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# DESIGNING HEALTH SYSTEMS

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RESEARCH PAPER
JANUARY 2022

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**Abstract**

Health systems are extremely complex, with multiple interacting components which can lead to varied outcomes depending on the context in which they are placed. Building a systematic understanding is then essential for designing health systems and reforming existing ones. In this paper, we propose an analytical framework that provides an overview of the various actors and processes involved in financing, purchasing, provision and provider payments. We use the framework to show that varying combinations of different actors and processes across functions can give rise to multiple possibilities for health systems design. Acknowledging these multiplicities in pathways possible can facilitate health systems design accounting for institutional and resource capacities, socio-economic-political contexts, and health-related needs and priorities. We use the framework to demonstrate how some of the best-performing health systems in the world have managed to achieve good outcomes through quite different pathways. We also apply the framework to understand the design of the multiple sub-systems currently existing in India. Using insights from the conceptual framework and the country case studies, we conclude with a broad set of principles that can guide the design (or redesign) of India's health system.

Dvara Research Working Paper Series No. WP-2022-01
January 2022
Version 1.0

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# Contents

# 1 Need for design in health systems

The World Health Organisation defines health systems as "all organisations, people and actions whose primary intent is to promote, restore or maintain health" (WHO, 2007). Beneath this broad definition of health systems lies a complex structure made up of multiple interacting components. Each of these components is further influenced by its multiple socio-economic-political contexts, making health systems evolve continuously in response to changing contexts. The system's performance and behaviour changes over time and cannot be understood by looking only at any one or a few of its individual components (Braithwaite, 2018), the output here being greater than the sum of its parts (Lipsitz, 2012).

The multiple variables in health systems also make them sites of competition and contestation between actors with different wants and needs (Mccoy & Allotey, 2021). Decisions around how health priorities are set, how health systems are financed and how resources are allocated within the systems are all subject to contestation. Ideological and political visions of what role a health system should play in society often influence the manner in which these decisions are taken (Braithwaite, 2018).

The existence of multiple distortions in healthcare makes the design of health systems a complex and difficult task. Some of these distortions include the lack of knowledge regarding one's own health (which, among other things also leads to a higher price elasticity for primary care than for higher levels of care), the presence of behavioural barriers to prioritising and seeking healthcare, and high levels of information asymmetry between healthcare providers and patients. These distortions make the idealised view of free and competitive markets a difficult one to sustain in the context of healthcare (Ashraf et al., 2021). The problem is magnified when it is a question of reforming an existing health system. Given the number of functions such a system already performs, and the number of stakeholders already implicated (with varied histories and motivations), it is not easy to predict how the reforms will pan out. Often, different health systems will respond in different ways to the same set of reforms.

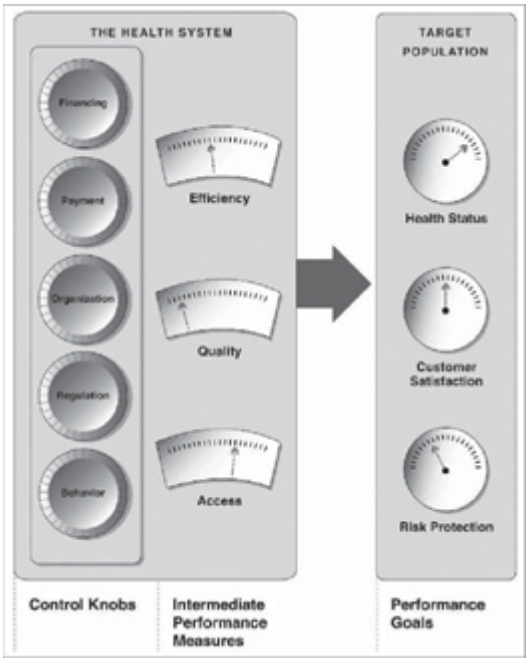
The above considerations imply that if allowed to evolve on their own, health systems are unlikely to "promote, restore and maintain health" efficiently and effectively. Instead, such systems and/or reforms to existing systems need to be designed after accounting for the multiple variables involved and the multiple outcomes each incremental change can lead to. This is by no means an easy task and any such attempt must involve building a systematic understanding of health systems.

In this paper, we provide a framework that will help facilitate a system-level understanding of the health landscape. In Section 2, we lay out this framework in terms of the functions a health system performs and the mechanisms and actors involved. In Section 3, we use the framework as a descriptive tool to detail four well-performing health systems. In Section 4, we provide an overview of India's current health landscape, with a specific focus on four major health systems. In the last section, using insights from the conceptual framework and the country case studies, we propose a set of principles that can guide the design (or redesign) of India's health system.

# 2 Framing health systems design

Given the complex nature of health systems, many frameworks have been developed over the years to study them, each taking a different approach to unpacking the various functions they perform (Böhm et al., 2013; Roemer, 1993; Rothgang et al., 2005; WHO, 2010). The Control Knobs Framework (Figure 1) is one such elegant framework and was developed by Roberts et al. (2004). This framework indicates that changes to health systems can be brought about by dialling up or down five control knobs – financing, payment systems, organisation, regulation, and behaviour. Tuning each of these knobs results in different outcomes measured using three intermediate indicators: (i) efficiency (which involves producing the right collection of goods and services to meet the larger health care goals at minimum costs), (ii) quality (determined by the quantity of care provided, availability of necessary inputs, and the state of the service provided), and (iii) access (both physical and effective). These intermediate performance measures, in turn, determine how the end-performance goals — health status, customer satisfaction and risk protection — transpire, both for the population as a whole and for the bottom income quintile.

Figure 1: Control Knobs Framework *(Roberts, Hsiao, Berman & Reich, 2004)*




Each of the five knobs is responsible for a specific function. Financing refers to all the mechanisms for raising money. These mechanisms also determine, therefore,

the level of resources available in the health sector. Payment decides the terms on which the collected funds are made available to providers. Organisation looks at the types of healthcare provider organisations that exist in the market, including, their roles, functions, and internal operations. Regulation pertains to the constraints that the state applies onto the different actors to control their behaviour. Lastly, Behaviour includes all efforts to influence how individuals act in relation to health and healthcare.

It must be noted that these knobs do not operate in isolation and tuning one is likely to have an impact on one or more of the others. Any significant reform would require the 'tuning' of more than one control knob and therefore, a comprehension of how they would interact with each other and with the different components of the health system is essential.

In this paper, we focus on the first three control knobs – financing, payment, and organisation. We break these down further into financing, purchasing, provision, and payments (to providers) (Table 1). Each of these functions can be performed by different entities, in different ways. Acknowledging the multiplicities in pathways possible then becomes the first step in designing a system that accounts for institutional and resource capacities, socio-economic-political contexts, and health-related needs and priorities.

Table 1: The Financier-Purchaser-Provider Framework (adapted from Roberts et al, 2004)

| **Financier** | **Purchaser** | **Provider** | **Payment Method** |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

## 2.1 Choice of source of financing for healthcare

Financing can be split into two functions: revenue collection and risk pooling.[1] Financing determines how funds are collected, who bears the burden, how risks are pooled, and who controls these funds. This, in turn, decides the quantum of resources available for the health system, who has access to care, and who is protected against impoverishment from catastrophic medical expenditure (Roberts et al., 2004).

As stated earlier, there is a multitude of financing strategies available to countries and usually, there is no single silver bullet for optimising this mechanism. The choice of financing strategy a country adopts depends on several factors. For one, the state of socio-economic development is an important consideration. It serves as an indicator of the extent of formalization of labour, the tax base, and the number of households that will need to be subsidized. A country's ability to implement a given financing strategy also rests upon the state of its administrative infrastructural capacity. This capacity itself being is a product of the country's state of socio-economic development. The trust that individuals have in the government and in the political processes of their country also determines the financing strategies available (Roberts et al., 2004).

Broadly then, a country's political, ideological and socio-economic contexts are all implicated in the choice of financing schemes, and the choice is typically one of the following (Table 1):

a **Tax-financed [FN1]**: Usually controlled by the Ministry of Finance, tax-based financing relies on taxes collected either directly or indirectly from citizens to fund the health system. The mix of taxes collected depends on the state of economic development and the ease of their collection. Tax-based financing often takes a more universal form — since benefits are not tied to the contribution, access to healthcare becomes universal. However, there is a set of conditions associated with the strength of this financing strategy. A strong tax-based system requires sustained economic growth, competent tax administration, a general consensus in favour of taxation (Gottret & Schieber, 2006) and a large formal sector. Thus, a move towards relying primarily on tax-based financing often happens as countries grow and advance

[1] This also includes prepayment (i.e., pooling over time) as a mechanism of risk-pooling. But it should be noted that prepayment as a mechanism can also exist without pooling. Singapore's Medisave that requires citizens to save in a health savings account for healthcare needs in the future is one such example. While it does not involve pooling, Medisave offers an option for prepayment taking away the need to pay at the point of consumption. They also allow members to smoothen their healthcare expenditures over time.

their economies. Furthermore, a potential problem with tax-based financing is its vulnerability to shifts in political leadership and its priorities, resulting in future shortfalls in resource allocation. In the face of competing budgetary priorities and limited resources, health systems may lose out. Thus, a tax-based financing mechanism may not be very stable.

b **Mandatory health insurance** [**FN2**]: Mandatory health insurance (or social health insurance) mandates membership for a designated population (usually formal sector workers and their families) who make financial contributions into to the system in return for medical benefits. For a health system to be primarily funded by mandatory health insurance, a large formal sector, high administrative capacity and social solidarity are prerequisites (Gottret & Schieber, 2006). Unlike tax-based financing, funds from mandatory health insurance are relatively stable as they rely on mandatory member contributions.

c **Voluntary health insurance** [**FN3**]: Any insurance that is paid for by voluntary contributions on a pre-paid basis, either by individuals or by private employers on behalf of their employees, can be considered as voluntary health insurance. As with mandatory health insurance, benefits are tied to contributions. Social solidarity and stable formal labour markets are helpful, but not necessary conditions for the success of voluntary health insurance, in contrast to the previous two financing mechanisms. For an effective system based on voluntary health insurance, the commercial institutional capacity [2] of the country is key (Gottret & Schieber, 2006). This strategy also relies rather heavily on the availability of high-quality insurance products and on individuals' perception of the value of insurance. Due to its voluntary nature, the potential of voluntary health insurance to become a universal financing mechanism is limited, particularly when alternatives such as tax-financing or mandatory insurance are feasible. However, in their absence, voluntary health insurance is a superior financing alternative to out-of-pocket (OOP) payments for those segments of the population that choose to purchase insurance. As for the stability of this mechanism, it heavily depends on the size and diversity of the insured pool, its ability to price risk correctly, and its ability to effectively manage the risks it underwrites.

d **Out-of-pocket (OOP) payments** [**FN4**]: OOP payments refer to payments that individuals make at the point of service. In this case, there is no pre-payment or pooling of risks and there is no reimbursement by third parties. User fees, i.e., payment to healthcare providers at the point of ser-

[2] The institutional capacity that facilitates the functioning of markets.

vice, is a subset of these. OOP payments often lead to the development of highly distorted health systems which perform poorly on all the outcomes discussed earlier (Figure 1). While these payments allow the exertion of a "first-order" market discipline on providers through a form of short route accountability[3] (Devarajan et al., 2011), a reliance on OOP payments as the primary financing mechanism can lead to high instances of forgone care and impoverishment due to healthcare expenses.

## 2.2 Choice of purchaser of healthcare for the system

Once funds have been collected (and pooled), the next step is to purchase healthcare using these funds. Purchasing is the function that is concerned with utilising pooled funds to purchase care from providers. It can be either passive or active (also called 'strategic purchasing'), depending on the level of involvement required of the purchaser to produce favourable health outcomes (WHO, 2010). Passive purchasing involves the mere reimbursement of providers. Active purchasing on the other hand entails areful consideration of which services to be purchased, from whom, and how these services are to be paid for [4], with the intention of maximising population health gains (Figueras et al., 2005). The latter, therefore, requires purchasers to employ a series of contractual, financing, regulatory and monitoring mechanisms to ensure that the providers provide the right mix of quality care at the agreed rate (Figueras et al., 2005). Interestingly, there is a global consensus emerging to move towards such strategic purchasing arrangements for the optimal utilisation of funds.

A variety of actors can play the role of purchasers. Based on the level at which the function is carried out, institutional capacity required, and the broad objectives, purchasers may be one of the following (Table 1):

a **Ministry of health [P01]**: In this case, the ministry or department of health acts as the purchaser and procures care from healthcare providers. As a purchaser, it makes all decisions regarding the provider landscape, healthcare services provided, and the payment models employed. In cases where purchasing is done at a macro-level, ministry of health typically acts as the purchaser. Such macro-level purchasing is preferred when the goals of a health system call for a strong national focus (public health goals, equity concerns). However, purchasing by the ministry of health tends to rely

[3]The World Development Report 2004 describes the short route of accountability as one imposed directly by citizens or consumers on providers.

[4]Section 2.4 discusses the various payment mechanisms available to a purchaser in greater detail.

on central planning and bureaucratic rules to manage the provider network (Hsiao, 2007), offering limited scope for local decision-making. This can result in purchasing being removed from the local needs and requirements (Figueras et al., 2005) and to that extent, less strategic.

b **Public organisation [PO2]**: In this case, purchasing is carried out by a public organisation that is separate from the ministry of health. Such public organizations could be regional governments, public trusts, or even a different ministry (for instance, the ministry of labour). Public organisations are typically involved when purchasing is carried out at a meso-level. These organisations purchase healthcare for a subset of the population, often identified using various criteria such as income levels,[5] nature of work,[6] region,[7] etc. Since they cater to a defined subset of the population, they can be more responsive to the specific needs of the subset of the population covered, than the macro-level ministry of health. However, the degree of strategic purchasing possible in this case, depends on the institutional competence of the public organisation, the administrative capacity of the state, and the ability to keep political interference to a minimum (Doshmangir et al., 2016; Hsiao, 2007).

c **Private organisation [PO3]**:In this case, private organisations such as general practitioner (GP) fundholders,[8] private insurance entities, and local cooperatives act as purchasers (Hsiao, 2007). Like public organisations, these also operate mostly at the meso-level, purchasing for a subset of the population and are likely to be more responsive to the needs of their defined set of members than macro-level purchasers. The degree of strategic purchasing possible in this case depends on the institutional capacity of the state to facilitate the functioning of markets as well as the regulatory framework under which private organisations operate.

d **Individual [PO4]**: The most rudimentary form of purchasing is that of the individual (or their family) being the purchaser, paying the provider at the point of service for the treatment received. In this case, purchasing occurs at the micro-level. On the one hand, individuals can act as their own agents and directly demand what they need, but on the other, they (as individual units) have limited power to negotiate with healthcare providers. Consequently, there is hardly any scope for strategic purchasing in this case. Given the

[5]Thailand's National Health Security Office (NHSO) catering to the informal and poor.

[6]India's ESIC purchasing for a section of formal employees.

[7]India's State Health Authorities (SHAs) - sub set of state population.

[8]Individual general practitioners given control over some of the budgets for hospital care for their patients.

lack of knowledge consumers have about their own health, behavioural barriers they may face in seeking that information and information asymmetry that exists between healthcare providers and consumers, this form of purchasing can leave the individual vulnerable to poor quality healthcare even when they can afford to pay the price set by providers. In the long term, the inability to negotiate can lead to escalation of costs (which the consumer is ultimately forced to bear) for some types of care (such as secondary care, medicines, and diagnostics), a fall-off in demand for other types of care (such as comprehensive primary care) and can even lead to adverse health consequences due to inappropriate (and in some cases, unnecessary) medical treatment.

## 2.3 Choice of provider of healthcare for the system

Healthcare provision is the central function of a health system towards which financing and purchasing are directed. The main objective of provision is to ensure the universal availability of quality health care services. WHO defines this quality of healthcare as comprising of services that are effective, safe, and people-centric, which also need to be timely, equitable, integrated, and efficient to realise its benefits (WHO, 2020). The way a country chooses to organise its provision landscape to provide quality services is a policy decision based on its fiscal capacity, national health goals and the government's political will.

Depending on the type of ownership of providers and their respective share in the system, there are four broad categories of providers involved (Table 1):

a **Only Ministry of Health [PR1]**: In this case, public-sector hospitals and primary care clinics act as the sole providers of healthcare. Care services are usually provided for free to citizens or there might even be short-term, market-based interactions in terms of fees for additional services (WHO, 2000). Public providers of healthcare are considered instrumental for equitable access since their primary objective is understood to be social welfare (Herrera et al., 2014). Moreover, where coordination of care across different providers is necessary especially with public health goals, public sector providers may be best placed for this (for example, in an epidemic) (Rosenthal & Newbrander, 1996). However, in the absence of competition, which is typically characteristic of this mechanism, poor quality of provision could be a serious concern.

b **Ministry of Health and private [PR2]**: In this case, private healthcare providers serve the purpose of filling the gaps in a primarily public sector-

provided health system or the public-sector providers serve the purpose of filling the gaps left by for-profit and non-profit private-sector providers. These gaps could be in terms of services[9] provided in the system. Where resources are constrained, these actors act as complementary entities to each other to provide a more complete set of healthcare services. However, as with systems with only the ministry of health as the provider, a system reliant on such a mix of actors faces the risk of low-quality provision with competition being limited.

c **Open competition between the Ministry of Health and the private sector [PR3]**: In this case, public and private providers co-exist and compete with one another. Systems that employ such combinations of ownership can benefit from the resultant competition among the public and private sector providers. Such competition is expected to gradually push each set of providers to focus more towards the care they are most competent in providing, maximising the benefit to the overall system. This consequence, however, is also dependent on the way market prices are regulated and the way competition is focused on the desired outcomes (Chalkley & Sussex, 2018).

d **Private providers only [PR4]**:In this case, healthcare provision is solely through private providers. These can be for-profit organisations or not-for-profit organisations. In systems where for-profit organisations are engaged in healthcare, the profit-seeking motive is expected to ensure economic efficiency (Herrera et al., 2014). However, this consequence could be limited in the case of not-for-profit providers since they are usually motivated by altruistic/philanthropic objectives instead of profits (Chalkley & Sussex, 2018). There might also exist objectives of quantity maximisation by non-profit hospitals since that could form the basis of tax benefits and other privileges. This can also lead to inefficiency in the absence of a budget constraint or third-party reimbursement which provides greater latitude to non-profit players (Newhouse, 1970). This mechanism also runs the risk of profit becoming the sole focus leading to a deterioration of the quality of healthcare provided (Chalkley & Sussex, 2018).

## 2.4 The manner in which providers of healthcare get paid

A key function of purchasers involves setting provider payment methods which are essentially mechanisms used to transfer funds from the purchaser of health

[9]As in the case of Iceland where private provision supplements the national health insurance system in this manner (WHO, 2020)

services to healthcare providers (J. C. Langenbrunner et al., 2009). The incentive structures created by provider payments can influence the quantity and quality of healthcare provided even more strongly than rules and regulations can (Roberts et al., 2004). This comes from the strong influence financial incentives can exert over organisational and individual behaviour in the health sector (Cutler & Zeckhauser, 2000). Both the distribution of financial incentives and the level of risks shared with providers are expected to have an impact on how healthcare providers provide care, effectively deciding the health status of the population. Thus, when designing health systems, the powerful effects of incentive structures on behaviour need to be acknowledged.

Figure 2: Continuum of payment mechanisms based on level of risk sharing


Payment to providers (i.e., provider organisations and not individual providers)[10] can take different forms, depending upon the level of risk involved for the provider. Figure 2 shows this continuum of payment mechanisms based on the level of risk shared with the provider, starting with the lowest level of risk-sharing. Our framework focuses on the following four points of this continuum (Table 1):

a **Input-based budget** [**PM1**]:Under this mechanism, providers (i.e., hospitals and clinics) are paid prospectively, based on input costs, without any ties to the final outcomes. The strong administrative controls this mechanism offers make it appealing to government-run systems. Line-item budgets are examples of input-based budgets. Under this payment mechanism, a fixed amount of funds is allocated to a healthcare provider to cover certain line items (personnel, utilities, etc.). Theoretically, input-based budgets also offer

[10]While provider organisations as business entities can be expected to behave in a profit seeking manner and thus respond to incentive structures, the same cannot be said of individual physicians. Their behaviour may not be fully explained by incentive structures alone, rather, they may also be influenced by various moral, cultural and ethical frameworks devised by social structures over the years (Parsons, 1951).

the possibility of eventually optimising the efficiency of health interventions by simply shifting the budgets to increase cost-effective interventions over less cost-effective ones (J. C. Langenbrunner et al., 2009). However, in practice, the kind of information that makes such monitoring possible is often more than what governments tend to have. Additionally, as with any fixed salary-based payments, the input-based budget payments are not tied to any health outcomes and as such, providers bear no risk. Providers paid in this manner may tend to alter strategies to minimise the time and effort their employees expend at work, often leading to underprovision of services or redirection of patients to other providers (J. C. Langenbrunner et al., 2009).

b **Fee-for-service [PM2]**: In this case, providers are paid a fixed amount, retrospectively, for each unit of service, without regard for health outcomes (Barber et al., 2019). These can be developed rather easily and with little additional capacity required (J. C. Langenbrunner et al., 2009). As the payments are not directly tied to the outcomes they may have, FFS payments, like input-based budgets, do not share much risk with providers. However, unlike input-based budget payments, they reflect the quantum of services provided more accurately. If providers that are paid based on inputs have an incentive to underprovide services, the contrary can be true for providers that are paid on an FFS basis. Linking payment to the provision of services incentivises providers (and consequently their employees) to maximise the quantum of services provided over quality, and to overprovide services disproportionate to what is medically required. The adoption of FFS has been correlated with a pronounced increase in overall health expenditures of countries (J. C. Langenbrunner et al., 2009).[11] However, it should also be noted that, scheduled fees, based on negotiations between payors and providers, can encourage the provision of cost-effective services (J. C. Langenbrunner et al., 2009; Ikegami & Anderson, 2012; Gusmano et al., 2020).[12]

c **Output-based [PM3]**:In this case, providers are paid retrospectively, based on specific measurable outputs. Per admission payments, per-diem (payment per number of days) payments, case-based payments (payments based on disease and treatment groups, e.g., Diagnosis Related Group (DRG) payments[13] or Procedure Related Group (PRG) payments[14]), etc. are a few examples

[11]This has been observed in countries like Taiwan and China.

[12]In Japan for instance, the prices for all healthcare goods and services are codified into a single fee schedule. This single fee schedule has allowed a control over cost-escalation despite the reliance on FFS payments (Ikegami & Anderson, 2012).

[13]In DRG or Disease Related Group payments, hospitals are paid per admission or discharge, whereby patients are classified into groups (DRGs) based on diagnosis and procedures.

[14]Procedure Related Group (PRG) payments classify patients on the basis of procedures rather

of such a mechanism. In these cases, providers are paid as per the average cost of producing a unit of a particular output. This is expected to incentivise providers to increase efficiency — the more efficient the provider, the greater the margin they receive (J. C. Langenbrunner et al., 2009). The problem here, as with FFS payments, is that output-based payments also incentivise providers (and their employees) to simply increase output[15] without regard for health outcomes. Some of the more recent output-based payment mechanisms attempt to address these issues. These are built on an expanded notion of 'output' and include results-based financing or pay-for-performance mechanisms that pay healthcare providers for meeting specific performance targets (Barber et al., 2019).

d **Population-based** [**PM4**]:In this case, providers are paid, prospectively, for population-specific outcomes. Capitation method is one such example. Under capitation, providers are paid a prospective fixed lump-sum payment per person enrolled for care with a provider within a given period covering a defined set of services, independent of whether the services are provided. Risk-sharing is high in this case as any treatment is paid for through the capitated funds providers receive upfront (J. C. Langenbrunner et al., 2009). In these cases, providers are forced to think of strategies to keep their members healthy, instead of tending to them only when they fall sick. If providers incur costs higher than what they have been allocated beforehand, they are liable for these costs. The efficiency gains are then expected to be high with population-based payments. The downside here is that the providers, having received payment upfront would have an incentive to underprovide or even deny care to maximise their surplus. Additionally, capitation also incentivises providers to risk select, i.e., accept only healthy members to minimise exposure to risk (Roberts et al., 2004).

## 2.5 Global trends

The financier-purchaser-provider framework (Table 1) provides an analytical tool to understand the design of financing flows in health systems and the actors involved in the process. With a large number of alternatives available, there is no

than diagnosis.

[15]This could take the form of prolonged length of stay (per-diem), unnecessary hospitalisation (case-based), etc. Output based payments refer to a broad spectrum of strategies and the outputs could be very different in each case. For instance, per diem payments incentivises providers to increase the length of stay at hospitals. However, in the case of case-based payments, providers are incentivised to reduce the length of stay. In this case the incentive is to increase the number of cases, often resulting in unnecessary hospitalisations.

single mechanism/actor that health systems around the world have overwhelmingly opted for while developing their health systems. We summarise the global trends in the adoption of these functions.

Globally, all countries use a combination of the four financing mechanisms described in section 2.1. Most countries start with social health insurance (FN1) to cover the formal sector, and some of these go on to expand the coverage to finance their entire health systems through such mandatory contributions (for example, Germany and Israel). As they develop high performing health systems with better institutional capabilities, many countries adopt tax-based financing (FN2) as the chief source of funds, as has been the case in the UK, Canada and Thailand.[16] In advanced economies, voluntary insurance and OOP payments are usually used to supplement/complement state-provided insurance or social health insurance. Few high-income countries use voluntary health insurance (FN3) as substitutes to tax-financing and social health insurance- the US is a notable exception.[17] In many LMICs (including India and Nigeria) health systems are primarily financed through OOP payments (FN4). It must be acknowledged that for most LMICs, OOP payment mechanism is likely to remain the primary source of financing, until a large-scale formalization of their economies in the future, creates avenues for tax-based financing and mandatory insurance.[18]

As in the case of financing, countries have attempted different arrangements to purchase care. The choice of purchaser is often closely tied to the financing mechanism itself. Many countries started with the ministry of health (PO1) as the purchaser of healthcare services, particularly in systems that were tax-funded. In single-payer health systems[19] such as Canada's, this continues to be the case (Greer et al., 2019). However, there has increasingly been a movement away from this towards the use of independent public (PO2) (for example, Thailand) or private organisations (PO3) (for example, Israel). Where OOP payments dominate, purchasing continues to happen at an individual level (PO4).

[16]Thailand in fact offers an interesting example of a country that shifted to tax-based financing, despite relatively lower tax-to-GDP ratios. The political prioritization of healthcare is what made this possible.

[17]While it largely relies on tax financing and mandatory employer-sponsored social health insurance, the US continues to depend on voluntary health insurance to insure its non-poor informal sector. The individual mandate that came with the Affordable Care Act in 2010 changed this. However, the individual mandate was later removed by the Trump administration in 2019 with limited short-run impact on the level of enrollments (Kliff, 2021).

[18]With tax-financed and social health insurance mechanisms unavailable to these countries in the immediate context, it is critical to explore ways to optimise existing OOP payment mechanisms and improve voluntary health insurance in the interim.

[19]In these systems, government acts as the sole financier and purchaser of care.

Globally, health systems are usually characterised by a mix of public and private ownership in healthcare provision. Few health systems have relied solely on the Ministry of Health (PR1)[20] or private providers (PR4)[21] to provide healthcare to their entire population. In most health systems, a public-private mix in healthcare has been present either through deliberate design from the beginning, as in the case of Columbia[22] or has evolved through the public sector contracting out some services to the private players.[23]

Across health systems, a purchaser's choice of payment structures has been found to depend on many factors including management information systems (MIS) available, monitoring and accountability structures possible, level at which care is provided (primary, secondary, tertiary), etc. Input based payments (PM1) were common in the former Soviet Republic bloc, which has since moved to other forms of payments. It continues to be common in many government-run health systems including Bangladesh, Bahrain, Mozambique, etc. (Preker et al., 2005). Due to its cost-escalating nature, the share of FFS payments (PM2) has been shrinking since the early twentieth century. However, it continues to be the chief payment mechanism in countries including Japan and Germany. Even within a system, purchasers opt for a combination of payment structures. For instance, Thailand pays for outpatient care through capitation (PM4) and inpatient care through outcome-based payments (PM3). A gradual consensus has been emerging globally that even when individual physicians within hospitals are salaried, the providers/facilities need to directly absorb the risk of patient well-being and should therefore be paid on a population or capitated basis (PM4).

In the next section, we will consider a few countries with varied health system designs to highlight how these designs operate in different country contexts and what outcomes they can produce.

[20]Some examples of countries where the Ministry of Health is the primary actor in healthcare delivery are Cuba (Stusser et al., 2012) and Turkey (Tatar et al., 2011).

[21]The commercial health insurance system in India employs exclusively private healthcare providers for provision. Switzerland, Taiwan, and The Netherlands are countries wherein the private sector makes up most of the healthcare landscape supported by mandatory private health insurance (in Switzerland) and mandatory social health insurance (in the Netherlands) (Okma et al., 2010).

[22]The SGSS system in Colombia ensured a public-private mix in provision of healthcare to realise the gains of competition among these players.

[23]Many municipalities in Finland have contracted out certain services to private providers (Tynkkynen et al., 2018).

# 3 Health system design: International experience

The interplay of the different actors and mechanisms across functions can give rise to multiple possibilities for health systems design. Table 1 indicates 256 such theoretical possibilities. In this section, we examine four specific health systems that have chosen four different pathways to achieve rather remarkable results in terms of health outcomes (Table 2).

Table 2: Outcomes and financing strategies

| **Country** | **DALY Rate**[24] | **THE**[25] **(PPP$)** | **Per capita income (PPP$)** | **Principal Financing design** |
|---|---|---|---|---|
| Israel | 19,702 | 3207.47 | 41,960 | FN2, PO3, PR3, PM3 |
| Thailand | 29,337 | 722.70 | 17,710 | FN1, PO2, PR3, PM4 |
| France | 27,289 | 5250.45 | 47450 | FN2, PO2, PR3, PM3 |
| Colombia | 24,211 | 1155.41 | 14,280 | FN1/FN2, PO2/PO3, PR3, PM4 |

*Sources*: Global health data exchange (IHME, 2019); Current Health Expenditure per capita PPP (WB, 2018); GNI per capita PPP (WB, 2020)

## 3.1 Israel

The entire population of Israel is covered under the National Health Insurance (NHI) system, introduced in 1995. Israel has had a long-standing history of providing prepaid healthcare and had achieved near-universal coverage even before the introduction of NHI, through its four sickness funds[26] (Tulchinsky, 1985). These sickness funds existed even before the nation-state was formed in 1948 and were instrumental in increasing health insurance coverage in Israel.

Until 1995, the sickness funds operated separately on their own terms. In the absence of major regulatory controls, one of the sickness funds eventually came to dominate the market and the benefits of competition diminished. To rectify the situation, all sickness funds were brought under the NHI system. The NHI set up a level playing field and reformed the financing mechanism to increase the government's control over healthcare expenses and to encourage competition

[26]Sickness funds are entities which act as insurance providers to their members and create their own provider networks to provide healthcare.

between sickness funds to gain and retain more members (Gross & Harrison, 2001).

Figure 3: Health System Design Framework of Israel (NHI)

| **Financier** | **Purchaser** | **Provider** | **Payment Method** |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

Figure 3 shows the design of Israel's current health system. The system is primarily funded by mandatory contributions from residents in the form of an income-based health tax[27] [FN2]. This is supplemented by general taxes in case of a budget shortfall. The sickness funds, which are private organisations, continue to be the purchasers of healthcare in the system [PO3]. They are in turn paid through risk-adjusted capitation from the pooled funds (contributions and government subsidies) by the Ministry of Health. The provider landscape in the NHI system is composed of both public (Ministry of Health) and private players [PR3], although the role of the former has been declining over the years. For their services, independent physicians are paid on a capitation basis, clinic-associated physicians are paid salaries, and the hospitals are compensated by Procedure Related Group payments [PM3].

With a DALY rate of 19702, especially at costs much lower than other OECD countries (OECD, 2022), the performance of the Israeli health system has been quite impressive. This can partly be attributed to the pooling and reallocation of funds through capitation to the sickness funds. Since purchasers get paid based on the number of members they have, it disincentivises over-provision of care and

[27]The health tax has a progressive tax rate in terms of income of the member. Individuals earning above 60% of the average wage are taxed 5%, those earning below 60% of the average wage are taxed 3% and the rest are taxed a flat tax.

with it limits the escalation of costs (Nambiar & Ashraf, 2021). The reforms saw sickness funds cut down costs drastically (Gross & Harrison, 2001). However, as discussed earlier, capitation payments come with a risk of denial of services. To minimise this and ensure customer protection, Israel allowed consumers an option to switch between plans twice every year and established regulatory mandates to provide care (Rosen et al., 2015). The introduction of such features into the design of the health system institutes mechanisms for control over the sickness funds.

While nearly flawless on paper, the operation of the system on the ground has over time led to some collusions between the sickness funds in the face of heavy regulation that suffocated innovations (Gross & Harrison, 2001). Apart from collusions leading to subpar quality of healthcare delivery, the regulation by the Ministry of Finance also focussed only on cutting costs and not on monitoring quality. Hence, while the system design introduced in 1995 did lead to some cost control, it could not fully ensure competition among the sickness funds.

## 3.2 Thailand

With the implementation of the Universal Coverage Scheme (UCS), Thailand achieved Universal Health Coverage in 2002. Before UCS, there were four major schemes in operation- Civil Servant Medical Benefit Scheme (CSMBS), Social Health Insurance (SHI) scheme, Medical Welfare Scheme (MWS) and Voluntary Health Card Scheme (VHCS).[28] These collectively covered only 70% of the population, despite being intended to cover the entire population. Health has long been a priority in Thailand and by the 2000s there already were large scale investments in health infrastructure at the district and subdistrict levels, resulting in each district having a hospital and every sub-district having a health centre (WHO, 2015). The challenge before Thailand was to effectively channel funds to these existing provider networks to provide coverage for everyone. UCS was thus launched in 2002 to cover all those not covered by CSMBS and SHI. It is worth noting that this move towards universal coverage was taken despite Thailand's relatively modest numbers for both per capita income ($8179 PPP) and tax to GDP ratio (13%) at the time.

Figure 4 shows the design of this health system. UCS, which covers three-fourths of the population is tax-financed (FN1). The taxes are collected by three departments of the Ministry of Finance, namely, Revenue Department, Excise Department, and Customs Department. The collected funds are transferred to the National Health

[28]CSMBS and SHI are for the formally employed (civil servants and private employees respectively). MWS and VHCS were for the informally employed.

Figure 4: Health System Design Framework of Thailand (UCS)

| **Financier** | **Purchaser** | **Provider** | **Payment Method** |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

Security Office (NHSO), a public organisation set up by legal mandate to act as a purchaser for UCS (P02) (WHO, 2015). UCS beneficiaries are required to register with the district healthcare provider networks,[29] close to their residence. The budget that NHSO negotiates for UCS is then used to contract with this district healthcare provider network. Both private and public providers compete to serve as the district healthcare provider (PR3).[30]

In order to keep costs from escalating under UCS, Thailand attempted to reform the provider-payment model using learnings from the payment structures that were already in place under CSMBS (FFS payments) and SHI (capitation). NHSO adopted age-adjusted capitation payments (PM4) to pay its providers for primary care under UCS, based on the total number of members registered with the network. This led to providers sharing some part of the risk. As effective gatekeepers of the members' health, provider networks also had to bear the costs for any referrals that the registered patients need, to access higher levels of care.[31] For in-patient care, however, to avoid possibilities of care denial, hospitals were paid on an output basis, more specifically, by DRG.

While the use of capitation payments has helped keep costs low in the system,

[29] A district hospital and 10–12 sub-district health centres serving a population of about 50000

[30] The competition was lesser in rural areas where government hospitals were the sole providers.

[31] The surplus remains with providers and can be used according to network guidelines. For example, public providers will be subject to Ministry of Public Health guidelines in using these (Barber et al., 2019).

it has continued to pose the risk of underprovision in outpatient care. One way NHSO has attempted to counter this is by setting up complaints management through a 24hour call centre, with the complaints raised being legally required to be settled within 30 days (WHO, 2015).

At a total health spending of just $723 per capita per year, Thailand has been able to provide universal health care for its population and achieve good health outcomes (Ashraf, 2021).

## 3.3 France

The French health system faced widening deficits which necessitated multiple reforms to decrease health expenditures (Sorum, 2005). While cost containment was the main objective of the system reform, it gradually prioritised universal coverage as the primary goal through subsequent reforms to increase coverage (Sandier et al., 2004). As a result, the system gradually increased its cover from only salaried workers to include all workers, and eventually, all residents by the year 2000 (Rodwin, 2003).

Figure 5: Health System Design Framework of France (SHI)

| **Financier** | **Purchaser** | **Provider** | **Payment Method** |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

Figure 5 shows the design of the SHI system. It is primarily funded through mandatory contributions in the form of payroll taxes [FN2] from both employees and employers and supplemented through national income tax, state subsidies and other miscellaneous taxes (Chevreul et al., 2015). The funds are collected by a

public body called the Union for the Recovery of Social Security Contributions and Family Allowances and pooled by the Central Social Security Agency. The funds are then distributed to multiple branches for different schemes and to the national branch for SHI for health insurance. The national branch then acts as the purchaser and retrospectively reimburses care [PO2].

The organisation of healthcare is diverse with both public and private (non-profit and profit-making) providers [PR3] operating in the system. Ambulatory care is dominated by private solo office-based physicians and inpatient care is mainly provided by public hospitals. Nevertheless, there is space for private entrants into the inpatient sector and for the public sector in primary care (Rodwin, 2003). While the hospitals are reimbursed on a DRG based payment system [PM3], the self-employed physicians are paid on a fee for service basis directly by patients.

By 2000, France had covered its entire population and attained universal health coverage (Rodwin, 2003). To address the issue of cost escalation, annual spending limits were set through National Objective for Health Spending (ONDAM)[32] and compliance was continuously monitored (Goujard, 2018). SHI also brought in quality improvement incentives in the form of pay for performance payments to physicians for meeting certain targets.[33] Additionally, members were offered the option to voluntarily enrol for gatekeeping[34] and provided with financial incentives to opt for the same (Durand-Zaleski et al., 2020). As a result, if patients consult with specialists directly without referrals, they pay higher cost-sharing fees (Goujard, 2018). This gatekeeping feature of the system ensures that patients receive specialist services only when required, hence controlling the costs associated with cost-unconscious demand for care and moral hazard on the part of providers.

## 3.4 Colombia

Columbia offers a good example of rapid progress towards UHC. From an insurance coverage of 23.5% in 1993, Colombia achieved coverage of 96.6% of the population in 2014 (OECD, 2016). The active thrust towards UHC came with a legislation in 1993 which introduced a mandatory health insurance system called the Sistema General de Seguridad Social en Salud (General System of Social Security in Health

[32] ONDAM is the abbreviation of the French name of the National Objective for Health Spending. It stands for Objectif National des Dépenses d'Assurance Maladie.

[33] Annual pay-for-performance targets include use of computerised medical charts, electronic claims transmission, preventive services, compliance with guidelines for diabetic and hypertensive patients etc. (Durand-Zaleski et al., 2020).

[34] Gatekeeping is the mechanism in which general physicians act as the first and only channel to higher forms of care (for e.g., specialist care).

(SGSSS)).

Prior to the reform in 1993, only 25% of Colombians had health insurance cover and more than 50% of the health spending was sourced from OOP payments (Escobar et al., 2009). The introduction of mandatory health insurance or SGSS was aimed at increasing insurance cover beyond the formally employed and introducing competition in the system among the insurance providers (Escobar et al., 2009). Currently, all citizens are eligible for insurance and can enrol in plans provided by private or public insurers.

Figure 6: Health System Design Framework of Colombia (SGSS)

| **Financier** | **Purchaser** | **Provider** | **Payment Method** |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

Figure 6 shows the design of SGSS. The system is financed through a combination of payroll contributions from those who can pay [FN2] (which forms the major component) and general taxation to subsidise costs for the poor [FN1]. Between 72 public [PO2] and private insurers [PO3], purchasing in the system is quite fragmented. Despite this, they are all mandated to provide a basic benefits package (Bossert et al., 2014). As with purchasing, SGSS includes both public and private providers [PR3].

The establishment of SGSS also introduced pooling of funds in a national equalization fund for the purpose of risk subsidy (from sick to healthy) and equity subsidy (from rich to poor) (Escobar et al., 2009). Insurers are paid through risk-adjusted capitation from this national fund. In turn, unit payment by capitation (UPC) is used for provider payments [PM4] to disincentivise over-provision and redirect focus on member affiliation (Rosa & Alberto, 2004). This capitation mode of payment is however limited to preventive and primary care services. Specialist care and hospital services are compensated through FFS payment mechanisms (Rosa

& Alberto, 2004).

The purpose of allowing both public and private players for healthcare delivery was to introduce competition between the public and private providers to create efficiency and quality incentives in the market (Escobar et al., 2009). The nature of contracts with providers is an autonomous decision of insurers wherein they have the freedom to choose from amongst various payment mechanisms. Despite the free rein provided, payments continue to be made either through capitation or FFS, steering away from innovation in this regard, contrary to what was intended (OECD, 2016). However, the total healthcare expenditure in Colombia has remained steadily lower than the OECD average. There has also been a sustained reduction of OOP expenditure (OECD, 2016)). One of the drawbacks of the system is the possibility of benefits denial, documented through lakhs of court cases filed, especially by those covered by the contributory insurance plans (Tsai, 2010). Hence, transparent performance frameworks need to be developed for all actors – providers, insurers and authorities to strengthen the performance of the system (OECD, 2016). This highlights the need for monitoring and evaluation of even well-designed systems to achieve desired outcomes.

## 3.5 Summary of insights from global cases for health systems design

The health systems studied in this section have different designs which have evolved as a result of multiple factors which may be socio-political, economic or even cultural. However, each of these system designs and subsequent reforms leaves valuable lessons for how health systems operate and what outcomes their designs can produce.

The financing mechanism employed by all the systems in these countries was either tax-based funding or mandatory contributions by citizens. The systems in Israel, France and Colombia pooled these funds and allocated them to independent public/private purchasers thereby allowing cost subsidy. The relationship of the purchaser with the provider/s is determined by the degree of integration between the two. While the public bodies in Thailand interact with providers through an arms-length approach indicating a purchaser-provider split, the private sickness funds in Israel create their own provider networks and hence have greater say in their operation.

All health systems detailed here relied on a deliberate organisation of purchasers and providers in the system to incentivise competition among players for bet-

ter health and efficiency outcomes. The mandatory health insurance systems in France and Colombia strived to obtain a mix of public and private players in the healthcare provision function for enhanced competition. Similarly, the NHI system of Israel was introduced with the aim of increasing competition among the four sickness funds by creating a level playing field. In this case, political factors limited the implementation of this aspect and regulation instead of becoming an enabler, suffocated the competition in the market.

Each of the four countries adopted different sets of approaches to pay providers, but each aimed at some form of cost control. In Thailand, Israel and to some extent Colombia, capitation and pay for performance were adopted with the aim to control costs. However, the systems in France and Colombia used output-based payments like DRG payments and FFS payments for the majority of their provider reimbursement. Acknowledged as mechanisms that can cause cost-escalation, a counter in the form of global budget (ONDAM) in France was incorporated to bring some cost control into the health system. Apart from incentives aimed at the providers, the population covered by these systems were enrolled into gatekeeping or cost-sharing mechanisms to limit moral hazard on the part of consumers.

These health systems and the reforms that shaped them can be placed in the context of the Control Knobs framework as described in section 2. Tuning one control knob in these systems may have had subsequent effects on others and the goals achieved could be influenced by other factors. Acknowledging this, it is the stated objectives of the health system reforms that we analyse. Across all the health systems under consideration, risk protection was the end goal, while efficiency and quality were the intermediate goals for key reforms.

In each of the health systems, we observe an attempt to tune the 'financing' knob to improve *risk protection* and achieve universal health coverage. While Israel, France and Colombia used mandatory contributions (supplemented by tax subsidies), Thailand was the only health system that relied on a purely tax-funded mechanism to achieve this objective.

Additionally, we also observe the use of specific measures to achieve the intermediate goals of *efficiency* and *quality* improvement in the systems. The control knobs tuned for this purpose were diverse, with financing being used in Israel, payment methods in Thailand and France and organisation (provider in our framework) in Colombia.

Israel introduced national health insurance which made mandatory contributions

the primary source of financing. This was aimed at regulating the market to control the funds being collected and spent by the sickness funds. It serves as an instance of the financing knob being tuned to achieve the intermediate goal of efficiency and quality improvement in healthcare delivery. However, the lack of regulation and information dissemination on that front impeded the complete realisation of that objective.

Thailand's UCS introduced the capitation mode of payment learning from the cost escalating effects of the payment methods used in other health financing schemes. France introduced a global budget to contain costs as well as pay-for-performance payments to physicians to produce better health outcomes. In both these cases, payment methods were tuned to achieve the intermediate goal of efficiency and quality.

Colombia has strived to ensure a mix of public and private providers in the market to induce competition for both efficiency and quality gains. In this case, the organisation knob has been tuned for achieving these intermediate goals.

# 4 Health system design - India's experience

India currently spends about 3.3% of its GDP on healthcare and like every other country, India also finances healthcare through a mix of financing strategies. Unfortunately, with out-of-pocket spending accounting for nearly 55% of all health spending, the Indian health system relies primarily on OOP expenditure (FN4) (MoHFW, 2021). Less than 45% of India's health spending is made of some kind of pooled funds and whatever limited risk pooling India has, is highly fragmented across different pooling mechanisms. In this section, we trace the financing pathways of some of India's largest and more prominent financing strategies.

## 4.1 Ministry provided healthcare

Post-independence, India adopted a welfare state approach, with the government envisioned to play a vital role in financing and providing free/subsidized care to citizens. Ministry-provided healthcare now accounts for about 30% of all health spending in India (MoHFW, 2021). The system is tax-funded [FN1], the funds are then directed through the ministry of health [PO1] to public sector hospitals managed by the ministry of health itself [PR1]. For their services, the providers are paid on a line-item basis [PM1] (Figure 7).

Figure 7: Financing pathway under ministry provided healthcare

| Financier | Purchaser | Provider | Payment Method |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

India's post-independence welfare state vision is reflected in the Bhore Committee Report (1946). It recommended among other things, medical benefits to be made available for free to all (at the point of delivery) and contributions from those who can pay to be channelled through taxes. The recommendations of the committee

focused on addressing 13 diseases. The recommendations of the Bhore committee were reflected in the first and second five-year plans. Accounting for the prevailing health needs of the time, specialized verticals were set up to tackle specific diseases (e.g., Malaria Control Programme). This set the precedence for India's reliance on verticality over horizontal integration and the delivery of more comprehensive healthcare services. While multiple committees over the years[35] emphasized the need for effective primary care and referral service networks (better coordination between levels of care), none of them detailed any plan of implementing the same. The National Rural Health Mission (NRHM) launched in 2005, marked a significant shift in how healthcare provision was envisioned. It emphasised building a first line of defense, against both infectious and chronic diseases, through Accredited Social Health Activists (ASHAs) (Burns et al., 2014). The National Health Mission (NHM), which later subsumed NRHM and its urban corollary, the National Urban Health Mission (NUHM), currently represents the bulk of the ministry provided healthcare. The scheme focuses specifically on strengthening of the health system, reproductive, maternal and child health services, communicable and non-communicable disease control programmes, and infrastructure maintenance. The government has attempted to provide highly subsidized/free care for all under ministry provided healthcare through such a public healthcare delivery system and schemes like NHM aimed at strengthening it.

While the primary objective of tax-funded, ministry provided healthcare is to promote universal access to healthcare, this remains far from being realized. Deficiencies in infrastructure, manpower and consequently in the quality of services provided continue to persist in the system, with these being more pronounced in states performing poorly on socio-economic indicators (Bajpai, 2014). This has added to the perception of public hospitals as being of a lower quality, increasingly pushing people away from these systems. National Sample Survey (NSS) data from 2017-18 shows that less than a third of India's population depends on public sector hospitals for care (Anand & Thampi, 2020). Even for the economically weaker sections, this has not emerged as a viable alternative. For instance, a benefit-incidence analysis using NSS data from 2014 showed that government spending has not led to any significant pro-poor services in general or in-patient services in particular (Bowser et al., 2019).

Building accountability structures for India's tax-funded ministry led system continues to be a key challenge. Despite repeated calls for increased accountability, including in the National Health Policy of 2017, not much has been done to de-

[35]Including the Jungawalla committee (1967), the Kartar Singh Committee (1973), the Srivastav committee (1975).

velop any measurable frameworks of accountability. From how funds are devolved to states under the different scheme heads to how community-based health workers are managed at the local levels, there have not been any substantial measures to build accountability frameworks (Priyadarshi & Kumar, 2020). A recent initiative towards creating some form of accountability structure has been the setting up of the "Mera Aspataal" initiative, a consumer-facing platform that allows patients to provide feedback for the services they received at public sector hospitals (My-Hospital, 2022).

Like India's Ministry provided healthcare, Thailand also has a tax-funded system with most of the care being provided through public-sector hospitals. One way in which they have managed to provide better outcomes is through a separation of the purchaser from the provider. External handling of purchasing, by an entity separate from the ministry, made purchasing more strategic also leading to better accountability mechanisms. Health systems like Thailand's UCS have important lessons for India's ministry financed-purchased-provided model to enable better utilisation of the limited funds available.

## 4.2 Employees' State Insurance Scheme

Mandatory social health insurance was among the earliest insurance schemes to be introduced in India, with the launch of the Employees' State Insurance Scheme (ESIS) in 1948. ESIS currently covers a total of 13.25 crore beneficiaries which is about 10% of India's population (ESIC, 2020).[36] It accounts for about 2% of India's total health spending (National Health Accounts, 2021). Funded by mandatory contributions from both employees (0.75% of their wages) and employers (3.25% of wages) [FN2], ESIS directs the collected funds to providers through Employees' State Insurance Corporation (ESIC) [PO2], an autonomous agency under the Ministry of Labour. These funds are then transferred primarily to ESIS hospitals run by the state governments. In addition to its network of hospitals, ESIS also empanels private providers for care where there is a gap in supply [PR2]. Speciality care is one such area. For their services, ESIS hospitals are paid through input-based budgets [PM1] with the physicians and staff being salaried employees (Figure 8). Private empanelled hospitals are paid according to predetermined package rates for the speciality care they provide (La Forgia & Nagpal, 2012).

ESIS was India's first and only attempt at providing social health insurance for workers (Gupta & Trivedi, 2005). Its adoption followed the recommendations of

[36]Population of India at 1.366 billion as published by World Bank was used to compute these numbers. Refer `https://data.worldbank.org/indicator/SP.POP.TOTL?locations=IN`

Figure 8: Financing pathway under ESIS

| Financier | Purchaser | Provider | Payment Method |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

Adarkar's "Report on Health Insurance for Industrial Workers" of 1944 (Ahuja, 2021). ESIS is currently mandatory for employees drawing monthly wages up to Rs. 21,000 in factories and other establishments employing 10 or more people. In return for their contribution, the members expect to receive comprehensive care- preventive, primary, secondary and tertiary care- through an integrated network of providers, without additional payments at the point of consumption. There is no annual or lifetime ceiling on benefits. Thus, in its design, ESIS offers a *free-unlimited-care* environment for its members.

Despite large funds at its disposal, ESIS has been underperforming. Concerns have been raised by members regarding the lack of accessible facilities and where accessible, the lack of quality infrastructure in them (Prasad & Ghosh, 2020b). Despite paying towards an insurance scheme, ESIS members have had to incur OOP expenditure to avail satisfactory medical care, often at non-empanelled private facilities without any referrals (U. Dash & Muraleedharan, 2011). Evaluating the impact of ESIS on the health outcomes of its members has unfortunately been difficult due to the lack of systematic efforts to monitor, measure and report health outcomes (La Forgia & Nagpal, 2012).

Despite making surpluses year on year, the scheme has done little to improve accessibility, quality and overall health outcomes. Like ESIS, social health insurance systems of both France and Israel are financed by mandatory contributions and purchasing is handled by a private/ public entity, removed from the ministry of

health. Unlike ESIS, however, both the systems have been designed to share a higher proportion of risk with healthcare providers incentivizing them to focus on the quality of care provided. The problem with ESIS has less to do with insufficient funds and more to do with the actual utilization of available funds to provide care. The manner in which ESIS purchases care using its funds then becomes critical.

## 4.3 Commercial Health Insurance

The relatively new commercial health insurance in India started with Mediclaim policies in 1986. Prior to the year 2000, the government-owned GIC dominated the market.[37] The IRDA opened the insurance sector to private sector participation through its legislation in 2000. Commercial health insurance accounts for nearly 7% of India's current health spending (MoHFW, 2021). In this case, insurers (both public and private) pool voluntary premiums paid by members [FN3] and use them to purchase care [PO2/PO3] from private providers [PR4] who are paid on an FFS basis [PM2] or DRG basis [PM3] (critical care insurance) for the care they provide (Figure 9).

Figure 9: Financing pathway under commercial health insurance

| Financier | Purchaser | Provider | Payment Method |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

Commercial health insurance offers an avenue to anyone who wishes to cover themselves with a choice of benefit packages, even if limited, in exchange for the payment of a premium. These can be purchased by individuals or even groups, such as an employer on behalf of their employees. With a year-on-year growth rate of

[37] GIC consisted of four companies: New India Assurance Co. Ltd., United India Insurance Co. Ltd., The Oriental Insurance Co. Ltd., and National Insurance Company Co. Ltd.

over 20%, the industry is growing quite rapidly and currently caters to 3.67 crores ( 10% of the population) through voluntary group and individual businesses and 36.2 crores ( 26.5% of the population) through government business (IRDAI, 2020).

The commercial health insurance industry in India is dominated by hospitalization-based indemnity plans. These plans cover hospitalization expenses up to the maximum sum assured. In indemnity insurance, healthcare lies separate from financing. This implies that the beneficiaries are expected to seek for themselves the care they need. While it allows beneficiaries to select a provider of their choice, indemnity insurance offers no healthcare-related guarantees either in terms of its availability or quality. Another issue with indemnity insurance in India is tied to its choice of payment method- FFS payments- which pays providers for every service they provide. This can incentivise overprovision of care while also leading to healthcare cost inflation as has been observed with Medicare and Medicaid in the US (Kongstvedt, 2013).

Even when offering 'in-patient' cover, commercial insurance products in India are often layered with exclusions to minimise adverse selection. This makes products complex and difficult for people to understand, who may then take a decision without completely understanding what they are buying (Bhaskaran, 2021). With rather complicated products that are quite removed from people's needs and expectations, India's current indemnity-based commercial health insurance space is found to be lacking in accessibility, quality and efficiency indicators (Prasad & Ghosh, 2020a). Despite its high annual growth rate, the health insurance industry in India is viewed as being largely unregulated or ineffectively regulated producing undesirable outcomes for customers (Malhotra et al., 2018). As more health systems across the world move away from indemnity models, there is a need to explore alternate pathways for India's commercial health insurance system.

## 4.4 Pradhan Mantri Jan Aarogya Bima Yojana

Aside from provision, governments both at the Centre and states, emphasise the improvement of healthcare access and the provision/extension of financial protection through health insurance schemes for the poor. These schemes are designed to cover low frequency-high impact events, therefore covering only hospitalization expenses. These non-contributory insurance contracts are tax-funded and are mostly aimed at low-income households. Participation in these insurance schemes is entirely voluntary. The recently launched Pradhan Mantri Jan Aarogya Bima Yojana (PMJAY) is the largest of these efforts by the Centre. It aims to provide insurance cover for the poorest 40% of India's population. Tax-funded (FN1), PMJAY purchases healthcare through both private organisations (insurance company) (PO3)

and public entities (trust) (PO2). All public facilities capable of providing inpatient services (Community health centre level and above) as well as ESIC hospitals are empanelled to provide services. Private hospitals are also empanelled under PMJAY (PR3), based on the fulfilment of defined criteria (NHA, 2019). For their services, providers are paid all-inclusive package rates per admission for surgical cases, and per-diem rates for medical cases (PM3) (Dong et al., 2020) (Figure 10).

Figure 10: Financing pathway under PMJAY

| **Financier** | **Purchaser** | **Provider** | **Payment Method** |
|---|---|---|---|
| Tax financed [FN1] | Ministry of Health (MOH) [PO1] | Only Ministry of Health [PR1] | Input-Based Budget [PM1] |
| Mandatory Health Insurance [FN2] | Public Organisation [PO2] | Ministry of health AND Private [PR2] | Fee for Service [PM2] |
| Voluntary Health Insurance [FN3] | Private Organization [PO3] | Ministry of health OR Private [PR3] | Output-Based [PM3] |
| Out of Pocket [FN4] | Individual [PO4] | Only Private [PR4] | Population-Based [PM4] |

PMJAY follows from India's first nationwide insurance contract- Rashtriya Swasthya Bima Yojana (RSBY) that was introduced in 2008 to assist 1.18 crore individuals below the poverty line. Improving the coverage and target of RSBY, the central government launched PMJAY in 2018. It provides an insurance cover of up to Rs 5,00,000 for secondary and tertiary health expenditures for inpatient care to low-income households identified by the SECC survey ( 10.74 crore households). The premium for this cover is financed by the Centre and the State (60:40), where States are free to choose one of three models of financing; insurance, trust, and hybrid models. In the insurance model, the premiums paid by the government on behalf of households are given to an insurance company. The insurer uses this pool to administer and pay health claims. In the trust model, on the other hand, the insurance company is replaced by a state-run trust that is responsible for administering and paying the claims. In the hybrid model, the dependence on insurance companies to process claims is partially transferred to the state-run trust.

PMJAY marks a significant move in the direction of strategic purchasing through the purchaser-provider split that it has introduced. The creation of the National

Health Authority (NHA) at the Centre and State Health Authorities (SHAs)[38] at the state level has opened an opportunity to address some key issues, specifically around accountability, that plague government provided healthcare (section 4.1). Current efforts directed towards the issuance of treatment guidelines and the push towards digitisation of health records through the National Digital Health Mission (NDHM) have the potential to make better accountability measures possible.

As with commercial insurance, PMJAY also relies on an indemnity model and is similarly vulnerable to issues such as lack of healthcare-related guarantees, over-provision of care and cost escalation. While the scheme has set out large targets (in terms of coverage) for itself, its ability to achieve these rely primarily on funds the government is willing to commit. Recent assessments indicate that as a scheme PMJAY is grossly underfunded and would require substantial rethinking to provide any meaningful financial protection (Prasad, 2021). For beneficiaries, the usefulness of the scheme would primarily depend on the availability of hospitals, which varies across states. States with higher poverty rates were found to have fewer empanelled hospitals - both public and private (Smith et al., 2019). Even in empanelled hospitals, beneficiaries have been found to be spending out-of-pocket with the healthcare providers charging more than the predetermined rates (Singh, 2020).

Healthcare in India is funded by a fragmented set of schemes and players. However, as noted earlier, the largest health spending continues to be out-of-pocket (FN4). In fact, very few countries across the globe have a higher dependence on OOP payments. This implies that the level of prepayment and pooling of funds for healthcare is rather low in India and individuals also must take on the role of purchasers (PO4). Lack of trust in and a perceived lack of quality of public healthcare facilities pushes individuals towards private healthcare facilities to meet their needs (PN4) (Anand & Thampi, 2020), where they predominantly pay individual physicians/hospitals on a fee-for-service basis (PM4). The dominance of such a financing strategy causes nearly 7% of the population to fall into poverty due to catastrophic medical spending annually (Kumar et al., 2015). An equally concerning impact of such an OOP payments-dependent health system is the number of people who are forced to forgo healthcare due to it being unaffordable. Data from the 75th round of the National Sample Survey finds that 12% of India's population has been unable to meet healthcare needs (Mahapatro et al., 2021).

[38] In the insurance and hybrid models, insurance companies act as the agencies for SHAs.

# 5 Lessons for India

Over the past few decades, India has made considerable progress in citizen health outcomes, as evidenced by significant improvements in standard indicators such as infant and maternal mortality. However, the disease burden in India continues to be disproportionately high, and malnutrition and other risk factors for disease and injury are widespread. With a DALY rate of more than 33,000, India's health outcomes are much poorer than those of her neighbours Sri Lanka (DALY rate 26,178) and Bangladesh (DALY rate 27,077) (IHME, 2019). India is also experiencing a rise in non-communicable diseases (NCDs). While NCDs are typically reported by individuals of more than 55 years of age, this onset happens in India almost a decade earlier (Arokiasamy, 2018). Yet another problem faced by India's health system is the rising cost of health care itself. Health care is currently one of the highest contributors to miscellaneous inflation in India (Bhandari & Sahu, 2020). With more than 63% of the total health spending coming out-of-pocket, increasing health costs add significantly to the financial burden of households. This reliance on OOP payments as the primary financing mechanism severely impacts health-seeking behaviour. Without access to prepayment and pooling mechanisms, healthcare can end up being unaffordable for many, leading them to forgo care (Mahapatro et al., 2021). Even when they do access care, it can end up being catastrophic for households (Kumar et al., 2015). In the absence of concerted purchasing efforts, evidence suggests that poor people end up paying significant amounts to avail of hospitalisation even when using public health centres (A. Dash & Mohanty, 2019). With individuals as purchasers, there is little to no system-level control over healthcare providers, resulting in a poor distribution of hospital care. A highly fragmented provider landscape adds to the problem.[39] Over 95% of private providers in India are essentially facilities with 1-5 workers(J. Langenbrunner et al., 2019). This fragmentation reinforces poor consumer behaviour (e.g., doctor shopping) and does little to improve health outcomes.

A reliance on out-of-pocket expenditure has indeed come at a cost. In this context, indemnity insurance, which is the direction both commercial and government-led insurance seem to be taking, would solve for some of these issues, but may exacerbate others (healthcare costs, moral hazard). Reforms in health systems design are thus long pending in India. In terms of population size, Thailand and France are only as big as Rajasthan, Israel is comparable to Himachal Pradesh and Colombia's population is close to that of Andhra Pradesh. We make these comparisons to highlight the size of the task at hand- designing a health system for a country

[39]The fragmentation in provision could itself be an effect of the reliance on OOP payments and the absence of any coordinated purchasing arrangements.

as populous and diverse as India is a massive exercise.

We noted earlier that the choice of health system design from the various financier-purchaser-provider-payment mechanisms available to a state relies on the health needs and priorities, institutional and resource capacities, and its socio-economic-political context. States in India differ quite significantly from each other on these fronts.

In terms of health outcomes, the DALY rates of states vary between 27,301 for Kerala to 39,915 for Assam. Apart from the difference in health outcomes, the issues that the states face are also quite varied. For instance, the states of Kerala, Goa and Tamil Nadu have high epidemiological transition levels, meaning, they have a higher burden of non-communicable diseases (NCDs) and injuries over communicable, maternal, neonatal and nutritional diseases (CMNNDs). Compared to this, Bihar, Jharkhand, Uttar Pradesh and Odisha continue to experience a higher burden of CMNNDs (L. Dandona et al., 2017). Higher levels of suicide rates pose a much bigger problem for states like Kerala, Tamil Nadu and Karnataka than they do for Bihar and Jharkhand (R. Dandona et al., 2018). Thus, the health needs and priorities are rather different from state to state.

Even in terms of healthcare capacity, states are at very different levels. The National Health Profile 2019 captures the variation in medical infrastructure available across the country with the highest number of hospitals in Uttar Pradesh (4635) and the lowest in Sikkim (33) as of 2017 (CBHI, 2019). When compared to their population levels though, the hilly states of Himachal Pradesh and Arunachal Pradesh, are far ahead with 14 and 11 hospitals per lakh people respectively (Radhakrishnan & Sen, 2020).

Given these variations in state contexts, what may work in one state may not work in another and it may entirely be the case that a state like Kerala may learn more from Brazil than from Bihar while Bihar may benefit from studying Bangladesh than borrowing from Tamil Nadu. There is a need to then think of health systems design at a subnational level instead of at the national level. A state may be the more appropriate unit to think of designing health systems. In designing health systems at this subnational level, system designers have to continually assess the underlying structures and contexts. Taking into account their objectives and different resource capacities, states can select an appropriate combination of mechanisms and actors from Table 1 to design their health system. Based on our discussion here we lay out the following guiding principles that may be considered:

1. Tax based financing of health systems is considered to be the most progressive form of financing. However, where resources are limited and competing needs exist, tax funds will need to be channelled towards key priorities including essential public health functions, and insurance for full coverage of a prespecified list of rare-very expensive conditions. Where tax-based financing is slow to proceed, attention needs to be paid towards other sources of financing, like voluntary insurance and OOP payments. In the absence of attention towards these alternatives (improving voluntary insurance and deriving greater value from OOP expenditure), health systems run the very real risk of evolving in directions from which it will be difficult to reverse even when additional government financing is made available sometime in the future.

2. When financed by tax funds, health systems across states have health departments acting as purchasers. However, when purchasing and healthcare provision is done by the same department, it could result in a conflict of interest potentially resulting in lower levels of accountability and in the worst case, denial of care itself. Following the example of the UK's NHS, health systems are increasingly moving towards a purchaser-provider split for strategic purchasing of health. PMJAY in India, through NHA, has attempted to do precisely this. For better utilisation of tax funds, such a separation of entities is one pathway states can consider, subject to state capacities.

3. As health systems continue to develop, the potential of both public and private sector providers, particularly in resource-constrained settings needs to be acknowledged. To make optimal use of such a mixed system of healthcare provision, states need to define roles and lay down detailed guidelines and protocols for care.

4. Continued reliance on OOP payments that pay providers on a fee-for-service basis is likely to lead to cost escalation, making healthcare even less affordable. Thus, immediate efforts are needed to convert current OOP spending to more pooled finances where the increased purchasing power can be leveraged to share greater risks with healthcare providers. A move towards population-based payment models is expected to incentivise providers to optimise fund utilisation and focus more on health outcomes.

# References

Ahuja, R. (2021). Minoritarian labour welfare in India: The case of the Employees' State Insurance Act of 1948. In *One hundred years of social protection* (pp. 157–188). Springer.

Anand, I., & Thampi, A. (2020). Less than a third of Indians go to public hospitals for treatment.

Arokiasamy, P. (2018). India's escalating burden of non-communicable diseases. *The Lancet Global Health*, *6*(12), e1262–e1263. doi: https://doi.org/10.1016/S2214-109X(18)30448-0

Ashraf, H. (2021). Thailand: A case study in strategic purchasing. Retrieved from `https://www.dvara.com/research/blog/2021/09/15/thailand-a-case-study-in-strategic-purchasing/`

Ashraf, H., Ghosh, I., Kumar, N., Nambiar, A., & Prasad, S. (2021). Pathways to reimagining commercial health insurance. Retrieved from `https://www.dvara.com/research/wp-content/uploads/2021/06/Pathways-to-Reimagining-Commercial-Health-Insurance.pdf%0D`

Bajpai, V. (2014). The challenges confronting public hospitals in India, their origins, and possible solutions. *Advances in Public Health*, *2014*. doi: https://doi.org/10.1155/2014/898502

Barber, S., Lorenzoni, L., & Ong, P. (2019). *Price setting and price regulation in health care lessons for advancing universal health coverage: Lessons for advancing universal health coverage*. OECD Publishing. doi: https://doi.org/10.1787/ed3c16ff-en

Bhandari, B., & Sahu, A. (2020). *Health inflation: Should India also subsidise pharmacy costs?* Financial Express. Retrieved from `https://www.financialexpress.com/opinion/health-inflation-should-india-also-subsidise-pharmacy-costs/1823221/`

Bhaskaran, D. (2021). *Commercial health insurance in India and the role of IRDAI as a supervisor*. Retrieved from `https://inorder.in/wp-content/uploads/2021/06/5_CHI-final.pdf`

Böhm, K., Schmid, A., Götze, R., Landwehr, C., & Rothgang, H. (2013). Five types of OECD healthcare systems: Empirical results of a deductive classification. *Health Policy*, *113*(3), 258–269. doi: https://doi.org/10.1016/J.HEALTHPOL.2013.09.003

Bossert, T., Blanchet, N., Sheetz, S., Pinto, D., Cali, J., & Perez Cuevas, R. (2014). Comparative review of health system integration in selected countries in Latin America. *Washington, DC: Inter-American Development Bank*. Retrieved from https://publications.iadb.org/publications/english/document/Comparative-Review-of-Health-System-Integration-in-Selected-Countries-in-Latin-America.pdf

Bowser, D., Patenaude, B., Bhawalkar, M., Duran, D., & Berman, P. (2019). Benefit incidence analysis in public health facilities in India: Utilization and benefits at the national and state levels. *International Journal for Equity in Health*, *18*(1), 1–11. doi: https://doi.org/10.1186/S12939-019-0921-6/TABLES/1

Braithwaite, J. (2018). Changing how we think about healthcare improvement. *BMJ*, *361*.

Burns, L., B, S., & Vaidya, M. (2014). India's hospital sector. In L. Burns (Ed.), *Cindia's healthcare industry: Innovation in delivery, financing, and manufacturing* (pp. 169–218). Cambridge University Press.

CBHI. (2019). *National health profile 2019*. Central Bureau of Health Intelligence. Retrieved from http://www.cbhidghs.nic.in/showfile.php?lid=1147

Chalkley, M., & Sussex, J. (2018). Private provision of publicly funded health care: The economics of ownership.. Retrieved from https://www.semanticscholar.org/paper/Private-Provision-of-Publicly-Funded-Health-Care%3A-Chalkley-Sussex/f653d82b5b2499e8f03eebe3b7c276e202993c4e

Chevreul, K., Brigham, B., Durand-Zaleski, I., & Hernández-Quevedo, C. (2015). France: Health system review. *Health systems in transition*(17/3).

Cutler, D. M., & Zeckhauser, R. J. (2000). The anatomy of health insurance. In *Handbook of health economics* (Vol. 1, pp. 563–643). Elsevier. doi: https://doi.org/10.1016/S1574-0064(00)80170-5

Dandona, L., Dandona, R., Kumar, G. A., Shukla, D., Paul, V. K., Balakrishnan, K., ... others (2017). Nations within a nation: variations in epidemiological transition across the states of India, 1990–2016 in the global burden of disease study. *The Lancet*, *390*(10111), 2437–2460. doi: https://doi.org/10.1016/S0140-6736(17)32804-0

Dandona, R., Kumar, G. A., Dhaliwal, R., Naghavi, M., Vos, T., Shukla, D., ... others (2018). Gender differentials and state variations in suicide deaths in India: the global burden of disease study 1990–2016. *The Lancet Public Health*, *3*(10), e478–e489. doi: https://doi.org/10.1016/S2468-2667(18)30138-5

Dash, A., & Mohanty, S. K. (2019). Do poor people in the poorer states pay more for healthcare in India? *BMC public health*, *19*(1), 1–17. doi: https://doi.org/10.1186/S12889-019-7342-8/TABLES/7

Dash, U., & Muraleedharan, V. (2011). How equitable is Employees' State Insurance Scheme in India?: A case study of Tamil Nadu. Retrieved from `https://resyst.lshtm.ac.uk/how-equitable-is-employees\OT1\textquoteright-state-insurance-scheme-in-india-a-case-study-of-tamil-nadu`

Devarajan, S., Khemani, S., & Walton, M. (2011). Civil society, public action and accountability in Africa. *World Bank Policy research working paper*(5733). Retrieved from `documents1.worldbank.org/curated/en/553621468209042182/pdf/WPS5733.pdf`

Dong, D., Sehgal, P., Chhabra, S., Naib, P., & Smith, O. (2020). *PM-JAY: The role of private hospitals.* PMJAY Policy Brief. Retrieved from `https://pmjay.gov.in/sites/default/files/2020-11/Policy_Brief_9_Private_PM-JAY_201123_WB_NHA_R.pdf`

Doshmangir, L., Rashidian, A., Jafari, M., Ravaghi, H., & Takian, A. (2016). Fail to prepare and you can prepare to fail: the experience of financing path changes in teaching hospitals in Iran. *BMC health services research*, *16*(1), 1–13. doi: https://doi.org/https://doi.org/10.1186/s12913-016-1405-7

Durand-Zaleski, I., AP-HP, & Paris-Est., U. (2020). *International health care system profiles—France.* The Commonwealth Fund. Retrieved from `https://www.commonwealthfund.org/international-health-policy-center/countries/france`

Escobar, M.-L., Giedion, U., Giuffrida, A., & Glassman, A. L. (2009). Colombia: After a decade of health system reform. *From Few to Many*, *1*. Retrieved from `https://www.semanticscholar.org/paper/chapter-1-Colombia-%3A-After-a-Decade-of-Health-Escobar-Giedion/0458e0b649b22651d71b087d1c2cf1277ee5972b`

ESIC. (2020). *Annual report 2019-20.* Employees' State Insurance Corporation.

Figueras, J., Robinson, R., & Jakubowski, E. (2005). *Purchasing to improve health systems performance.* McGraw-Hill Education (UK). Retrieved from `https://www.euro.who.int/__data/assets/pdf_file/0004/98428/E86300.pdf`

Gottret, P. E., & Schieber, G. (2006). *Health financing revisited: a practitioner's guide.* World Bank Publications.

Goujard, A. (2018). France: improving the efficiency of the health-care system. doi: https://doi.org/10.1787/09e92b30-en

Greer, S. L., Jarman, H., & Donnelly, P. D. (2019). Lessons for the united states from single-payer systems. *American journal of public health*, *109*(11), 1493–1496. doi: https://doi.org/10.2105/AJPH.2019.305312

Gross, R., & Harrison, M. (2001). Implementing managed competition in israel. *Social science & medicine*, *52*(8), 1219–1231.

Gupta, I., & Trivedi, M. (2005). Social health insurance redefined: Health for all through coverage for all. *Economic and Political Weekly*, *40*(38), 4132–4140. Retrieved from `https://www.epw.in/journal/2005/38/special-articles/social-health-insurance-redefined.html`

Gusmano, M. K., Laugesen, M., Rodwin, V. G., & Brown, L. D. (2020). Getting the price right: How some countries control spending in a fee-for-service system: Study examines mechanisms commonly used by some countries to set and update health care prices. *Health Affairs*, *39*(11), 1867–1874. doi: https://doi.org/10.1377/hlthaff.2019.01804

Herrera, C. A., Rada, G., Kuhn-Barrientos, L., & Barrios, X. (2014). Does ownership matter? An overview of systematic reviews of the performance of private for-profit, private not-for-profit and public healthcare providers. *PloS one*, *9*(12), e93456.

Hsiao, W. C. (2007). Why is a systemic view of health financing necessary? *Health affairs*, *26*(4), 950–961.

IHME. (2019). *Global burden of disease study 2017 results.* Retrieved from `http://ghdx.healthdata.org/gbd-results-tool`

Ikegami, N., & Anderson, G. F. (2012). In Japan, all-payer rate setting under tight government control has proved to be an effective approach to containing costs. *Health Affairs*, *31*(5), 1049–1056. doi: https://doi.org/10.1377/hlthaff.2011.1037

IRDAI. (2020). *Annual report 2019-20.* Insurance Regulatory and Development Authority.

Kliff, S. (2021). *Republicans killed the Obamacare mandate. New data shows it didn't really matter.* The New York Times. Retrieved from `https://www.nytimes.com/2020/09/18/upshot/obamacare-mandate-republicans.html`

Kongstvedt, P. R. (2013). *Essentials of managed health care.* Jones & Bartlett Publishers.

Kumar, K., Singh, A., Kumar, S., Ram, F., Singh, A., Ram, U., ... Kowal, P. R. (2015). Socio-economic differentials in impoverishment effects of out-of-pocket health expenditure in china and india: evidence from who sage. *PloS one*, *10*(8), e0135051. doi: https://doi.org/10.1371/journal.pone.0135051

La Forgia, G., & Nagpal, S. (2012). *Government-sponsored health insurance in India: Are you covered?* World Bank Publications. Retrieved from `https://openknowledge.worldbank.org/bitstream/handle/10986/11957/722380PUB0EPI008029020120Box367926B.pdf?sequence=1`

Langenbrunner, J., Ferraro, P., Chokshi, M., Anand, J. S., & Katyal, A. (2019). Strategic purchasing: The way forward. In *Health system for a new india: Building blocks: Potential pathways to reform.* NITI Aayog (National Institute for Transforming India).

Langenbrunner, J. C., Cashin, C., & O'Dougherty, S. (2009). What, how, and who: an introduction to provider payment systems. In (p. 1). doi: https://doi.org/10.1596/978-0-8213-7815-1

Lipsitz, L. A. (2012). Understanding health care as a complex system: the foundation for unintended consequences. *Jama*, *308*(3), 243–244.

Mahapatro, S. R., James, K., & Mishra, U. S. (2021). Intersection of class, caste, gender and unmet healthcare needs in india: Implications for health policy. *Health Policy OPEN*, *2*, 100040. doi: https://doi.org/10.1016/J.HPOPEN.2021.100040

Malhotra, S., Patnaik, I., Roy, S., & Shah, A. (2018). Fair play in indian health insurance. *Available at SSRN 3179354*.

Mccoy, D., & Allotey, P. (2021). An introduction to health systems. In (pp. 3–16). Cambridge University Press. Retrieved from `https://doi.org/10.1017/9781108954846`

MoHFW. (2021). *National health accounts: Estimates for India 2017-18.* Retrieved from `https://nhsrcindia.org/sites/default/files/2021-11/NationalHealthAccounts-2017-18.pdf`

My-Hospital. (2022). *About us.* Retrieved from `https://meraaspataal.nhp.gov.in/about_us`

Nambiar, A., & Ashraf, H. (2021). Universal health coverage: Case study of Israel's managed care model. Retrieved from https://www.dvara.com/research/blog/2021/07/30/universal-health-coverage-case-study-of-israels-managed-care-model/

Newhouse, J. P. (1970). Toward a theory of nonprofit institutions: An economic model of a hospital. *The American economic review*, *60*(1), 64–74.

NHA. (2019). Guidelines on process of empanelment for hospital. Retrieved from https://pmjay.gov.in/sites/default/files/2019-04/NHA_Guidelines_on_Process_of_Empanelment_for_Hospital_Revised_0.pdf

OECD. (2016). *OECD reviews of health systems: Colombia 2016*. OECD Publishing. Retrieved from https://www.oecd-ilibrary.org/social-issues-migration-health/oecd-reviews-of-health-systems-colombia-2015_9789264248908-en

OECD. (2022). *Health spending (indicator)*. Organisation for Economic Cooperation and Development. Retrieved from https://data.oecd.org/healthres/health-spending.htm

Okma, K. G., Cheng, T.-M., Chinitz, D., Crivelli, L., Lim, M.-K., Maarse, H., & Labra, M. E. (2010). Six countries, six health reform models? health care reform in chile, israel, singapore, switzerland, taiwan and the netherlands. *Journal of Comparative Policy Analysis*, *12*(1-2), 75–113. Retrieved from https://doi.org/10.1080/13876980903076237

Parsons, T. (1951). Social structure and dynamic process: The case of modern medical practice. In *The social system* (pp. 428–479). The Free Press.

Prasad, S. (2021). Pradhan Mantri Jan Arogya Yojana (PM-JAY): The scheme and it's potential to reform India's healthcare system. Retrieved from https://www.dvara.com/research/wp-content/uploads/2021/02/Pradhan-Mantri-Jan-Arogya-Yojana-PM-JAY-The-Scheme-and-its-Potential-to-Reform-Indias-Healthcare-System.pdf

Prasad, S., & Ghosh, I. (2020a). Commercial health insurance in India–status and challenges. Retrieved from https://www.dvara.com/research/wp-content/uploads/2020/10/Commercial-Health-Insurance-in-India-Status-and-Challenges.pdf

Prasad, S., & Ghosh, I. (2020b). Employee State Insurance Scheme - performance and potential pathways for reform. Retrieved from https://www.dvara.com/

research/wp-content/uploads/2020/11/Employee-State-Insurance-Scheme-Performance-and-Potential-Pathways-for-Reform.pdf

Preker, A. S., Langenbrunner, J., et al. (2005). *Spending wisely: buying health services for the poor*. World Bank Publications.

Priyadarshi, M., & Kumar, S. (2020). Accountability in healthcare in india. *Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine*, *45*(2), 125. Retrieved from https://doi.org/10.4103/IJCM.IJCM_224_19

Radhakrishnan, V., & Sen, S. (2020). *Data—How prepared are India's states in health infrastructure to tackle COVID-19*. The Hindu. Retrieved from https://www.thehindu.com/data/data-how-prepared-are-indias-states-in-health-infrastructure-to-tackle-covid-19/article31157659.ece

Roberts, M., Hsiao, W., Berman, P., & Reich, M. (2004). *Getting health reform right: a guide to improving performance and equity*. Oxford university press.

Rodwin, V. G. (2003). The health care system under French national health insurance: lessons for health reform in the united states. *American journal of public health*, *93*(1), 31–37. Retrieved from https://ajph.aphapublications.org/doi/full/10.2105/AJPH.93.1.31

Roemer, M. I. (1993). *National health systems of the world*. Oxford University Press.

Rosa, R.-M., & Alberto, I. C. (2004). Universal health care for Colombians 10 years after Law 100: challenges and opportunities. *Health Policy*, *68*(2), 129–142. Retrieved from https://doi.org/10.1016/j.healthpol.2003.10.004

Rosen, B., Waitzberg, R., & Merkur, S. (2015). Israel: Health system review. *Health Systems in Transition*, *17*(6), 1–212. Retrieved from https://apps.who.int/iris/handle/10665/330248

Rosenthal, G., & Newbrander, W. (1996). Public policy and private sector provision of health services. *The International journal of health planning and management*, *11*(3), 203–216.

Rothgang, H., Cacace, M., Grimmeisen, S., & Wendt, C. (2005). The changing role of the state in healthcare systems. *European review*, *13*(S1), 187–212. Retrieved from https://doi.org/10.1017/S1062798705000256

Sandier, S., Paris, V., Polton, D., Thomson, S., Mossialos, E., Organization, W. H., et al. (2004). Health care systems in transition: France. Retrieved from https://eurohealthobservatory.who.int/publications/i/france-health-system-review-2004

Singh, V. (2020). *Under Ayushman Bharat, poor people are not going cashless, but with less cash.* The Wire. Retrieved from https://science.thewire.in/health/ab-pmjay-scheme-health-insurance-packages-cashless/

Smith, O., Dong, D., & Chhabra, S. (2019). Pmjay across India's states: Need and utilization. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjxhP6Zyvv0AhU4UWwGHYNhCnUQFnoECAQQAQ&url=https%3A%2F%2Fwww.pmjay.gov.in%2Fsites%2Fdefault%2Ffiles%2F2019-10%2FPolicy%2520Brief%25202_Need%2520and%2520Utilization_Web.pdf&usg=AOvVaw1

Sorum, P. C. (2005). France tries to save its ailing national health insurance system. *Journal of Public Health Policy*, *26*(2), 231–245.

Stusser, R. J., et al. (2012). Demystifying the cuban health system: Insider's view. *Cuba in Transition*, *21*, 222–234. Retrieved from https://www.ascecuba.org/c/wp-content/uploads/2014/09/v21-stusser.pdf

Tatar, M., Mollahaliloğlu, S., Şahin, B., Aydın, S., Maresso, A., Hernández-Quevedo, C., ... others (2011). Turkey: Health system review. Retrieved from https://apps.who.int/iris/handle/10665/330325

Tsai, T. C. (2010). Second chance for health reform in Colombia. *The Lancet*, *375*(9709), 109–110. Retrieved from https://doi.org/10.1016/S0140-6736(10)60033-5

Tulchinsky, T. (1985). Israel's health system: structure and content issues. *Journal of public health policy*, *6*(2), 244–254.

Tynkkynen, L.-K., Alexandersen, N., Kaarbøe, O., Anell, A., Lehto, J., & Vrangbk, K. (2018). Development of voluntary private health insurance in Nordic countries–an exploratory study on country-specific contextual factors. *Health Policy*, *122*(5), 485–492. Retrieved from https://doi.org/10.1016/j.healthpol.2018.03.008

WB. (2018). *Current health expenditure per capita, ppp (current international $).* World Bank. Retrieved from https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD

WB. (2020). *Gni per capita, PPP (current international $).* World Bank. Retrieved from https://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD

WHO. (2000). *The world health report 2000: health systems: improving performance.* World Health Organization. Retrieved from https://apps.who.int/iris/handle/10665/42281

WHO. (2007). Everybody's business–strengthening health systems to improve health outcomes: WHO's framework for action. Retrieved from https://www.who.int/healthsystems/strategy/everybodys_business.pdf

WHO. (2010). *Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies.* World Health Organization.

WHO. (2015). The Kingdom of Thailand health system review. *Health Systems in Transition*, *5*(5).

WHO. (2020). Quality health services: a planning guide. Retrieved from https://www.who.int/publications-detail-redirect/9789240011632