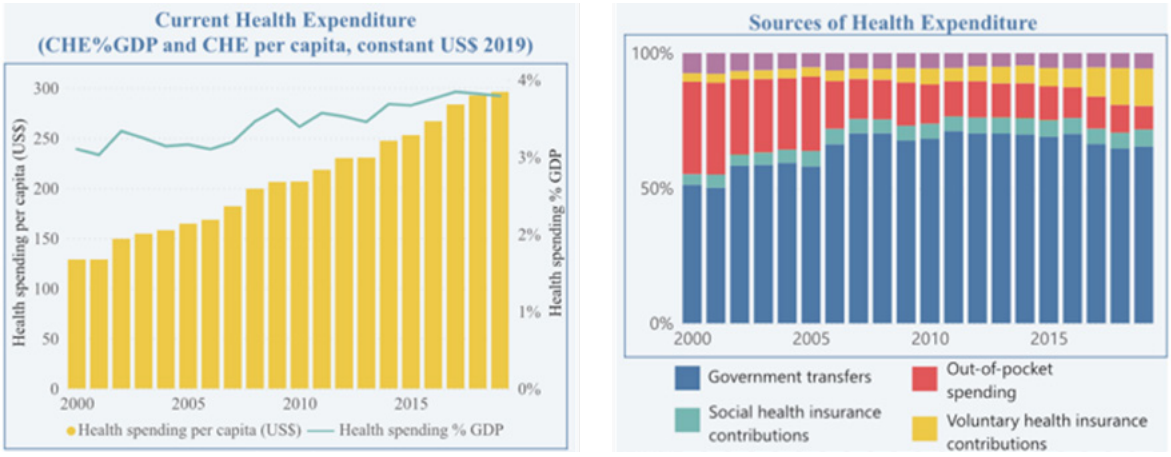
B In January 1998, wholesale prices of imported drugs increased by 20–25%. The price of locally produced drugs increased by 15%–18%.[38]

quality of vaccine delivery programs, evidenced by inequitable delivery across the country and increased vaccine wastage.[7]

The budget for free medical care through the low-income social security scheme was increased and government subsidy of the voluntary health card doubled from 500 Baht to 1000 Baht per card.[7] In real terms, the percentage of funds allocated to the social security scheme as a proportion of the total MOPH budget increased from 8.7% to 12% from 1996–98.[41] The expansion of the social security scheme is credited with maintaining demand for and utilisation of health services throughout the crisis, where the proportion of people using public facilities increased from 25.4% to 48.45%. The proportion using private hospitals and clinics correspondingly decreased from 26.9% to 17.7%.[41]

Following the immediate crisis period, Thailand continued with steady growth in total health expenditure. The reforms implemented by the government have led to marked reductions in out-of-pocket spending, which comprised only 8.7% of total health expenditure in 2019. This has been achieved through sustained increase in government expenditure, maintenance of social health insurance and a rise in voluntary health insurance contributions (Figure 8).

Figure 8: Thailand health spending per capita and sources of health expenditure (2000–19)[24]



Investment in data and evidence-based priority setting

The government established a Health Intelligence Unit in 1998, designated by the MOPH and supported by the Health Systems Research Institute, which was responsible for monitoring the health impact of the economic crisis. The Institute conducted a health census and studies on service delivery, such as the change in number of facility-based births in MOPH hospitals.[6] The Institute possessed expertise in analysing healthcare behaviours and costs, and later expanded to the fields of epidemiology, health outcome research, and qualitative policy analysis.[40]
In tandem, an HTA function was established within the MOPH with the explicit purpose of conducting cost-effectiveness analysis to inform fiscal decisions regarding cost-containment, price-negotiation, strategic purchasing, and procurement during the crisis. This HTA function would later be expanded to what is now the Health Intervention Technology Assessment Program (HITAP), a key component of Thailand's success in the achieving UHC by ensuring value for money of every Baht spent in the health sector.[35, 40]

Budget cuts

The 1998 budget revision in response to the crisis was marked. A total of 182 billion Baht (18.5%) was cut from the approved Budget Bill of 982 billion.[41] Budget cuts were made in capital investments and operating costs, but notably not on salaries.[41] The Reproductive Health budget was reduced by 12.2% – more than the Department of Health (DOH) budget (5.1% reduction) during the 1997–98 crisis. Cuts were primarily made to family planning services. As a result of

program-level cuts and a reduction in bulk purchasing power, the Thai MOPH experienced increases in the price of certain family planning modalities such as the oral contraceptive pill.[41] There was a small but significant increase in the number of low-birth-weight babies born during this period, as well as mothers with anaemia.[7] In 1998, the HIV/AIDS budget was also cut by 25% in real terms, though remarkably this did not adversely affect HIV/AIDS-related health outcomes. The budget for this program was restored by late 1999.

Drawing on multilateral agencies for strategic and financial support

Immediately preceding the economic crisis, the MOPH commissioned the World Bank and WHO to determine the macroeconomic consequences of continuing to move ahead with implementing the government's strategic objective of achieving UHC in Thailand. The authors recommended strict budget control to avoid bankruptcy.[35] This budget control was taken into consideration and implemented via mechanisms such as HTA to inform priority setting of health resources, and monitoring of health spending and outcomes. The government also worked with multilaterals such as the Global Fund to secure access to expensive pharmaceuticals such as antiretroviral medication (ARVs), which provided an important avenue to the continued provision of these life-saving interventions.[35]

Engagement with civil society and community-based organisations

During the crisis, the government set aside a World Bank loan, under a social investment project, to support non-government and community-based organisations to continue health promotion and protection activities. These organisations formed consortiums and served an important function throughout the crisis of mobilising public participation in health promotion, protection and advocacy activities that continues today.[42]

Marketing of health services for foreign tourism

As the economic crisis began to abate in late 1998, the private health sector, supported by the government, started intensive marketing to attract foreign health tourists to Thailand to promote the international trade in health services as a means of stimulating economic growth.[37] The Thai government provided support for private providers to engage in international trade in health services by facilitating road shows, investment incentives, and negotiation with trade partners. Over time, these initiatives did indeed strengthen the private sector and by extension the Thai economy, however this was at the cost of strengthening public care provision, especially for rural communities, where medical personnel migrated away from the public sector in favour of higher salaries in the urban private sector, creating a vacuum of health care professionals and an associated 'brain drain' in the public sector.[37]

Conclusion

At the start of the economic crisis in 1997, the Thai health system was already reasonable resilient to shocks due to significant strategic investment and strengthening in the prior three decades. The availability of a high number of skilled health and medical professionals, the extensive rural infrastructure to reduce disparities in care access and provision, and the introduction of health insurance for the poor all served as critical assets to supporting the health system throughout the crisis period.

The crisis necessitated cost containment, and this created opportunities for strategic investment in mechanisms to ensure evidence-based priority setting of limited resources, such as the creation of a health data unit within the MOPH and a specific HTA function within this unit, which is now a model of excellence internationally.[6] This double-pronged approach of enhanced collection and analysis of service provision and health outcome data, and the specific commissioning of local HTA studies to inform strategic purchasing decisions enabled stronger financial stewardship in the health sector and the ability to maintain tight budget control. The HTA function was especially important in mitigating the inflated prices of pharmaceuticals by

generating local evidence that could be used in price negotiations and strategic purchasing of certain drugs on the national list of essential medicines.[35, 40]

Strong political leadership and historical political commitment to the health sector was also an important contextual factor to protecting population health during the crisis. This meant that the adverse health impacts of the crisis were minimised because of a pre-existing national commitment to and competency in collective action towards the promotion, protection and maintenance of population health.[41] The substantial level of community engagement in the health sector fostered a strong foundation for public participation in and ownership of the public health sector. This has also been credited with contributing to Thailand's success in achieving UHC through sustained political pressure and accountability mechanisms.[43]

There are important lessons in relation to budget cuts to health programs during the economic crisis. No adverse consequences were observed in terms of case detection or mortality of HIV/AIDS in Thailand in the years after the crisis, despite substantial budget cuts. The impact of these cuts was mitigated by substantial prior investment in health education and promotion activities prior to the crisis, and to a lesser extent, reduced demand for commercial sex services and recreational drug use as a direct result of reduced household income.[37] The reduced investment in family planning and ante- and peri-natal services, however, may have had adverse effects such as rising costs of contraceptives due to reduced purchasing power and increased prices for these interventions. Furthermore, the protection of immunisation services only extended to vaccines and delivery, meaning that the cold chain on which vaccine delivery relies on was not uniformly protected. This led to a reduction in the quality of vaccine delivery programs, as evidenced by inequitable delivery across the country and increased vaccine wastage.[7] A short-term reduction in ante-natal care attendance was also observed, which resulted in an increase in low-birth-weight infants and anaemic mothers.[7]

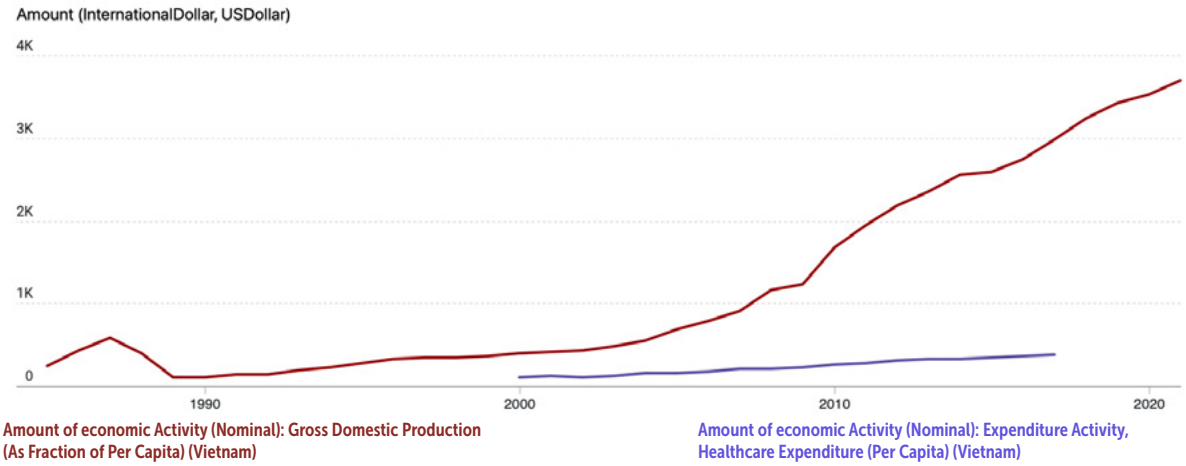
Finally, whilst the marketing of domestic health services to foreign tourism did increase international capital investment in the Thai health sector, it has also led to potentially negative consequences such the migration of healthcare professionals from rural to urban areas where private clinics are located, resulting in 'brain drain'.[37]

Appendix 3: Case study Vietnam

Key characteristics of the economic crisis influencing health system delivery design

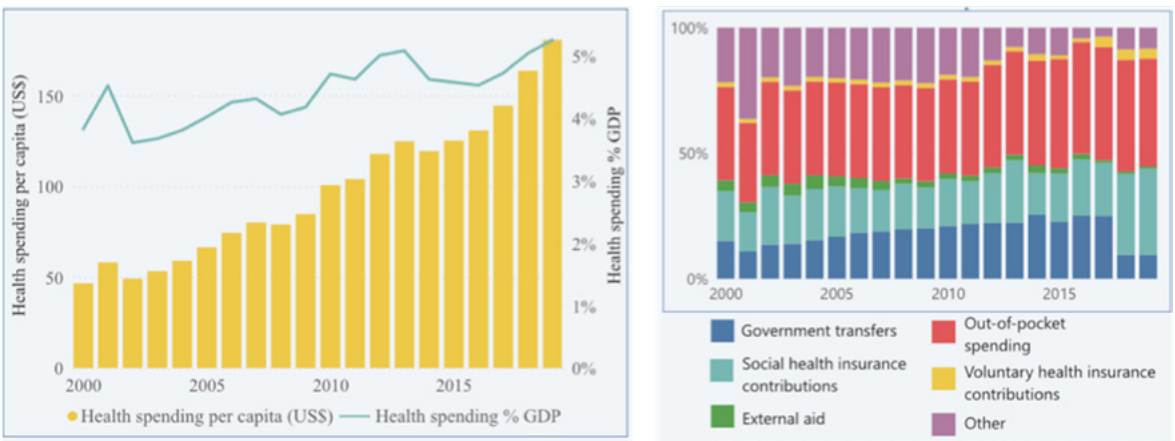
Vietnam's major health reforms commenced in 1986 with the broader Doi Moi economic reforms, which transitioned the country to a socialist-oriented market economy. These reforms provided an enhanced role for market forces to drive economic activity and stimulated greater engagement between state and non-state enterprises. In the years preceding the Doi Moi reforms, Vietnam was facing an economic crisis, with inflation rising above 700%. This was precipitated by several factors including climatic events that affected agricultural production, Vietnam's military occupation of Cambodia, growing inefficiencies from complex government bureaucracy, diminished innovation from entrepreneurship, and the decline of the Soviet Union which was its major trading partner. As a result of the reforms, the economy achieved steady, accelerated growth, with GDP per capita growing almost four-fold from 1990–2000 (Figure 9).

Figure 9: Vietnam GDP per capita (1985–2021) and health care expenditure per capita (2000–17)[44]



Although there were cuts to health expenditure during the 1998 Asian Financial Crisis, with an overall 20% drop in health budget as a percentage of GDP, expenditure steadily grew again from 2000 and there was minimal disruption to the provision of basic health services in the years following the crisis.[45] A similar pattern occurred during the 2007–09 Global Financial Crisis and the 2020 COVID-19 pandemic. The Vietnamese economy has experienced sustained economic growth over the last 20 years and a concomitant increase in health care expenditure, which comprised 5.25% of GDP in 2019 (Figure 8).[46, 47] This increased investment in health is, however, accompanied by intractably high out-of-pocket spending.

Figure 10: Vietnam health spending per capita and sources of health expenditure (2000–19)[24]



Health system delivery design and major reforms prior to the crisis

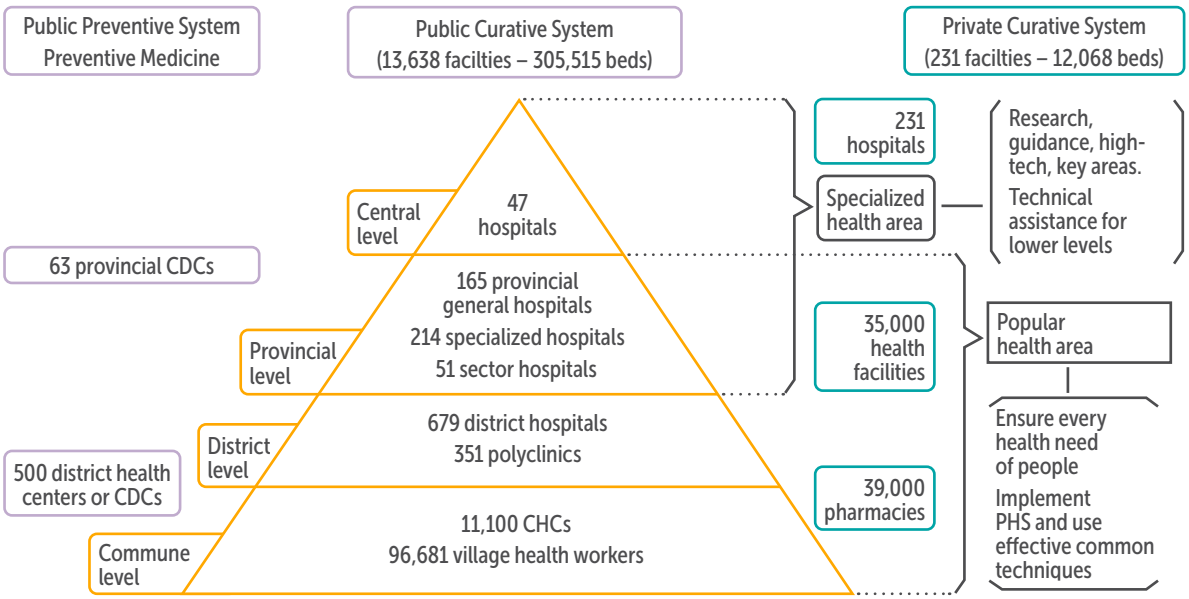
Prior to the Doi Moi reforms, the Vietnamese health system was based on the Soviet model, with state-owned health care facilities administratively structured at four levels (commune, district, provincial and central levels) and free access to health services for citizens. Health care facilities received an operating budget and resources from central and local governments, while agricultural collectives provided a community contribution to pay for commune health workers. There was considerable variation in the functionality of this system, particularly driven by the wartime economy. Commune health centres provided basic preventive health services and curative services were provided by family health workers and barefoot doctors who have since transitioned to become village health workers. During the post-war period (1974–1986), government expenditure on health was considerably reduced. Despite these constraints, health outcomes on key indices such as maternal and infant mortality were notably impressive, possibly due to the strong grassroots primary care system that had been implemented for decades.[48]

Service delivery reforms and strategies to protect or maintain health system efficiencies

Health system structure

As a part of the Doi Moi reforms, there were major financing changes to the health system such as the launch of health insurance schemes and increased public health functions at the commune level. The reforms also stimulated the development of the private curative systems, introduction of user fees for private care and legalisation of private medical practices. This has resulted in a blended public-private system with public payers still contributing the majority of preventive and curative services.[49] Figure 9 provides an overview of the distribution of health care facilities at the four health system levels in 2020.

Figure 11: Overview of the Vietnamese health system in 2020[49]



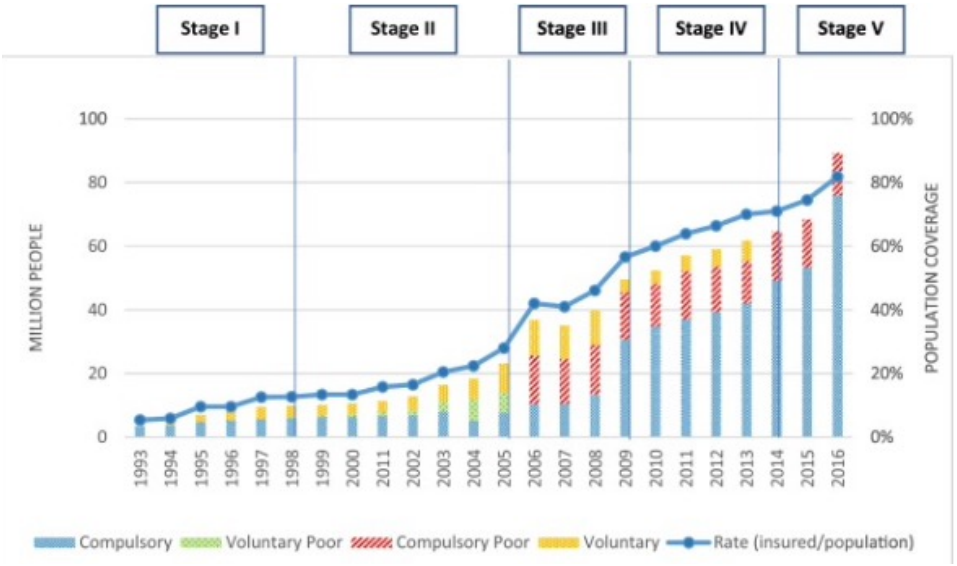
The most important contribution from the private sector has been to mobilise private curative services for those able to pay. This has preserved public sector resources for essential public health functions, including a focus on supporting community health centres staffed by village health workers, who play a core role in implementing national programs such as malaria prevention, vaccination, malnutrition preventions, and safe motherhood.[48]

Since 1961, the Ministry of Health in Vietnam (MoH) has managed health service provision through a system known as the Direction of Healthcare Activities (DOHA or Chỉ đi o tuyỉ n in Vietnamese). DOHA has two major focus areas: building better collaboration and support between higher and lower levels of the health systems; and addressing increasing burden on higher level health facilities by strengthening the quality of and access to services provided at lower levels.[50] In the earlier decades of its implementation, DOHA focussed on strategies to shift services from higher-level to lower-level hospitals and alleviate high occupancy rates in central hospitals. In more recent years, there has been an increase in strengthening primary health care through the introduction of family doctors, increased preventive and health education services, technical skills transfer through the creation of professional 'technical lists' for each level of health facility, and strengthening of referral processes to reduce rates of referral from lower to higher level facilities.[50]

Health insurance reforms

Alongside major service delivery reforms, Vietnam has made major investments in health insurance coverage over the period 1993–2016, with the percentage of population covered increasing from 5% to 82% over this period[51] (Figure 10).

Figure 12: Health insurance coverage in Vietnam (1993–2016)[51]



A study examining two series of Vietnam household living standard surveys in 2014 and 2016 found that outpatient health care utilisation, but not inpatient utilisation, significantly increased between the two survey periods and total out-of-pocket costs were reduced with both compulsory and voluntary insurance programs.[52] Another survey of 2,038 people living with NCDs found similar results – those with health insurance were twice as likely to use outpatient care compared to those without health insurance.[53] The studies suggest that both the compulsory and voluntary insurance programs had early success in accelerating universal health coverage. To make more efficient use of limited resources, Vietnam also incorporated HTA into the decision-making process for the health insurance benefit packages in 2014.[54] To date, however, implementation remains at a nascent stage, with limited evidence on its impact in improving health system efficiency.[55]

Private-public partnerships (PPPs)

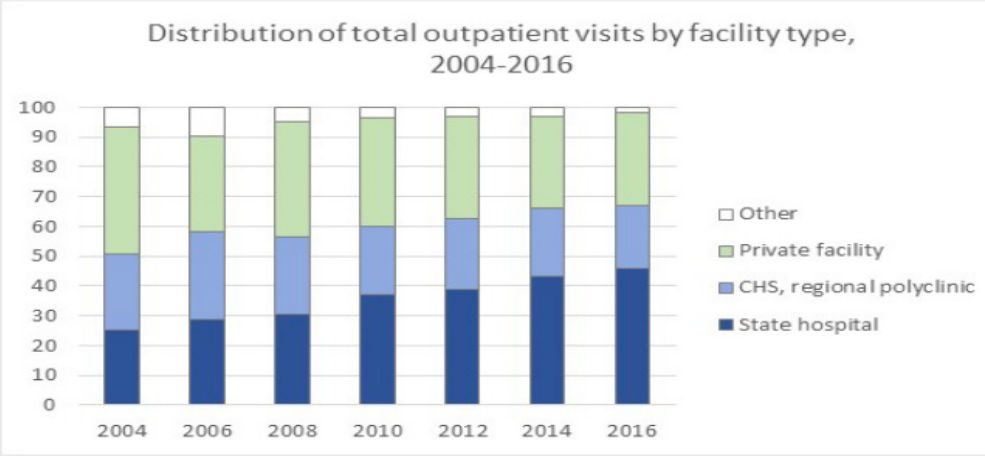
PPPs for health service delivery are at a relatively early stage of implementation in Vietnam. Most PPPs focus on infrastructure rather than service delivery, in part driven by a lack of suitably trained private sector health providers. Furthermore, the large private health care chains have

demonstrated limited interest in partnering with government to establish PPPs. A World Bank report highlight several regulatory challenges to PPP implementation and complex contracting arrangements with limited institutional structures to support consistent implementation across the country. It recommended a reorientating of PPPs toward equity and efficiency, improvements in the regulatory framework under which PPPs are conducted, and outcomes-based contracting (strategic purchasing) rather than the current focus on service inputs.[56]

Primary health care reforms

Despite the positive impact of these health system reforms, Vietnam faces considerable health system sustainability challenges, in particular the increasing burden from an ageing population and NCDs. High out-of-pocket costs, an overreliance on hospital and specialist services and limited integration of private and public services remain major challenges.[57] The lack of a uniform gatekeeping model means patients can bypass primary care facilities and self-refer to hospitals and specialist outpatient clinics. Consequently, the share of outpatient services provided by state hospitals has steadily increased (Figure 13).

Figure 13: Proportion of outpatient visits by facility type in Vietnam (2004–16)



[CHS = commune health station][57]

In 2016, the government implemented primary health care reforms that aimed to provide grassroots health facilities at the commune level with increased responsibility for managing and treating NCDs by adopting a family medicine model. This was accompanied by increased capacity strengthening activities for district health workers and adding preventive services to the scope of services covered by health insurance. Workforce reforms included establishing training programs for primary health care teams as part of a World Bank-funded Health Professionals Education and Training for Health Systems Reform Project.[58] Around 25,000 local health professionals have enrolled in these programs, including commune health station staff, and the training continues to be run by the MoH.[59] MoH data from 2021 showed some important improvements in service coverage and quality as a result of these reforms. The percentage of commune health stations that implemented more than 80% of essential technical services increased from 30% to 49%, and the percentage that met the minimum national quality criteria increased from 76% to 94%.[60] Similarly positive trends in various health and process indicators were observed in a Primary Care Score Card study in two provinces.[61]

Although these improvements are encouraging, a recent World Bank report highlighted many challenges remain to improving the delivery of efficient, integrated care services across all levels of the health system. It highlighted macro-level challenges related to a lack of policy and legal frameworks for integrated service delivery, hierarchical service administrative structures with

weak accountability mechanisms, a lack of financial incentives to change provider behaviour, and workforce weaknesses at the primary health care level. In terms of service delivery, the report also highlighted that there were limited organisational designs to establish provider networks and shared care of patients, minimal empanelment and gatekeeping at primary health care levels and a lack of team-based care both within and between facilities.[57]

Health information systems

Vietnam's public health system has mature information systems, in particular patient-level clinic and claims information available in the health insurance claims database and the health information system managed by the MoH. However, there remain many challenges with siloed information systems and limited ability to share data across facilities, lack of unique identification of citizens, data entry burden on health workers, and a reliance on paper records for referrals and recording of health conditions and management. There are, however, large-scale reforms being developed to address many of these barriers including a national health information exchange architecture, an electronic health record for every citizen, and software consolidation at health facilities for data management and reporting.[57, 62] Research on the impact of digital health reforms is limited and mainly focussed on hospital information systems.[63]

Community participation

As a part of the Doi Moi reforms, Vietnam has a rich history of civil society engagement in government policies, including health. Community participation has ranged from community mobilisation for public health interventions such as immunisation campaigns, advocacy for addressing social determinants of health, particularly in the areas of water and sanitation, and social support groups for TB and HIV/AIDS prevention and treatment.[64] This is supported by national policies such as the 2007 Grassroots Democracy Ordinance, which mandates community participation and decision making in local development activities, including health-related activities, in partnership with local government.[65] Many civil society coalitions have advocated for and reported on equity considerations in the Vietnamese health system. Key goals for building more effective social participation in health policies include increased capacity building for civil society to generate evidence-based tools for advocacy, transparency for lobbying activities, participation in policy development and greater coordination between groups.[66]

Table 7: Major health system reform events in Vietnam's health system relevant to service delivery design (1997–2022)

Date	Event/action
1980s	Doi Moi health reforms. Increase in health care spending, introduction of universal basic health care, four-tier health system structure introduced, private sector development.
1992	Stage 1 health insurance reforms introduced focussing on civil servants and pensioners.
1998	Stage 2 health insurance reforms with establishment of a voluntary scheme, introduction of co-payments and a single resource pool administered by the Vietnam Health Insurance Agency and then the Vietnam Social Security Agency.
2005	Stage 3 health insurance reforms, with expansion in eligibility for compulsory and voluntary schemes, including capitation-based funding.
2009	Stage 4 health insurance reforms with expansion to poor people and children under 6 included in the compulsory scheme, with premiums fully subsidised by the government.
2014	Stage 5 health insurance reforms to eliminate the voluntary insurance scheme. Premium increases and new categories of household enrolment to prevent adverse risk selection. Reimbursement price increases to providers, electronic claims management system introduced.
2014	Policies to reduce hospital overload introduced, including workforce rotation, regulations on referral practices and professional technical lists for each level of health facility.

2014	HTA introduced to inform benefit design of health insurance packages.
2014	Health Professionals Education and Training for Health System Reforms Project (HPET) launched to increase capacity of primary health care workforce.
2016	Primary health care reforms introduced, including family medicine models of training health care providers and increased scope of practice in primary health care facilities, including NCDs.
2019	Policy announced to development electronic health records based on social insurance codes.

Conclusion

A major economic crisis precipitated the Doi Moi health reforms in Vietnam. These reforms laid the foundation for the health system structure that is in place today. It established a small but significant role played by the private sector and organised essential public health and service delivery functions into a four-level tier system, starting with grassroots commune health stations. Accompanying these reforms was a staged evolution in health insurance coverage, blending both voluntary and compulsory programs and progressive expansion of populations covered. These reforms have significantly impacted the country's path to UHC, however, out-of-pocket costs remain a major challenge in providing financial protection for the poor. In a testimony to the resilience of the Vietnamese economy and its health system, it has remained relatively robust during the 1997–98 Asian Financial Crisis, the 2007–08 Global Financial Crisis and the 2020 COVID-19 pandemic compared to similar economies worldwide. Consequently, health system expenditure has steadily grown over the last 20 years and not suffered the dramatic spending cuts seen in other countries that have experienced major economic crises.

Like many health systems worldwide, Vietnam's health system has traditionally been hospital-centric, with over-reliance on hospitals to provide services that could be adequately provided by lower levels of the health system at lower cost. Administratively, it has also had a top-down structure, with relatively under-developed regional and local accountability and decision making. Recognising these factors as major challenges to improving health system performance, the government has embarked on several workforce reform initiatives to strengthen lower levels of the health system and increase demand for primary health care services. In more recent times, there has been an increase in policies to improve health information systems and establish a more cohesive digital health ecosystem to overcome data siloes, data entry burden and use of data to improve health system efficiency.

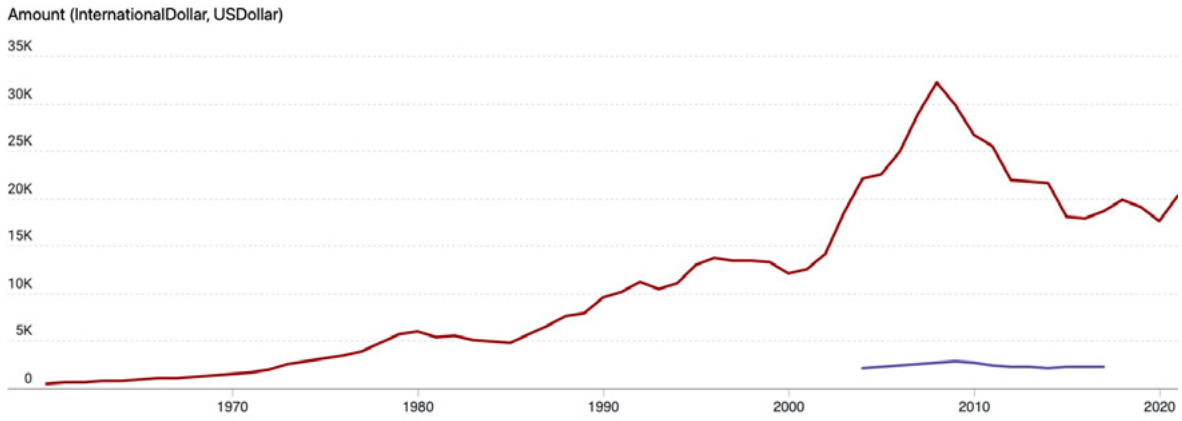
The long timeframe to implement and deliver the country's health system reforms highlights that the returns on investment may not be realised for several years after the precipitating crisis period. It also highlights a state of continual evolution of health policies, with progressive maturation and investment as the economy grows. Despite Vietnam's many successes, substantial challenges remain, including addressing equity gaps in access to quality care and limited primary health care capacity to manage the rising burden from NCDs and an ageing population. Furthermore, there is a persisting reliance on hospitals and specialists for outpatient services that could be managed in primary health care, and relatively underdeveloped enabling structures such as national health information systems to address changing health needs.

Appendix 4: Case study Greece

Key characteristics of the economic crisis influencing health system delivery design

Greece was one of the most severely affected countries worldwide as a result of the 2007–08 Global Financial Crisis.[67] It experienced a 29% reduction in GDP between 2008 and 2014 and the economy has remained contracted relative to pre-crisis levels (Figure 14). During this period, it received three debt-relief bailouts (2010, 2012, and 2015) from the IMF, European Commission and European Central Bank (an informal alliance known as the 'Troika').[68] At the time the sovereign debt crisis hit, devaluation was not seen as an option and despite concerns about the possible negative effects of austerity measures, the government decided to dramatically cut public expenditure.[69]

Figure 14: Greece GDP per capita (1960–2021) and health care expenditure per capita (2004–17)



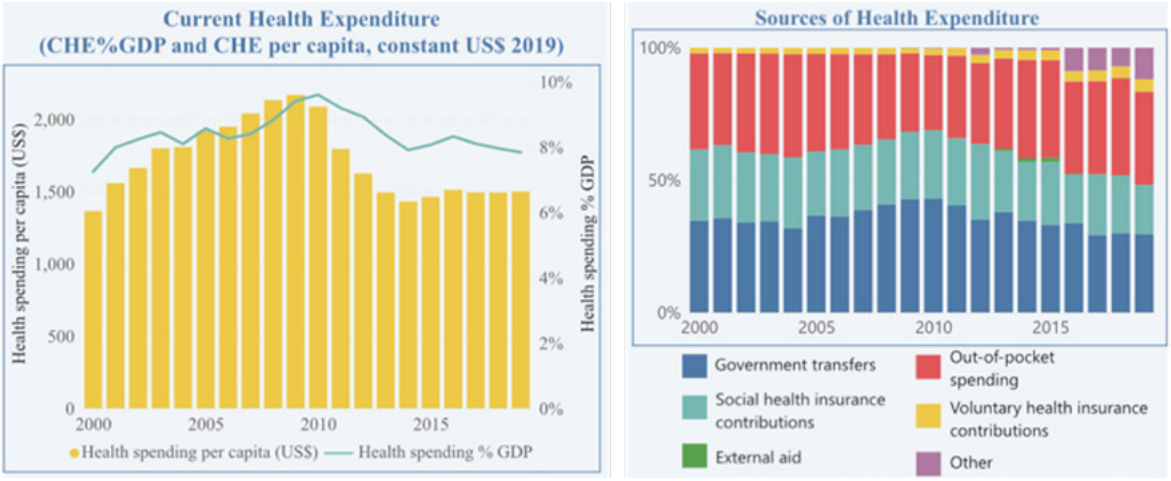
Income inequality and poverty levels in Greece were higher than the average of the 27 European Union countries at the time of the crisis.[70] In 2010, with soaring inflation and unemployment rates, the country was tackling the crisis on multiple fronts. A critical impact on the health system was the targeting of social security programs for austerity cuts.[67]

These austerity measures were implemented against a background of escalating total health expenditure in the years prior to the crisis.[70] Between 2005–09, spending on health accounted for 21% of the cumulative fiscal deficit, and total health expenditure rose to 10% of GDP.[69] In 2012, the second bailout by the Troika was conditioned on cutting expenditure to 9% of GDP by 2014.[71] Greece was one of the few countries in the Eurozone where health expenditure was targeted as part of the fiscal adjustment measures, driven by concerns it was one of the main drivers of national debt.

The health and social impacts of the crisis have been enduring. The 2018 Economic Survey reported dramatic rises in poverty (with a 20% fall in real wages since 2010) and unemployment (43% among youth).[72] The crisis and austerity measures in the health sector, and for the economy overall, were found to be associated with increased mortality and morbidity in older, low-income population groups.[73] In 2016, an analysis concluded that an extra 242 deaths per month were occurring after the onset of the economic crisis.[73] Two years later, alarmingly, rates of material deprivation as well as population-reported unmet health need were three times higher in Greece compared to others in the European Union (22.4% material deprivation rate compared to 7.5% in the EU; 14.5% reporting unmet medical need compared to 4.5% in EU).[72]

Total health expenditure per capita and as a proportion of GDP has steadily declined since the crisis and government spending has fallen substantially, while out-of-pocket costs have remained steady over this period (Figure 15). One study found that government health spending declined by 20% between 2008 and 2019, 7.8% of GDP in the latter period.[74]

Figure 15: Greece health spending per capita and sources of health expenditure (2000–19)[24]



Health system delivery design and major reforms prior to the crisis

The main public provider of primary and secondary health services was the Green National Health System, which was influenced by Alma Ata and established in 1983.[75] Although the 2000–09 period was dubbed the 'happy decade' and saw sustained economic growth, healthcare expenditure focused on hospital care to the detriment of preventive, long-term, home-based and digital health supported care delivery.[71] The rising expenditure in hospital care was particularly prominent in the private sector, which provided almost 40% of all inpatient beds in the country.[75] The economic crisis exacerbated existing weak points of the healthcare system, which included informal payments, inefficient management, and a fragmented public health insurance system.[71] Additionally, there were mounting concerns about the twin and interrelated challenges of a weak primary health care sector and rising expenditure from an over-medicalised system focussed on specialist, curative care. For example, between 2000 and 2009 – the cusp of the crisis – expenditure increased five-fold to 5.6 billion Euros.[68] This is attributed in part to the absence of centralised procurement, as well as a heavy reliance on private specialists for outpatient care.[75]

Attempts to address these challenges pre-crisis were disjointed. Reforms such as a 2008 law to merge social security funds were unevenly managed and were not effectively consolidated and streamlined until 2010.[75] Such delays contributed to the crisis and made health a focal point for reform by the Troika. Prior to the crisis, EU stakeholders had relatively passive engagement in Greek policy reforms and were primarily focussed on enhancing alignment with the so-called 'European Social Model'. Consequently, the autonomy of domestic stakeholders (Greek parliament, social partners, veto players etc.) in decision making was high. The situation changed during the post-crisis period and EU intrusiveness in shaping the Greek welfare reforms became very high, characterised by 'hard' Europeanisation mechanisms such as Memoranda of Understanding (MoUs), where compliance with the EU requirements was conditional upon receipt of the Troika loans.[76] This mechanism is similar to structural adjustment policies introduced elsewhere in the world, which have a mixed and problematic legacy. In Greece, they have been associated with increased rates of suicide and depression, homelessness, child poverty and drug use.[77]

Service delivery reforms and strategies to protect or maintain efficiencies during the crisis

During 2009–16, reforms were put in place to cut costs and curtail health expenditure (see Table 8). While many of these reforms were not solely service-delivery focussed, there were direct impacts on provision of services. The key reforms are summarised below.

Merger of health insurance funds

The unification of the largest social insurance funds was one of the major post-crisis policy reforms. A National Organisation for Healthcare Provision (EOPYY) was established in 2010, bringing together 35 different occupation-based insurance funds.[74] In 2011, diagnosis-related group (DRG)-based prospective reimbursements for hospitals were introduced as a part of the EOPYY (Goranitis I, Siskou O, and Liaropoulos L 2014). Despite potential for efficiency gains from this change, a recent analysis raised concerns that DRG pricing based on average length of stay did not reflect evaluated cases (e.g., in the case of cancer care)[78] and that the system was in need of reformulation, given the high rates of out-of-pocket expenditure and informal payments.[76] In 2016, UHC legislation was introduced, which aimed to cover both uninsured Greek citizens, as well as migrants and refugees.[68, 77] However, with the rapid increase in migrant and asylum-seeking populations in the country, there are concerns over the availability of health personnel, overcrowding in camps and service provision gaps in practice.[79]

Pricing policies, e-prescription and generics promotion for pharmaceuticals

In 2014, EOPYY also became the main purchaser of medicines and services. Central tendering was also introduced for technologies.[69] The merged schemes for drug purchasing required adaptive pricing and benefits adjustment and took time to stabilise. Expenditure on pharmaceuticals was reduced to more than 50% of 2009 levels by 2013. This yielded immediate efficiency gains in pharmaceutical expenditure.[80] Some have argued that additional reforms, including tendering for outpatient pharmaceuticals and internal reference pricing, could have yielded further economic benefits, however these were not implemented.[81] Concerns have also been raised about equitable distribution of resources for varying population subgroups, i.e. employees, employers, self-employees, farmers and retirees.[74] There is evidence that inequalities by demographic and occupational groups exist. For example, women, younger and highly educated farmers preferred public health insurance, indicative of inequalities in satisfaction and coverage.[82]

An electronic prescribing system was also introduced,[83] alongside promotion of generics and reference pricing for branded drugs. Despite reductions in price, co-payments for pharmaceuticals have increased, effectively shifting the burden of coverage onto the community.[84]

Widening access to outpatient and preventive care

In 2010, the government tried to raise revenue through ambulatory care, increasing user fees in outpatient departments by more than five-fold, a measure that was soon withdrawn due to opposition. Free access to primary care for uninsured (with some reservations) was introduced only in late 2013, with service coverage for this population extending the following year to include hospital and pharmaceutical care. The delays in providing financial protection likely had negative knock on effects related to unemployment and household economic hardship.[75] While self-reported unmet need reduced among the wealthiest quintiles, it conversely rose among the poorest quintiles, with the gap between these two population subgroups doubling from 2008 to 2013.[85] Between the second and third bailouts, close to a third of the population were seeking medical attention from NGOs (see patient solidarity clinics, below).[86] Legislation for primary care reforms were introduce in 2014 to allow contracting of private providers to support a mixed public-private system, and this was further expanded in 2017 to include primary care gatekeeping functions.[84]

Budget cuts for disease prevention

Budgets for vertical disease programs were cut as part of a package of austerity measures in 2011. A report by the Council of Europe's Commissioner on Human Rights found a 74% reduction in maternal and child health service provision and up to 50% cut in mental health services between 2009 and 2012.[79] Disease prevention programs have also had expenditure cuts, particularly for key populations like injecting drug users, who experienced a 10-fold increase in HIV in the same year and surging tuberculosis infections in 2013.[86, 87]

Improvements in data systems and analytics

Greece was a late adopter of a System of Health Accounts in the Eurozone, proposed by the Organization for Economic Cooperation and Development (OECD) in 2003 but only adopted by Greece in 2012. The late adoption of such a system led to incomplete information at the time of the crisis, but in the years following has proven essential in assessing the impact of reforms. Such a system has allowed for monitoring expenditure distribution at the population level by age, gender and illness[74] and assessment of the impact of insurance scheme convergence and other reform measures. Moreover, capacities have increased over time with respect to estimating operating costs of public hospitals, which will be required to better support reforms like DRG-based payments.[88]

Patient solidarity clinics

Grassroots mobilisation resulted in a wave of 'patient solidarity' clinics and pharmacies providing medical and pharmacy services to uninsured and unemployed populations, especially from 2012 onwards. Only one-third of these facilities were backed by the municipal government, with the remaining supported by civil society organisations (43%), the church (12%) and medical associations (8%).[89] Funded by donations and the unpaid work of volunteers, the response by civil society has been a form of protest against the austerity measures introduced by the government.

As outlined by Economou (2018),[76] in addition to these six broad categories, reforms were concentrated on centralised purchasing and procurement, with capitation-based payments to practitioners. Hospital service efficiencies were also proposed, including benchmarking, reduction of costs, upgrading budgeting systems and more.

Table 8: Major crisis-related events and changes in the Greek health system, 2009–13

Date	Event/action
2009	At the end of year, a series of actions on the international markets downgraded Greece's credit rating. Borrowing costs from markets rose to unsustainable levels.
2010	First MoU with the 'Troika' included salary cuts (12%) for all health staff, to be followed by another set of cuts (8%). The Kallikratis Plan, creating a more streamlined regional and municipal structure, is proposed, seeking to increase the role of regional health authorities. It has limited implementation.[90]
2011	User charges and prescription fees for public outpatient care and admission fees for hospitals are introduced (later repealed). A positive list for medicines reintroduced, as well as a variety of policies to promote the use of generic medicines. The newly established EOPYY began operation as the country's main body coordinating primary care and health care reimbursement. The health divisions of the main social health insurance funds are integrated into the EOPYY. As part of this process, health benefit packages and reimbursement of services by the various health insurance funds were streamlined.
2012	Second MoU/Economic Adjustment Program for Greece signed. Health sector measures focus on further reductions in pharmaceutical and hospital expenditure and on public sector salaries and benefits. Compulsory e-prescription system introduced along with the application of physician prescription guidelines (with a focus on generics) to control volume and cost. In November, Greece signed the Third MoU/Economic Adjustment Program. A new price list for reimbursable drugs introduced, decreasing reimbursable prices. Adoption of System of Health Accounts.

2013	A new pricing system based on DRGs introduced in hospitals, which would be used for setting hospital budgets. Unemployment rate reaches 26.8%.
2016	Adoption of law on universal health care, including for migrants and refugees.

Conclusion

Greece's economic crisis was influenced by a preceding sustained period of rising expenditure and inefficiency in the health system. Some of this inefficiency was masked by times of relative economic prosperity, particular in the decade pre-crisis in which the Greek economy grew substantially.

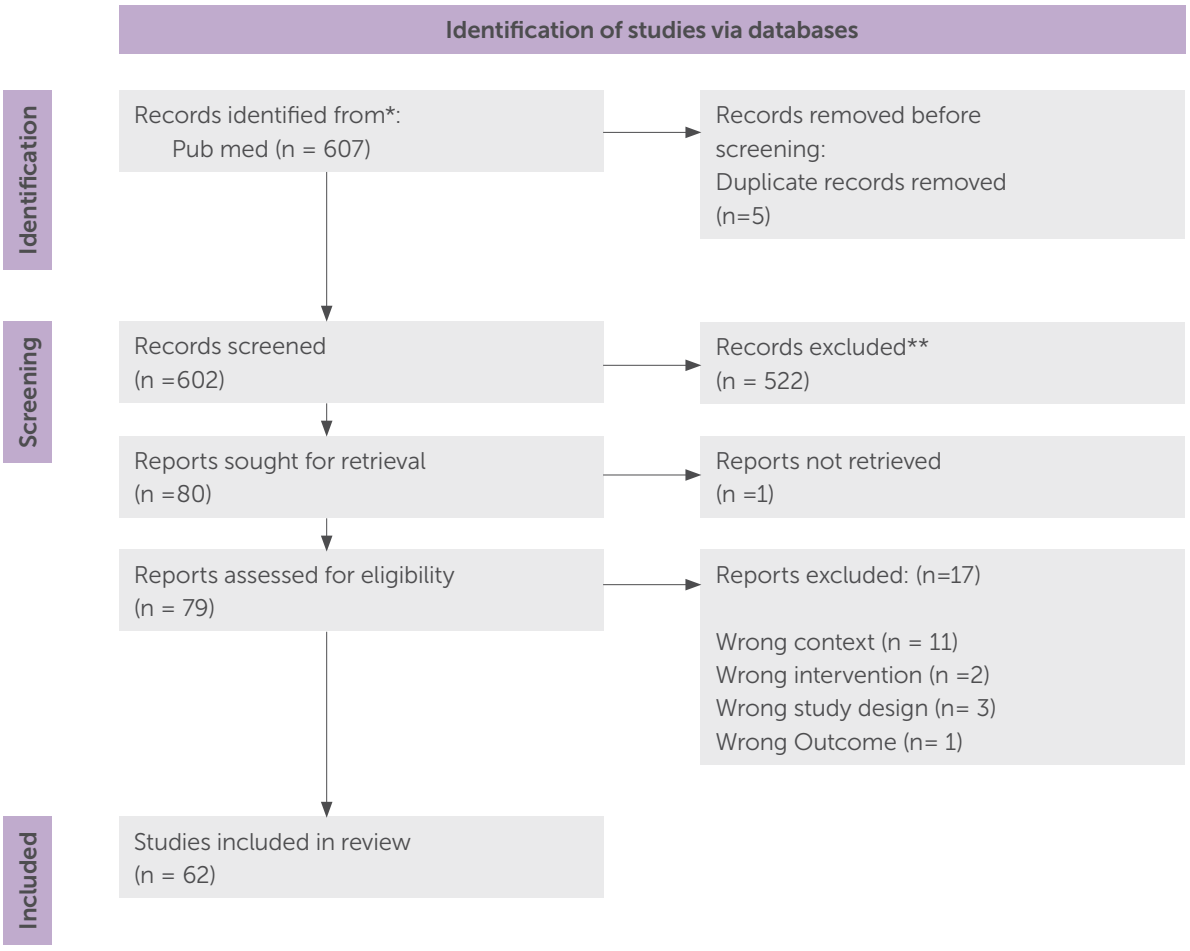
The impact of reforms introduced in response to the crisis in turn had major effects on the health sector. A series of austerity measures introduced in 2010, 2013 and 2015 sought to streamline health insurance schemes, reign in escalating expenditure, especially on medicines, while also cost-cutting prevention and disease control programs. In the second round of reforms, hospital pricing systems were introduced based on DRG reimbursements. Much of these reforms were recommended by the Troika and related to Greece's regional membership in the Eurozone.

The intention was to sequence long-needed reforms and build on them incrementally. For example, insurance mergers and coverage for uninsured were introduced six years after the onset of structural adjustments. However, the 'shock doctrine' and austerity approach of the reforms – often implemented in the absence of robust data and modelling of potential social and health impacts – resulted in a major contraction of public sector services and exacerbation of inequalities due to rising out-of-pocket costs and a lack of financial protection for the lowest wealth quintiles. By 2018, total private expenditure had risen to 3.1% of GDP, driven by a lack of coverage among the uninsured, rising unemployment and increased unmet need.[75] This led to a rise in activity by civil society and other stakeholders to restore essential services and fill gaps left by the reforms. Future attention may need to be paid on integrating and incorporating these initiatives and enhancing their role in progressing UHC.

More than a decade later, the consequences and impact of the crisis and subsequent reforms persist, and Greece's economy remains substantially contracted from where it was pre-crisis. This poses ongoing challenges to efforts underway to expand insurance coverage and address inequities, rationalise pharmaceutical expenditure, reduce inefficiency in the hospital sector, build and ensure a gatekeeping role for primary health care services, as well as better use of health information systems and data for decision-making.

Appendix 5: PubMed search strategy and flowchart

No.	Search terms	Number of hits
#1	"Health"[MeSH] OR "Health Services"[MeSH] OR "Delivery of Health Care"[MeSH] OR "Public Health"[MeSH] OR "Health" OR "Health service" OR "Healthcare" OR "health system" OR "Public health" OR "health outcome" OR "health care strategies" OR "cost effective strategies"	12,778,755
#2	"Economic Factors"[MeSH] OR "Economic Recession"[MeSH] OR "Financial crisis" OR "austerity" OR "recession" OR "economic crisis" OR "economic depression" OR "economic hardship" OR "economic insecurity"	18,789
#3	"Thailand"[MeSH] OR "Thailand" OR "Indonesia"[MeSH] OR "Indonesia" OR "Vietnam"[MeSH] OR "Vietnam" OR "Greece"[MeSH] OR "Greece"	323,533
#4	"Health"[Title/Abstract] OR "Health service"[Title/Abstract] OR "Healthcare"[Title/Abstract] OR "health system"[Title/Abstract] OR "public health"[Title/Abstract] OR "health outcome"[Title/Abstract] OR "health care strategies"[Title/Abstract] OR "cost effective strategies"[Title/Abstract] OR "Health"[MeSH] OR "Health Services"[MeSH] OR "Delivery of Health Care"[MeSH] OR "public health"[MeSH] AND ("Economic Factors"[MeSH] OR "Economic Recession"[MeSH] OR "Financial crisis"[Title/Abstract] OR "austerity"[Title/Abstract] OR "recession"[Title/Abstract] OR "economic crisis"[Title/Abstract] OR "economic depression"[Title/Abstract] OR "economic hardship"[Title/Abstract] OR "economic insecurity"[All Fields] OR "economic crisis"[Title/Abstract]) AND "Thailand"[MeSH] OR "Indonesia"[MeSH] OR "Vietnam"[MeSH] OR "Greece"[MeSH] OR "Thailand"[Title/Abstract] OR "Indonesia"[Title/Abstract] OR "Vietnam"[Title/Abstract] OR "Greece"[Title/Abstract]	97,407
#5	#1 AND #2 AND #3 AND #4 Filters: from 2002/1/1 – 2022/9/9	607



Appendix 6: Characteristics of the articles retrieved from the database search

Author (Year)	References	Country	Article Type	Study Type	Key Findings
Adamakidou 2017	Adamakidou, T. and A. Kalokerinou-Anagnostopoulou (2017). "Home health nursing care services in Greece during an economic crisis." Int Nurs Rev 64(1): 126-134.	Greece	Review article	Narrative review	Introduction of home health care (HHC) services during the economic crisis to improve quality of life in patients who are in process of recovery and ost-hospitalised patients.
Antonakos 2021	Antonakos, I., Souliotis, K., Psaltopoulou, T., Tountas, Y., Papaefstathiou, A., & Kantzanou, M. (2021). Psychometric Properties of the Greek Version of the Medical Office on Patient Safety Culture in Primary Care Settings. Medicines (Basel, Switzerland), 8(8), 42. https://doi.org/10.3390/medicines8080042	Greece	Research article	Cross-sectional Study	Medical Office Survey on Patient Safety Culture (MOSPSC) is a specialised tool which can be used in primary health care settings to access the quality of the patient's safety.
Augusto 2020	Augusto, G. F., et al. (2020). "HIV prevention and treatment in Southern Europe in the aftermath of bailout programmes." Eur J Public Health 30(5): 967-973.	Greece, Cyprus, Portugal and Spain	Review article	Narrative review	Prioritize comprehensive and effective preventive measures to reduce the emergence of new infections.
Bailey 2017	Bailey, Jennifer (2017) "Potential health co-benefits related to mitigation of air pollution from woodburning: A systematic review & health impact assessment case study in Athens, Greece " https://escholarship.org/uc/item/3m44z6np; 2017-06-01	Greece	Report	Systematic review; case study	Introduction of wood stove changeout program to reduce the amount of particulate matter pollution and adverse health effects resulting from wood burning during crisis.
Barlow 2015	Barlow, P., et al. (2015). "Austerity, precariousness, and the health status of Greek labour market participants: Retrospective cohort analysis of employed and unemployed persons in 2008-2009 and 2010-2011." J Public Health Policy 36(4): 452-468	Greece	Review article	Retrospective cohort analysis	During the recession period, instead of enacting austerity packages, government should launch cost-saving initiatives to prevent the negative effects of job losses on health.
Burki 2018	Burki T. (2018). Health under austerity in Greece. Lancet (London, England), 391(10120), 525–526. https://doi.org/10.1016/S0140-6736(18)30242-3	Greece	Research article	Commentary	Electronic monitoring systems, including electronic prescriptions, were established; use of generics and introduction of reference pricing for branded drugs.
Christodoulou 2013	Christodoulou, N. G. and G. N. Christodoulou (2013). "Financial crises: impact on mental health and suggested responses." Psychother Psychosom 82(5): 279-284.	Greece	Review article	Narrative review	Active labour market and family support programs have been found to be cost-effective in reducing the psychiatric morbidity during financial crisis.
Christodoulou 2016	Christodoulou, G. N., & Abou-Saleh, M. T. (2016). Greece and the refugee crisis: mental health context. BJPsych international, 13(4), 89–91. https://doi.org/10.1192/s2056474000001410	Greece	Review article	Narrative review	Local communities, non-governmental organisations, churches and medical societies played a major role in providing psychological support during the phase of Greece's deteriorating financial crisis.

Dervenis 2012	Dervenis, C., et al. (2013). "Restructuring the finances of the Greek health care system in the era of economic crisis." World J Surg 37(3): 707-709	Greece	Letter to editor	Commentary	Health Procurement Committee (EPY) was established to manage the medical supplies, which resulted in annual savings.
Devi 2018	Devi, S. (2018). "Greece's health after the "day of liberation"." Lancet 392(10150): 810.	Greece	Research article	Commentary	Health care for uninsured and free primary health care services were some of the measures taken by government to deal with the crisis.
Economou 2017	Economou C, Kaitelidou D, Karanikolos M, Maresso (2017) A. Greece: Health System Review. Health Syst Transit. Sep;19(5):1-166. PMID: 29972131.	Greece	Report	Systematic review (HiT)	Cost-containment measures to achieve expenditure cuts, introduction and rollout of e-referrals and e-prescription, restructuring of the public hospitals were the major reforms.
Emmanouilidou 2021	Emmanouilidou, M. (2021). "The 2017 Primary Health Care (PHC) reform in Greece: Improving access despite economic and professional constraints?" Health Policy 125(3): 290-295.	Greece	Review article	Narrative review	Economic adjustment programmes (EAP) were introduced to strengthen primary care and improve accessibility to primary health care services.
Evlampidou 2019	Evlampidou, I. and M. Kogevinas (2019). "Solidarity outpatient clinics in Greece: a survey of a massive social movement." Gac Sanit 33(3): 263-267.	Greece	Research article	Survey	Solidarity outpatient clinics play a major role in temporarily alleviating the health needs of people.
Fountzilas 2018	Fountzilas, E., Levva, S., Mountzios, G., Polychronidou, G., Maniadakis, N., Kotoula, V., & Fountzilas, G. (2018). Treating EGFR-Mutated Oncogene-Addicted Advanced Non-Small-Cell Lung Cancer in the Era of Economic Crisis in Greece: Challenges and Opportunities. Journal of global oncology, 4, 1–12. https://doi.org/10.1200/JGO.18.00115	Greece	Review article	Retrospective review	A national program of early access to epidermal growth factor receptor (EGFR) tyrosine kinase inhibitors enabled the treatment of non-small-cell lung cancer (NSCLC) as per established guidelines, even during the period of financial crisis.
Fragkoulis 2012	Fragkoulis E. (2012). Economic crisis and primary healthcare in Greece: 'disaster' or 'blessing'?. Clinical medicine (London, England), 12(6), 607. https://doi.org/10.7861/clinmedicine.12-6-607	Greece	Letter to the editor	Narrative review	Radical changes were made, including merging of health insurance funds and the establishment of EOPYY, (National Organisation for Healthcare Provision).
Goranitis 2014	Goranitis, I., Siskou, O., & Liaropoulos, L. (2014). Health policy making under information constraints: an evaluation of the policy responses to the economic crisis in Greece. Health policy (Amsterdam, Netherlands), 117(3), 279–284. https://doi.org/10.1016/j.healthpol.2014.07.012	Greece	Review article	Narrative review	E-prescription and e-monitoring were implemented, free primary health care services provided to the uninsured population, provision of outpatient services and preventive care can help in mitigating the impact of austerity measures imposed during the crisis.
Hatt 2007	Hatt, L., et al. (2007). "Did the strategy of skilled attendance at birth reach the poor in Indonesia?" Bull World Health Organ 85(10): 774-782	Indonesia	Review article	Retrospective review.	Indonesian village midwife program provided professional care to the poorest women thus reducing socio-economic inequalities during economic crisis.

Hopkins 2006	Hopkins, S. (2006). "Economic stability and health status: evidence from East Asia before and after the 1990s economic crisis." Health Policy 75(3): 347-357	Indonesia; Thailand	Review article	Narrative review	Expansion of government budget for two public insurance schemes for low-income households.
Kapetanakis 2018	Kapetanakis, E. I., et al. (2018). "Delivering quality lung cancer care in crisis-wracked Greece. " J Surg Oncol 117(3): 537-538.	Greece	Letter to editor	Commentary	Reforms in lung cancer care were made in surgical procedures to deal with the financial constraints by switching to minimally invasive procedures and monitored anesthesia care video-thoracoscopic resections (VATS).
Karamanoli 2015	Karamanoli, E. (2015). "5 years of austerity takes its toll on Greek health care." Lancet 386(10010): 2239-2240.	Greece	Research article	Commentary	Social insurance schemes covered only a few services due to financial crisis.
Karidis 2011	Karidis, N. P., et al. (2011). "Global financial crisis and surgical practice: the Greek paradigm." World J Surg 35(11): 2377-2381.	Greece	Review article	Narrative review	Switching to traditional surgical techniques during the financial crisis will help in cost control without reducing the quality of care.
Kastanioti 2013	Kastanioti, C., et al. (2013). "Public procurement of health technologies in Greece in an era of economic crisis." Health Policy 109(1): 7-13.	Greece	Review article	Narrative review	E-auction process resulted in annual economic savings thus reducing procurement costs of the hospitals.
Kentikelenis 2017	Kentikelenis, A. E. (2017). "Structural adjustment and health: A conceptual framework and evidence on pathways." Soc Sci Med 187: 296-305	Greece	Review article	Narrative review	Structural reforms during the crisis should be made diligently as they might adversely impact individual-level factors such as unemployment, economic hardship and psychosocial distress.
Koetsenruijter 2015	Koetsenruijter, J., van Lieshout, J., Lionis, C., Portillo, M. C., Vassilev, I., Todorova, E., Foss, C., Gil, M. S., Knutsen, I. R., Angelaki, A., Mujika, A., Roukova, P., Kennedy, A., Rogers, A., & Wensing, M. (2015). Social Support and Health in Diabetes Patients: An Observational Study in Six European Countries in an Era of Austerity. PloS one, 10(8), e0135079. https://doi.org/10.1371/journal.pone.0135079	Greece, Netherlands, Norway, Spain, United Kingdom, Bulgaria,	Research article	Cross-sectional study	Community organisations played a major role in management of health and health-related behaviors in patients with type 2 diabetes while the austerity measures were imposed.
Kondilis 2012	Kondilis, E., et al. (2012). "Economic crisis and primary care reform in Greece: driving the wrong way?" Br J Gen Pract 62(598): 264-265	Greece	Review article	Narrative Review	Introduction of social health insurance schemes, establishment of rural health centres for provision of comprehensive and accessible healthcare services.
Kousoulis 2013	Kousoulis, A. A., Angelopoulou, K. E., & Lionis, C. (2013). Exploring health care reform in a changing Europe: lessons from Greece. The European journal of general practice, 19(3), 194–199. https://doi.org/10.3109/13814788.2013.779663	Greece	Review article	Narrative review	Electronic health records system, near-patient testing, cost-of-quality approaches in resource-restricted environment can play a vital role in providing better health care services during period of economic recession.

Madianos 2013	Madianos M. G. (2013). Economic crisis, mental health and psychiatric care: what happened to the "psychiatric reform" in Greece?. Psychiatrike = Psychiatriki, 24(1), 13–16.	Greece	Research article	Commentary	NGOs were involved to fulfill the demands of the programs introduced to improve community-based psychiatric care.
Mavridoglou 2022	Mavridoglou, G. and N. Polyzos (2022). "Sustainability of Healthcare Financing in Greece: A Relation Between Public and Social Insurance Contributions and Delivery Expenditures." Inquiry 59: 469580221092829	Greece	Research article	Economic evaluation	Establishment of National Organisation for Healthcare Services and introduction of new financial flow model to address the deficits.
McKee 2016	McKee, M., & Stuckler, D. (2016). Health effects of the financial crisis: lessons from Greece. The Lancet. Public health, 1(2), e40–e41. https://doi.org/10.1016/S2468-2667(16)30016-0	Greece	Research article	Commentary	During the financial crisis, discretion was exercised by the 'Troika' and not by national government in Greece, which helped the pensioners to protect their income, many people could retire at relatively young age.
Milionis 2013	Milionis, C. (2013). "Provision of healthcare in the context of financial crisis: approaches to the Greek health system and international implications." Nurs Philos 14(1): 17-27	Greece	Review article	Narrative review	Reduction in pharmaceutical costs through e-prescription and use of generic drugs; merged social insurance public health service providers and data monitoring of hospital expenditure were some of the significant measures undertaken during crisis.
Mitonas 2016	Mitonas, G., et al. (2016). "COPD patients' medical care and support in Greece during financial crisis." Int J Gen Med 9: 401-407	Greece	Research article	Cross-sectional study	Informal caregiving by non-family members at home played a significant role in providing medical care to COPD patients during the crisis.
Mitropoulos 2018	Mitropoulos, P., et al. (2018). "The impact of economic crisis on the Greek hospitals' productivity." Int J Health Plann Manage 33(1): 171-184.	Greece	Review article	Before-after study	Short-term increase in productivity by introduction of three reforms: plan for hospital mergers and closures; strengthening the prospective payment system; and measures to reduce prices and procurement of medical supplies.
Niakas 2013	Niakas, D. (2013). "Greek economic crisis and health care reforms: correcting the wrong prescription." Int J Health Serv 43(4): 597-602.	Greece	Review article	Narrative review	Merging of social insurance funds into one (EOPYY) to reduce the burden of state budget during crisis, reduce costs and improve access to healthcare.
Pachanee 2006	Pachanee CA, Wibulpolprasert S. (2006) Incoherent policies on universal coverage of health insurance and promotion of international trade in health services in Thailand. Health Policy Plan. 2006 Jul;21(4):310-8. doi: 10.1093/heapol/czl017. Epub May 25. PMID: 16728511.	Thailand	Review article	Narrative review	New marketing strategies were adopted to attract foreign patients, introduction of health insurance schemes.
Peppou 2021	Peppou, L. E., et al. (2021). "From economic crisis to the COVID-19 pandemic crisis: evidence from a mental health helpline in Greece." Eur Arch Psychiatry Clin Neurosci 271(2): 407-409.	Greece	Letter to editor	Commentary	Establishment of a nationwide telephone helpline service for psychosocial support during the crisis.

Peritogiannis 2017	Peritogiannis V, Manthopoulou T, Gogou A, Mavreas V. (2017) Mental Healthcare Delivery in Rural Greece: A 10-year Account of a Mobile Mental Health Unit. J Neurosci Rural Pract. Oct-Dec;8(4):556-561. doi: 10.4103/jnrp.jnrp_142_17. PMID: 29204014; PMCID: PMC5709877.	Greece	Review article	Retrospective review	Mental health service delivery through mobile mental health Units (MMHUs) – a low-cost service which promotes mental health in rural areas.
Pisani 2017	Pisani, E., et al. (2017). "Indonesia's road to universal health coverage: a political journey." Health Policy Plan 32(2): 267-276.	Indonesia	Review article	Narrative review	Provision of health cards to poor families, allowing them to seek free primary healthcare services during crisis.
Polyzos 2013	Polyzos, N., et al. (2013). "Reforming reimbursement of public hospitals in Greece during the economic crisis: Implementation of a DRG system." Health Policy 109(1): 14-22.	Greece	Research article	Experimental study	Introduction of Diagnosis Related Groups (DRGs)-based payment system for reimbursement during the economic crisis.
Portillo 2017	Portillo, M. C., et al. (2017). "Interventions and working relationships of voluntary organisations for diabetes self-management: A cross-national study." Int J Nurs Stud 70: 58-70.	Bulgaria, Greece, Norway, Spain, the Netherlands and the United Kingdom	Research article	Mixed method study	Mobilisation of voluntary organisations and community groups for diabetes management during the crisis.
Rajmil 2020	Rajmil, L., Hjern, A., Spencer, N., Taylor-Robinson, D., Gunnlaugsson, G., & Raat, H. (2020). Austerity policy and child health in European countries: a systematic literature review. BMC public health, 20(1), 564. https://doi.org/10.1186/s12889-020-08732-3	European countries	Research article	Systematic review	High austerity measures during crisis can deteriorate the quality and accessibility of health services and can adversely impact social determinants on child health (SDCH) and child health outcomes (CHO).
Riga 2015	Riga, M., et al. (2015). "MERIS (Medical Error Reporting Information System) as an innovative patient safety intervention: a health policy perspective." Health Policy 119(4): 539-548.	Greece	Research article	Experimental study	Use of medical Error Reporting Information System (MERIS) a patient safety intervention for detection of medical errors and adverse patient events.
Sarivougioukas 2020	Sarivougioukas, J. and A. Vagelatos (2020). "Introducing DRGs into Greek National Healthcare System, in 27 Weeks." Stud Health Technol Inform 272: 217-220.	Greece	Review article	Narrative review	Introduction of Disease Related Groups (DRGs) to address emergency situations, support the emergency state, and fulfil financial obligations during the crisis.
Siettos 2021	Siettos, C., et al. (2021). "A bulletin from Greece: a health system under the pressure of the second COVID-19 wave." Pathog Glob Health 115(3): 133-134.	Greece	Research article	Commentary	Implementation of non-pharmaceutical interventions helped to maintain the financial stability during COVID-19 and protected the national healthcare system (NHS), which remained vulnerable because of the initial crisis.

Sotiropoulos 2017	Sotiropoulos, G. C., et al. (2017). "Peripheral hepatojejunostomy: a last resort palliative solution in Greece during the economic crisis." BMJ Case Rep 2017	Greece	Research article	Case study	Palliative hepatojejunostomy could be a solution to obstructive jaundice during the crisis when endoscopic interventions are either not accessible or available.
Souliotis 2013	Souliotis, K., et al. (2013). "Transforming Public Servants' Health Care Organization in Greece through the Implementation of an Electronic Referral Project." Value Health Reg Issues 2(2): 312-318.	Greece	Review article	Narrative review	Benefits of implementing an electronic referral system were faster referral process, valid and complete (coherent) information, minimisation of the risk of misinterpreting the electronic referral due to illegibility of handwriting and also led to increase in quality of care.
Souliotis 2017	Souliotis, K., Agapidaki, E., Tzavara, C., & Economou, M. (2017). Psychiatrists role in primary health care in Greece: findings from a quantitative study. International journal of mental health systems, 11, 65. https://doi.org/10.1186/s13033-017-0172-0	Greece	Research article	Mixed method study	Involvement of psychiatrists in primary heath care will help in detection and management of common mental health conditions and increase patient accessibility to mental health services during the crisis.
Sparrow 2008	Sparrow, R. (2008). "Targeting the poor in times of crisis: the Indonesian health card." Health Policy Plan 23(3): 188-199.	Indonesia	Review article	Narrative review	Introduction of Indonesian health card program for accessibility of healthcare services to poor during economic crisis.
Stavrianou 2018	Stavrianou, A., et al. (2018). "Informal Caregivers in Greek Hospitals: a Unique Phenomenon of a Health System in Financial Crisis." Mater Sociomed 30(2): 147-152.	Greece	Research article	Cross-sectional study	Informal caregivers played a major role in providing care to hospitalised patients when there was nursing staff shortage during the crisis.
Stavrou 2015	Stavrou, G., et al. (2015). "Homemade specimen retrieval bag for laparoscopic cholecystectomy: A solution in the time of fiscal crisis." Asian J Endosc Surg 8(2): 223-225.	Greece	Research article	Experimental study	Homemade specimen retrieval bag is effective and easy tool which can be used for tissue extraction during laparoscopic cholecystectomy in the period of financial crisis to reduce costs.
Suci 2006	Suci, E. (2006). "Child access to health services during the economic crisis: An Indonesian experience of the safety net program." Soc Sci Med 63(11): 2912-2925	Indonesia	Review article	Time series analysis	Introduction of social safety net program to improve and maintain the nutritional and health status of low-income families during crisis.
Suhardjono 2008	Suhardjono (2008). The development of a continuous ambulatory peritoneal dialysis program in Indonesia. Peritoneal dialysis international : journal of the International Society for Peritoneal Dialysis, 28 Suppl 3, S59–S62.	Indonesia	Review article	Narrative review	Implementation of continuous ambulatory peritoneal dialysis (CAPD) program by government for treatment of chronic kidney disease.
Teerawattananon 2009	Teerawattananon, Y., Tantivess, S., Yothasamut, J., Kingkaew, P., & Chaisiri, K. (2009). Historical development of health technology assessment in Thailand. International journal of technology assessment in health care, 25 Suppl 1, 241–252. https://doi.org/10.1017/S0266462309090709	Thailand	Review article	Narrative review	Establishment of the HTA unit to focus on cost-containment measures during crisis.

Tsaousis 2021	Tsaousis, K. T. (2021). "Cataract Services in Greek Public Hospitals through and after the Austerity Period." Int J Appl Basic Med Res 11(3): 192-194	Greece	Research article	Commentary	To mitigate the impact of finances on cataract services, establishment of national cataract institutes could prove to be beneficial in improving the quality of services, reducing waiting period and securing safety procedures.
Tsiantou 2014	Tsiantou, V., et al. (2014). "Challenges and Opportunities in The Management of Chronic Diseases During The Economic Crisis In Greece: A Qualitative Approach." Value Health 17(7): A501.	Greece	Research article	Qualitative study	Strengthening the primary healthcare system, creating patient registries, and educating patients on self-management was prioritised to improve disease management during crisis.
Tzafalias 2014	Tzafalias, M. (2014). "Greek crisis fallout is an opportunity for health." Bull World Health Organ 92(1): 8-9.	Greece	Research article	Commentary	Provision of vouchers to low-income families and disabled, involvement of NGOs, establishment of solidarity centres by churches to provide basic healthcare services during financial stress.
Vandoros 2013	Vandoros, S. and T. Stargardt (2013). "Reforms in the Greek pharmaceutical market during the financial crisis." Health Policy 109(1): 1-6.	Greece	Review article	Narrative review	Reforms in the pharmaceutical markets that took place in Greece during crisis included price reductions, the reinstatement of a positive list, which includes all reimbursable pharmaceuticals, adjustments to pharmacy and wholesaler profit margins, and tenders for hospital drugs.
Vardas 2009	Vardas P. E. (2009). Cardiovascular medicine in difficult times of economic recession. Hellenic journal of cardiology : HJC = Hellenike kardiologike epitheorese, 50(2), 165.	Greece; European countries	Research article	Commentary	Cut back expenses, invest in education and training in cardiovascular medicine for better health outcomes during the period of crisis.
Vlasiadis 2019	Vlasiadis, K., et al. (2019). "The effects of the financial crisis on the general and dental health status of Greek citizens." Int J Health Plann Manage 34(4): 1485-1496	Greece	Review article	Narrative review	Promotion and use of generic drugs, focus on preventive measures and reinforcement of public dental care providers will play a vital role in mitigating the impact of crisis on general dental health services.
Vogler 2011	Vogler, S., et al. (2011). "Pharmaceutical policies in European countries in response to the global financial crisis." South Med Rev 4(2): 69-79.	European countries	Research article	Survey	Price reductions of pharmaceuticals; change in co-payments; generic drugs and public awareness raising campaigns were the reforms made in pharmaceutical policies during crisis.
Waters 2003	Waters, H., et al. (2003). "The impact of the 1997-98 East Asian economic crisis on health and health care in Indonesia." Health Policy Plan 18(2): 172-181	Indonesia	Review article	Narrative review	Social protection programs play a major role in protecting against the negative impact of economic crisis.
Wibulpolprasert 2014	Wibulpolprasert, S., & Fleck, F. (2014). Thailand's health ambitions pay off. Bulletin of the World Health Organization, 92(7), 472–473. https://doi.org/10.2471/BLT.14.030714	Thailand	Research article	Commentary	Improvement in insurance coverage for people in low-income families, expansion of the rural health infrastructure were the actions taken by Thai government to improve health outcomes during the crisis.

Xenos 2017	Xenos, P., Yfantopoulos, J., Nektarios, M., Polyzos, N., Tinios, P., & Constantopoulos, A. (2017). Efficiency and productivity assessment of public hospitals in Greece during the crisis period 2009-2012. Cost effectiveness and resource allocation : C/E, 15, 6. https://doi.org/10.1186/s12962-017-0068-5	Greece	Review article	Retrospective analysis	Technological improvements helped in boosting the efficiency and productivity of the public hospitals during the crisis.

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