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1. Executive Summary

This study examines the current state of public-private partnerships (PPPs) in health care in Punjab, and possibilities for new kinds of initiatives in this broad category of institutional arrangements. Health care outcomes in India are below the levels that might be expected even at India's specific level of development. The Indian government has recognized the need for public policy action, and is implementing a massive National Rural Health Mission (NRHM) to improve public sector delivery of health care services, especially in poorer states, and especially to the poor all over the country. The NRHM involves substantial increases in funding, and many innovations in organizational arrangements, including collaborations with a range of private sector entities.

While Punjab is a relatively rich state, its health outcomes in many dimensions (e.g. maternal and infant mortality) are not commensurate with its relative income level. Punjab also suffers from relatively ineffective governance, and low public spending on health care. The NRHM provides substantial new funding to the Punjab government, and it, too, is attempting reforms in publicly provided health care services. In parallel, the Punjab government has a well-defined procedure for considering PPPs, including in health care, but with a focus on the construction of infrastructure, i.e., hospitals in this particular sector.

The current use of PPPs for health care in Punjab is moderately successful, but with extremely limited scope. An examination of initiatives in other parts of India that have successfully used some mix of public and private effort, and have been scaled up successfully, provides some guidance for possible future extensions of the scope of PPPs in Punjab. Achieving this would require a shift in the balance of public and private inputs at the level of

rural and small town health care, where the current approach, both before and after the NRHM, emphasizes public delivery and a subordinate role for, or even antagonistic relationship with the private sector. Instead, the proposed model suggests government focus on regulation and raising minimum quality through process standardization, allowing the private sector to operate flexibly for efficient delivery. Access and affordability issues can be addressed through the creation of health insurance schemes funded by concession fees, rather than quotas for the poor, or price controls.

2. Introduction

The nature of health care as an economic good means that there is no "magic bullet" for perfecting its delivery, whatever the nature of the economic system. More so than any other economic good, health care has the characteristics of a "credence" good, where neither pre-consumption search nor actual experience is sufficient to reveal the quality of the service provided to the recipient. This property implies that market provision is subject to severe potential problems associated with asymmetries of information. A related issue is the complexity of health care, which makes information exchange and the establishment of reputations more difficult. Hence, private and public provision of health care are both likely to be subject to inefficiencies and quality problems. Indeed, there is evidence of these problems in health care delivery across all national income levels and economic systems.

Health care is also distinguished by the wide range and diversity of services that are covered by the term. Care may involve prevention or treatment of disease, treatment may be for acute or chronic problems, health problems may be exclusively individual or have collective

dimensions, be specific to particular groups (e.g., children or women) and, increasingly, health care includes attention to broader aspects of well-being.

From an economic policy perspective, the key issues are the degree of "publicness" or spillovers associated with each component of health care, the minimum efficient scale for provision, and the potential for economies of scope, either in costs or benefits. Global comparisons suggest that specific differences in institutional design along these economic lines can make a difference in outcomes, and in the efficiency and productivity of health care spending. Thus, even though imperfections in the provision of health care are inevitable, the degree of such imperfections can be very sensitive to the nature of the institutions that govern the provision of health care services.

The issue of public-private partnerships in health care is therefore really one of institutional design. As such, it goes beyond details of contract parameters, or specific inputs or expertise that are contributed by different parties, though these are important. The perspective that we will find valuable in this study is that of how to allocate bundles of control rights to increase the quality of, and access to, health care in different settings, rural and urban. We do not offer a formal model, but do survey the theoretical literature, and draw general lessons from considering some key case studies.

The report is organized as follows. The next section provides a brief overview of the state of health care in India. After noting some of the problems with health care outcomes in the country, much of the focus is on the objectives and status of the National Rural Health Mission (NRHM), which seeks to combine increased public funding with organizational innovations to

improve access and outcomes. The treatment in this section is perforce incomplete and superficial, since the subject is too large even for an entire volume. Section 4 drills down from the national level to the health care system in Punjab. Again, we are not able to provide detailed statistics on outcomes or targets, but focus on an analytical description of some of the salient features of the state, its health care system, and the changes being attempted under the NRHM.

Sections 3 and 4 are really meant only as background to the core discussion of public private partnerships (PPPs) in health care in Punjab. In order to discuss and analyze current efforts and possibilities, we provide a conceptual discussion in Section 5, which draws on the theoretical economics literature. This discussion is the basis of a framework of four categories of health care PPPs, articulated in Section 6. Section 6 lists several dozen PPPs or related efforts in the space of health care, and provides a more detailed discussion of three of them: Chiranjeevi, LifeSpring and Merry Gold. These three initiatives span a range of different degrees of balance between public and private, but each of them illustrates some important general principles regarding process efficiencies, and assignment of control to achieve scalability, access and improved minimum average quality of service delivery. All three of these cases happen to be in the area of maternal health and deliveries, but the lessons are more generic.

Section 7 brings together all the previous ideas and discussion in considering PPPs in health care in Punjab. We examine the process for determining such arrangements in the state, discuss the various ongoing PPP arrangements with respect to different hospitals in different parts of the state, and consider the potential for going beyond the current set of possibilities. In

doing the latter, we draw on the three cases highlighted in Section 6, as well as offering some broader insights that come from the conceptual discussion, and a consideration of the overall state of Punjab's attempt to reform the delivery of health care in the state. Section 8 offers a summary conclusion, followed by references and an Appendix that lists the many people interviewed for source material for this study.

3. Health Care in India[1]

Arguably, India lags behind other comparable developing nations in its health care outcomes, as illustrated in Table 1. On the one hand, its health care spending, at about 5 percent of GDP, is roughly in line with developing countries at similar income levels. On the other hand, India is somewhat of an outlier in the proportion of health spending that is undertaken in the public sector. At about 20 percent, the Indian figure is considerably lower than in most other countries.

Table 1: Comparative Health Indicators

	Low Income	India	China	Middle Income
Births attended by skilled health staff (% of total)		42.5*	96	
Immunization, measles (% of children ages 12-23 months)	61.52	56	84	86.43
Life expectancy at birth, total (years)	58.62	63.42	71.05	69.73
Mortality rate, infant (per 1,000 live births)	83.88*	64**	33*	35.4
Mortality rate, under-5 (per 1,000)	127.66*	94*	41*	45.18
GNI per capita, Atlas method (current US$)	438.53	530	1270	1938.11

*Year 2000, ** Year 2002
Source: Singh (2008), Exhibit 1; original source, World Bank World Development Indicators

[1] This section partially draws on Singh (2008).

Policy makers have naturally been concerned by India's relative failure in achieving good health outcomes. Spending more on health has been one solution that has been explored. Another issue is the quality of the spending that already takes place. The spending quality problem is pervasive to public service delivery in India. Furthermore, the lack of proper incentives for delivery of public health services is widely recognized as a factor in spending quality, and changes in delivery mechanisms have been proposed to tackle that problem.

In particular, the National Rural Health Mission (NRHM) has been a major central government response to the issue of improving health outcomes in India. The NRHM is an important backdrop to the focus of this research on PPPs in health care, and will be discussed in detail later in this section. The NRHM combines increased spending with innovations in institutional mechanisms that govern public delivery of health care services. The increased availability of funds, combined with a continued lack of government institutional capacity, are together a motivation for increased consideration of using PPPs in health care.

The NRHM needs to be seen in the context of the prior situation with respect to public spending on health. The Indian constitution defines the respective areas of responsibility of the central and state governments, including expenditure authority, revenue-raising instruments, and legislation needed to implement either. Expenditure responsibilities are specified in separate Union and State Lists, with a Concurrent List covering areas of joint authority. In particular, the states are responsible for health, including public health, but also health care for the poor or disadvantaged.

The 73rd and 74th constitutional amendments in 1993 gave local governments (hitherto functioning completely at the discretion of their overseeing state governments) more solid existence. Two additional schedules of the constitution defined the responsibilities of rural and urban local governments, respectively. For rural governments, the specification with respect to health is "Health and sanitation, including hospitals, primary health centres and dispensaries," as well as family welfare and "women and child development," while for urban governments the responsibility is for "Public health, sanitation conservancy and solid waste management." At the same time, states retain their responsibility for health spending, so a concurrent assignment of authorities was effectively created. Furthermore, local government revenue sources are severely constrained, so they depend very heavily on transfers from state governments.

The states themselves receive constitutionally-mandated transfers from the central government, through a tax-sharing arrangement, as well as formulaic and discretionary transfers that are determined by various central ministries, or by the Planning Commission (PC). The PC is meant to serve as an overall coordinating body for transfers and spending for all kinds of "developmental" purposes. Table 2 provides an illustration of the pattern of public sector health spending across different aspects of health care, and different levels of government.

Table 2: Patterns of Public Sector Health Spending, 2001-02

	Central	State	Local (Rural)	Local (Urban)
Health spending by funds source* (Rs. Billion)	67.1	132.7	4.7	9.7
Health spending by channel** (Rs. Billion)	53.5	173.1	15.3	16.5
Spending categories*** (percentages)				
Curative	29.4	47.6	29.8	41.4
Reproductive and child health	21.8	12.2	17.1	3.3
Communicable disease control	14.1	6.2	35.2	14.1
Medical education and training	11.9	8.7	0.3	2.4
R&D	11.1	0.2	0.0	0.0
Administration	4.6	8.4	8.6	27.1
Capital expenditure	1.0	4.7	4.9	4.3

Source: Singh (2008), Exhibit 2; original source, Government of India (2005)

Notes: *Excludes Rs. 24.8 billion external support, of which Rs. 19.7 billion was to governments, and the rest to NGOs
**Includes spending by non-health ministries and agencies
***Only Ministry of Health and Family Welfare for Central government, and health ministries for states

Decentralization through the strengthening of local governments was meant to increase citizen participation and "empowerment," but also more specifically to improve the delivery of public goods and services, by increasing accountability of service providers to citizens. In the context of health care, for example, the PC stated almost a decade ago (Planning Commission, 2001) that "One of the major factors responsible for poor performance in hospitals is the absence of personnel of all categories who are posted there. It is essential that there is appropriate delegation of powers to Panchayati Raj Institutions (PRIs) so that there is local accountability of the public health care providers, and problems relating to poor performance can be sorted out locally."

Five years later (Planning Commission, 2006), however, the situation was assessed as follows: “The 10th Plan aimed at providing essential primary health care, particularly to the underprivileged and underserved segments of our population. It also sought to devolve responsibilities and funds for health care to PRIs. However, progress towards these objectives has been slow and the 10th Plan targets … have been missed.”

The difficulties in devolving public service delivery down to the local level, particularly rural governments, include lack of adequate funding and of local institutional capacity. One cause of the former is the inadequacy of revenue assignments to local governments. For example, in 2002-03, rural local governments’ own source revenues were less than 7 percent of their total revenue and less than 10 percent of their current expenditures. Since direct transfers from the central government to local governments are not constitutionally permitted, funds have to be devolved by or through the states. However, the states have often had a lack of fiscal capacity themselves, compounded by a lack of willingness to make significant downward transfers.

Given the structural impediments to more straightforward devolution of public service delivery, the NRHM can be seen partly as an institutional innovation to bypass existing constraints. It does so by creating a set of parallel institutions for public health services which are connected to the existing state bureaucratic and political structures, yet also separate. Decision-making authority does not reside with, and funds provided by the central government for the NRHM are not channeled directly through, the state health ministries. This provides some protection from fungibility of funds (e.g., preventing funds from being diverted to non-

earmarked purposes, at least not too overtly) and potentially allows for a greater engagement with local governments.

The NRHM has not been launched in a vacuum, but builds on and integrates existing health-related projects and programs that have been partially or wholly funded by the central government. The integration objective can give the feeling of a "kitchen-sink" approach. The NRHM includes integrated district health plans, meant to provide "effective integration of health concerns with determinants of health like safe drinking water, sanitation and nutrition;" partnership with NGOs; flexible funds for state and local governments; appointment of an Accredited Social Health Activist (ASHA) in each village; and "strengthening of public health infrastructure." In laying out the objectives of the NRHM, there has also been discussion of regulating the private sector to improve equity and reduce out of pocket expenses, and introduction of effective risk pooling mechanisms and social health insurance. Hence, this initiative is broad-based, complex and ambitious in scope.

Aside from the direct objective of improving the efficiency of public spending on health care, the NRHM is also an exercise in political symbolism. It has been stated explicitly by a senior bureaucrat (personal interview) that an important goal of the NRHM is to demonstrate to citizens that the State (especially the national government, though with positive externalities for state and local governments) has not abdicated its responsibilities to provide basic needs to the population of India. In fact, there is an explicit concentration of NRHM funds in poorer or otherwise disadvantaged (e.g., in terms of location or topography) states. In terms of the different aspects of health care, there is a focus on basic needs, including immunization, maternal and child health, and primary care to poorer rural populations.

With respect to the private sector, the attitude seems to be that the government should not be ceding large segments of health care provision to private for-profit providers, which may not have appropriate incentives for providing quality care or for serving segments of the population that lack adequate ability to pay for good health care. Public sector provision of health care is seen in some situations as a response to cherry-picking by the private sector, as well as a competitive counter-weight to private provision in other circumstances.

In practical terms, the NRHM has sought to improve the infrastructure and institutions that underpin public sector provision of a range of health care services. As the effort's name indicates, the focus in on rural areas, where there is an elaborate tiered system of facilities. Depending on the state, starting from the top, the tiers are district hospitals, community health centers, primary health centers, rural dispensaries and subcenters. Obviously, moving down the chain involves trade-offs between convenience and the range and quality of services available, but a major problem has been the deterioration of service at all levels (or possibly that service provision has always fallen short of goals). The NRHM has provided additional money for infrastructure improvements, including refurbishing buildings, providing new or replacement equipment, and improving access to medicines and medical supplies.

The NRHM also seeks to complement improved physical infrastructure and materials availability with improvements in availability of personnel. This includes increasing the number of doctors in rural areas, and especially the number and types of auxiliary medical personnel. As the earlier quote from the PC illustrated, some of the problem is not just the number of personnel on the rolls, but their presence at the medical facilities at the various rural tiers. The problem is one of inability to monitor, as well as the lack of any enforcement

mechanisms to back up monitoring. Some of these issues are sought to be dealt with by creating new chains of accountability that involve local governments as well as new oversight committees that lie outside the core state bureaucratic structures. As noted earlier, these solutions may not be effective: they are discussed further in the specific context of the Punjab case.

A related objective of the NRHM, again present in preceding schemes relating to health care, has been to use the increase in auxiliary personnel to affect the demand side as well as the supply side. This relates to the informational asymmetries that characterize health care. Even if public sector rural health care facilities improve and they are better staffed, rural populations have to believe that the benefit-cost ratio of visiting these facilities and consulting their staff is more favorable than alternatives such as unlicensed local practitioners, or traditional home care or treatments. One role of ASHAs is to overcome such barriers, creating a linkage from the village to the various tiers of the public sector health system. The presence of village-level auxiliary personnel may not be enough by itself, and the system has been further buttressed by monetary incentives to alter choices.

A very good example of the benefits of this approach, at least in terms of changing behavior, is the Janani Suraksha Yojana (JSY, which can be translated as “mothers’ protection plan”) which provides cash incentives to pregnant women and village-level health workers such as ASHAs (though not restricted to them) for choosing institutional childbirths over home deliveries. Work by Dongre (2010) clearly shows that the JSY has a positive effect on the rate of institutional deliveries, and that the presence of ASHAs in villages typically also helps. Of course this does not address the more important issue of whether the facilities used and

treatment received are such that maternal and neonatal mortality decline as a result. That question has to be tackled separately, but the strong prior is that if facilities are adequate and personnel are trained and available, institutional deliveries are preferable for dealing with risks and complications that can arise in childbirth, as well as potentially providing environments that reduce the probability of negative developments such as infections.

A key driver of the NRHM, as also suggested by its name, is the goal of creating a more integrated approach to providing health care by the public sector to underserved rural populations. There are specific advantages to combining what might otherwise be separate vertical programs, such as maternal health and child immunizations. There are also more general advantages of creating a greater systems sense in tackling public health issues that might range across a variety of infectious diseases or related issues such as sanitation and food and drug regulation. The NRHM has also created a sense within government of a policy environment within which an ongoing dialogue can take place.

In practice, primary care, prevention and early detection for TB and malaria, and maternal and child health have been among the priority areas within the overall space of health care and related issues. The NRHM has also prioritized geographically, focusing on 18 states, comprising the poorest "Empowered Action Group 8" (Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh, and Uttarakhand), eight northeastern states, Jammu and Kashmir, and Himachal Pradesh. These states have therefore received disproportionately more resources and attention through the NRHM, compared to their populations. At the same time, richer states like Punjab have received NRHM funds that are still several times the level of the state's own health ministry budget.

Another facet of the NRHM, related to its national and systemic approach, has been to invest in research and policy planning outside the usual ministry or PC boundaries. The National Health Systems Research Centre (NHSRC), in particular, provides analysis and training for decisions pertaining to the allocation of NRHM funds, and their expenditure and tracking. The NHSRC also interfaces with multilateral and bilateral donor institutions. Institutions such as the World Bank and DFID have provided technical assistance and capacity building related to the NRHM's goals. Another, independent institution that also provides training relevant to the NRHM and health care in India overall is the Public Health Foundation of India (PHFI). The PHFI was responsible for setting up, and provides training through, several Indian Institutes of Public Health (IIPH), spread through the country. The IIPH are relatively new, and still being developed. Effectively, if not formally, the PHFI and IIPH are also part of the NRHM. All these institutions contribute to the policy environment and dialogue engendered by the NRHM.

A different example of the reach of the NRHM is provided by the Rashtriya Swastya Bima Yojana (RSBY, national health insurance scheme), designed for families that are classified by the government as Below Poverty Line (BPL). While the NRHM is under the central Ministry of Health and Family Welfare (MoHFW), the RSBY was introduced by the Ministry of Labour and Employment. The RSBY provides coverage for health conditions requiring in-patient treatment, and uses health "smart cards," permitting cashless transactions, convenient access for patients, and better targeting. In practice, the RSBY is being implemented at the local level by NRHM-enabled public sector health institutions, which are managing the funds generated by the RSBY. Private health insurance companies are also

involved in managing the scheme in some states. RSBY funds from the central and state governments heavily subsidize insurance premiums, making private participation attractive.

Parallel to the development of the NRHM in the last few years, private sector health provision in India has undergone a major transformation. Of course, individual private practice was common in India, particularly in urban settings. Rural areas tended to be served more by practitioners of traditional or indigenous systems such as Ayurveda or Unani medicine. The beginnings of larger scale private provision were in charitable hospitals, or facilities owned by similarly motivated non-profit organizations. At an intermediate scale, private clinics and nursing homes also started to flourish in urban settings, often run by a married couple, with both being doctors. More recently, several corporate chains have begun to establish world class facilities in multiple cities across India, changing the organization of health care for high and upper middle income people. In some cases, they have obtained subsidized land from the government, with concomitant obligations to serve low income patients. These arrangements are discussed in sections 6 and 7.

Corporate hospital chains have been motivated by reputational concerns in maintaining quality of service. This is a standard consequence of corporate brand building. However, the quality of other private providers can be quite variable and unreliable. Self-regulation by the medical profession has been somewhat limited in India, and only recently have efforts begun to create an accreditation mechanism for hospitals and other health care providers. The National Accreditation Board for Hospitals and Healthcare Providers and the National Accreditation Board for Testing and Calibration Laboratories are both relatively new organizations, formed under the Quality Council of India, a parastatal agency of the Government of India. Only a

handful of hospitals, restricted to Mumbai and Delhi, have obtained accreditation, so this process is truly in its infancy. In general, there is no other systematic government regulation of private health care providers in India, at the point of delivery. The government does oversee and supposedly monitor the training of doctors, and this has served as the front line of regulation. Here also, government resources are limited, and the quality of medical colleges can vary widely. In practice, consumers of health care may have to rely on the reputations of the particular colleges where doctors were trained.

In addition to the government at multiple levels, and the heterogeneous array of purely private health care providers, civil society organizations (NGOs), quasi-governmental organizations, and national aid agencies and multilateral institutions also form part of the institutional landscape of health care. Multilaterals and national aid institutions typically provide funds and expertise in the health care area, with funds not going toward physical infrastructure, but rather for capacity building (what might be viewed as transfer of expertise). Their role will be discussed in specific contexts in sections 6 and 7.

NGOs are also extremely heterogeneous in scale, scope and objectives. As noted earlier in this section, they are viewed as useful contributors to the implementation of the NRHM. They are also important in low-income urban settings. Their role is often that of intermediaries with local knowledge or domain expertise, providing an interface between larger and less nimble governmental organizations (domestic or foreign). Again, it makes sense to consider their contributions in the context of specific health programs or efforts that come under the broad umbrella of public private partnerships (PPPs), in subsequent sections.

A final type of institution might be classified as an NGO, but has its underpinnings in the government sector. While the MRHM-engendered societies and the accreditation boards mentioned earlier are more squarely government-influenced or controlled bodies, in some cases, public sector enterprises spin off organizations to carry out corporate social responsibility goals. An important example in the health care space is Hindustan Latex Family Planning Promotion Trust (HLFPPT), which was created by HLL Lifecare, itself a public sector firm that manufactures contraceptive and other health care products. HLFPPT's work will also be discussed in specific contexts in later sections of this report.

4. Health Care in Punjab

Punjab is a relatively small state of India. It has been distinguished by several characteristics. It is a border state with a majority minority population, of Sikhs. It is one of the highest income states, and was at the forefront of India's green revolution, which increased yields through the adoption of new high-yielding varieties of wheat. Punjab still provides a significant proportion – many times its population share – of the total public procurement of food grains by the central government, used for the public distribution system and associated buffer stocks. Significant quantities of rice, sugar cane and cotton are grown, in addition to wheat. Canal and groundwater irrigation are critical for Punjab agriculture. Considerable mechanization and use of migrant labor have both become essential parts of the state's agricultural system.

The agricultural economy of Punjab, border status, and minority character of its population have all combined to dominate its politics, contributing to a period of violent militancy and escalating government response. While per capita income levels are among the

highest in India, the state government is perceived as corrupt and typically ineffective. Political turmoil and its aftermath have contributed to the deterioration of governance. The skewed nature of the economy is exacerbated by high levels of emigration to the West, creating multiple political and economic linkages with the state's large diaspora.

All of these factors are relevant in understanding the state of health care in Punjab. High income levels, and an infrastructure of roads and towns that were developed for its agricultural economy, support a flourishing private sector in health care. Access to health care facilities is typically not an issue in the state. However, the geographic distribution of facilities, and the mix of services they provide, are not necessarily socially optimal. The quality of private health care providers can also be highly variable, and there is no effective regulation of the private sector.

The legacy of political conflict and populism driven by what has essentially become a highly-distorted economy (with extreme subsidies for water and electric power, for example) has been a persistently weak fiscal position for the state government. In such circumstances, spending in areas such as health care has been squeezed out by general administration expenses. These phenomena are not unique to Punjab, but may be manifested in the most extreme fashion in that state. Specific problems of organization and incentives (again common throughout India) compound the lack of public sector funding, especially prior to the roll-out of the NRHM.

Reflecting its skewed development, health care outcomes in Punjab are a mixed bag. On the one hand, driven by relatively high average incomes, basic health indicators are among the

best in India. For example, immunization rates are high and maternal and infant mortality rates are low. Rich world chronic diseases such as diabetes and heart conditions also seem to be on the rise. On the other hand, health outcomes are lower than what could be expected at the prevailing income levels. In particular, maternal and infant mortality rates seem to be higher than might have been predicted, and have stopped falling, despite continued economic growth.

Punjab and the neighboring state of Haryana (as well as the National Capital Territory of Delhi) are also plagued by a sociological phenomenon that seems to have been exacerbated by economic growth. These states have extremely biased gender ratios, the result of female feticide and possibly infanticide. Sex-selective abortions, while banned, have become more common as sex-determination technologies have become cheaper and more pervasive. This issue, in stark form, illustrates that the boundaries of health care are not well-defined: behavior that determines health outcomes is a function of a complex interplay of individual, family and social motives and behavior. Improvements in one sphere of health and well-being may have unexpected negative consequences elsewhere. It is beyond the scope of this research to address this complexity, but it should be kept in mind in discussing any specific interventions and innovations in the health care system.

The challenges faced by the health care system in Punjab are not completely new. In 1995, a World Bank-supported “Secondary State Health System Development Project” was launched in Punjab to address some of emerging issues. This project aimed to renovate existing health care facilities, improve the delivery and quality of health care services in secondary health care hospitals, broaden access to health care facilities and improve efficiency in the

allocation and use of health resources. Implementation of the project was to be carried out through the Punjab Health Systems Corporation (PHSC), created as a statutory Corporation in 1996. It is a non-commercial statutory Corporation without a revenue stream, and was originally funded by loans and grants from the World Bank and the state government.

The performance of the PHSC has been viewed as mixed. It was criticized for its inefficiency, and for instituting user charges that hurt access by the poor. A Punjab government commission suggested that it be wound up in 2002. On the other hand, the World Bank seemed to be satisfied with the outcomes of the project, and the PHSC continues as a government-funded corporation. The PHSC is primarily responsible for the efforts at PPPs in Punjab, and its role will be discussed in more detail in section 7. While in theory it has a clear division of responsibilities with the state Department of Health & Family Welfare, in practice, issues of coordination and overlapping or even conflicting assignments of responsibility do arise. The situation has indeed been complicated for both state government entities by the NRHM, though the latter's primary thrust is ostensibly quite different from the main focus of the PHSC.

The NRHM in Punjab has a focus on maternal and child health. This is an overall NRHM focus area. In Punjab, maternal and infant mortality ratios are higher than might be expected given the average per capita income, while, at the same time, other health care areas that need greater attention in poorer states are less of a concern in Punjab. Hence, the attention to maternal and child health is natural for Punjab's implementation of the NRHM. Improving institutional deliveries is a straightforward subsidiary objective.

There are, of course, more general goals of improving health care services in rural areas of the state. The case of childbirth services can be used as an example of where problems arise. One issue is that of identifying any potential problem in a timely way, during the antenatal period. Another issue is reaching an appropriate health care facility quickly enough – despite Punjab's geography and road network, this can still be a challenge. A third issue is getting appropriate care once the facility is reached – this depends on availability of the right medical personnel, physical facilities and supplies. Improving transportation and communications for rural patients, and for the medical personnel who will attend them, is therefore an important part of Punjab's NRHM planning.

One of the first areas where NRHM money has made a difference is in improving facilities and availability of equipment. Old buildings are being repaired, and new medical equipment is being provided. However, it is possible that long existent problems with the delivery of the right medicines and equipment have not been fixed or even ameliorated by greater spending. Subcenters and rural dispensaries may not receive the mix of supplies appropriate to their clienteles' specific needs. Long-standing quality issues may also not be addressed simply by increased spending. Concerns can be heard about corruption in the procurement and supply of medicines to the various levels of rural health facilities, where the capacity to evaluate and monitor may not be present. There are also concerns about whether the design and construction of facilities is efficient – again, there can be incentives to overbuild when the government is subsidizing construction.

Issues of the appropriateness of decisions with respect to facilities, equipment and supplies lead naturally to the complementary – and central – issue of availability of medical

personnel in rural areas. Lack of government spending in health, high incomes among the population, and a large diaspora had all contributed to health care in Punjab being skewed toward private providers in urban areas. Prior to the NRHM, Punjab had actually been suffering from an acute shortage of doctors in rural areas. Lack of funding was exacerbated by poor pay relative to the private sector, and dysfunctional mechanisms for filling vacancies.

Doctors, nurses and other trained medical staff are central to health care, and addressing their shortage is an obvious emphasis for public policy initiatives. The NRHM has sought to use contract personnel to get around difficulties in hiring into the state level health care bureaucracy, as well as to improve incentives for attendance in rural areas. It is not clear to what extent the second of these goals will be achieved. The hiring process has been accelerated, but (without going into too much detail at this stage of the discussion) the incentive mechanisms for NRHM-employed contract doctors are not obviously superior.

Another change being sought through the NRHM in Punjab is the hiring of greater numbers of auxiliary personnel, some with medical training, such as auxiliary nurse midwives (ANMs) and others simply to serve as communicators and guides, such as ASHAs. This development represents a genuine departure in terms of the structure of rural health care, and may be particularly useful for areas such as maternal and child care. One concern is that the training pipeline is not well-developed, so the new system may be difficult to sustain.

A major aspect of the NRHM is the institutional restructuring that is taking place. The program moves some control outside the state government health bureaucracy, with the goal of reducing rent-seeking and corruption, improving efficiency in decision-making, and providing

better incentives for health personnel. The NRHM creates state and district-level societies to manage funds and hire personnel. The funds are channeled to the societies by the central government, and do not go to the state level departments of health and family welfare. NRHM funding in Punjab, even with it not being a focus state, is apparently six times the state health department's pre-existing budget.

In practice, the state Health Secretary and Civil Surgeons are part of both the state bureaucracy and the NRHM societies. Hence, the lines of authority can be tangled in practice, and it is not clear how much efficiency or incentive improvement will be achieved by adding parallel bureaucracies. One point in favor of the new structures, however, is that membership of NRHM organizations can be broader based, including representatives from outside the government, such as private sector doctors and NGOs. In addition to the district health societies the various tiers of health facilities now also have Rogi Kalyan Samitis (RKS, patient welfare committees). At higher tiers, there are also separate planning and monitoring committees. Finally, local government representatives are also included, and local government leaders are being given detailed information about their new authority and responsibilities under the NRHM.

A greater involvement of non-medical personnel in planning, monitoring and resource allocation for health care can have pluses and minuses. On the one hand, doctors may not be best equipped to make societal cost-benefit, or broader resource allocation, decisions. On the other hand, non-medical personnel may not have a sufficient understanding of the various aspects of health care delivery. This is a generic problem in health care, not specific to Punjab or India. One solution involves training doctors in administration or management techniques

for health care systems. A related approach involves training in public health, which, by its focus on diseases and health conditions that have societal externalities (e.g., infectious diseases) or non-medical infrastructure that affects health (e.g., sanitation), inherently introduces systemic perspectives. In this context, the IIPH (see Section 3) may play an important role if their quality and number are made sufficient.

The additional funds associated with the NRHM are also being used for investment in technology. Mobile medical units (MMUs) – vans equipped with X-ray and ECG machines as well as lab testing facilities and a full complement of doctors – are being commissioned to serve rural populations. Investment is also going into ambulances and emergency response systems. There are plans to provide ANMs with pre-programmed mobile phones, and to create a system where they can contact doctors or nurses in advance of bringing in to the health facility a woman about to give birth. It appears that investment in equipment such as the MMUs is running ahead of the ability of the government health system to manage these new resources effectively, since hiring of doctors and nurses, assignment mechanisms for the new hires, and new organizational cultures all lag behind the capital spending.

As noted earlier, Punjab is a high income state, with relatively ineffective governance and poorly managed public finances, and therefore with relatively low pre-NRHM public spending on health care. This has made private sector health provision very important in the state. On the one hand, this heightens the political and symbolic objectives of the NRHM in its implementation in Punjab. On the other hand, it suggests that the approach to public provision can be different than in states with different pre-conditions. In particular, the private sector represents a major potential resource for improved health care provision in Punjab. The key

issues are those of achieving strategic and operational fits between public and private sector organizations that have differing objectives, incentive systems and operational modes. These considerations will be taken up in Sections 5 through 7.

Furthermore, the NRHM is not meant to serve urban populations (though the boundary between rural and urban can be blurred when most villages have relatively easily access to one town or another). Urban populations have higher average income levels, and with urban government hospitals effectively serving nearby rural populations as well, private provision of health care services in urban areas assumes even greater importance, though private sector rural medical practitioners are also significant sources of health care services. The central issue with respect to private provision is the quality of care, which goes back to the nature of health care as a credence good. In this context, the nature of medical training is important, in addition to overall regulation and redressal mechanisms.

The best private hospitals, as one might expect, are exemplary in functioning. Run by doctors faithful to the Hippocratic Oath and the highest ideals of medicine, they provide cost-efficient care to a wide cross-section of the population, using cross-subsidization to serve poorer patients. There are many easily identifiable design and organizational characteristics of efficient urban private hospitals that are missing from their public sector counterparts: overall efficient scale, efficient configuration of space, effective personnel policies (especially doctor selection, but also appropriate numbers and levels of support staff), effective management of supplies and equipment, rational pricing, and a demand-driven mix of services and matching with supply to achieve efficient volumes. There are undoubtedly privately-run hospitals in Punjab that approximately fit this description.

At the other extreme, private providers may fail to provide adequate care or attention to patients, not be adequately trained, or, perhaps most commonly, increase their incomes by recommending extra tests, procedures or treatments, beyond what might be recognized as best medical practice. They may also choose only to deal with cases and patients where there is a favorable money rate of return, leaving other situations to the public sector, and thereby worsening the latter's situation. Private providers may also fail to recognize public health aspects of diseases, or not be equipped to deal with them. Perhaps the starkest example of inappropriate private medical practice is the conduct of fetal sex-determination tests, accompanied by sex-selective abortions. Again, Punjab illustrates well this kind of extreme problem with private health care.

In practice, private providers, in Punjab and elsewhere, lie in between the extremes. They are subject to moral hazard problems, and do not serve as a complete substitute for public provision of health care. Broadly speaking, the problems with private provision in practice can be ascribed to inadequate competition and poor regulation. It may seem counter-intuitive that competition is inadequate, given that there are so many private health care providers. In urban areas lack of reliable information about quality in initial choice of providers, and switching costs once choices are made, create barriers to competition, even with multiple private health care providers in a locality. In the context of villages and untrained rural medical practitioners, there can be effective local monopolies due to distance, travel costs, or timing issues. Typically, public providers of health care services may not always be effective alternatives, due to their own inadequacies or constraints – in that respect, the NRHM may provide some positive spillovers to the quality of private provision of health care.

Even with the best conditions for competition, some degree of regulation is necessary. Regulation of the private sector operates at several levels, and in several forms. Self-regulation comes from professional associations, while outside regulation is determined by the government. The situation in Punjab is reflective of national conditions, as discussed at the end of section 3: corporate hospitals rely on branding and reputation; private providers in general are variable in quality and not effectively regulated; regulation of medical training is also somewhat ineffective in practice; and there is little self-regulation by professional associations.

One area where Punjab differs from the typical national situation is in the role of NGOs, which are perceived to have a weak presence and influence in the state, relative to other parts of India. One explanation is that Punjab, having been viewed as a well-off state, has not been high in the geographical priorities of national NGOs. Another possible factor is that the state government has not been particularly welcoming or supporting of NGOs, possibly because the government, too, has viewed an active NGO presence as a symbol of poverty, or more broadly as signaling government failure. This second explanation would apply to more local NGOs, and not just national organizations. Yet another possible factor is the strength of religious institutions in Punjab. Gurdwaras have a long history of providing a range of social services, and while their scope and approach may not be ideal substitutes for NGOs, they may effectively crowd out the latter.

The relative slippage of Punjab in health indicators such as infant and maternal mortality rates, and the rise or resurgence of diseases such as HIV/AIDS and TB have started to change the situation with respect to health NGOs in the state. The NRHM's own calling out of the role of NGOs has also helped. For example, the NRHM is seeking to engage with

MAMTA Health Institute for Mother and Child, a national NGO based in Delhi, but with a regional office in Chandigarh, the state capital (though a Union Territory). It is unclear if anything concrete has emerged yet from this engagement, though the change in attitude is significant. An example of a newer, state-level NGO is the Nabha Foundation, which has a very specific geographic focus on the town of Nabha and its surrounding area, with HIV/AIDS as the health component of its portfolio, along with heritage preservation, organic farming and other social projects. In the case of its HIV/AIDS work, the Nabha Foundation receives funding from the Punjab State AIDS Control Society, which is a government agency, and carries out educational and prevention efforts in Nabha and surrounding villages.

5. Public Private Partnerships

The term "public private partnership," or PPP, covers a wide variety of relationships and arrangements. Therefore it is useful to provide an overall conceptual discussion of PPPs, as well as specific implications of this framework for the health care sector. This framework will provide context for considering examples of health care PPPs in India, and Punjab more specifically.

Despite the broad application of the term PPP, the core concept is quite specific. The term originated in the context of infrastructure provision, for cases such as highways, airports and ports. Financially strapped governments have turned to private corporations to build and run such projects, with the bundling of the two phases warranting the use of the term PPP. In the absence of private sector maintenance or service provision, the relationship between the government and private entity is more in the nature of a procurement contract, rather than a PPP, with the private corporation providing one-time construction services, without an

ongoing financial relationship with the government. However, as we shall discuss below, the term is often used to cover such "procurement" cases as well. Note that contracting is an important part of PPPs as well, so the absence of use of a contract does not determine the boundary between what might be classified as a PPP or not. Instead, the scope of the contract with respect to timing, payments and services, is what is important.[2]

The theoretical basis for PPPs is also related to the case for privatization. Privatization involves a complete transfer of ownership, and can be viewed at the other extreme from contracting with private entities for construction of assets, but retaining ownership and operation responsibilities. Infrastructure PPPs lie somewhere in the middle, with ownership not being transferred completely (e.g., in the case of a long term but finite lease for the constructed facility), or constrained by specific conditions (e.g., pricing or quality of service restrictions). In some cases, the end result would not be different from privatization with regulated operations, and the difference lies in the contracting process that leads to the final outcome. On the other hand, if the government provides some explicit guarantees in the case of a PPP, for example to provide a subsidy if realized demand is low, this would be quite different from the usual case of privatization (though private firms may also receive government favors in the form of tax breaks or subsidies).

The theoretical economics literature on PPPs identifies several factors that influence the choice of organizational form. A key idea is that the incompleteness of contracting makes ownership important. If contracts can be fully specified in as much detail as required (and also costlessly enforced), then ownership should not matter. In practice, the real world is too

[2] The nature and possible types of contracting are discussed further in Section 6.

complex and uncertain to allow such elaborate contracts to be written and enforced. Ownership then matters, through its granting of residual control rights. In addition to uncertainty, asymmetries of information also matter for contracting: these asymmetries can be with respect to actions (moral hazard situations) or characteristics (adverse selection situations). In all cases, the allocation of ownership rights, as well as the nature of the optimal contract, will depend on the precise nature of the asymmetric information and uncertainty in that particular situation. The presence or absence of complementarities in production (say, construction and service delivery) will also matter for whether the different stages are bundled together in a PPP or not. So will the relative efficiency of the private partner versus the government itself.

We noted that infrastructure PPPs have often been driven by financial considerations. It should be noted that in a world of perfect capital markets and efficient government revenue raising (which can be characterized as perfect political markets), finance would not drive PPPs. The point is that a PPP arrangement typically involves the government sacrificing future revenue (or committing to future subsidies or transfers), in order to obtain current financing from the private partner in the PPP. In effect, the private partner enables the government to make an intertemporal transfer that it cannot achieve through current borrowing or current taxation. The private partner may have better access to capital, but it also has to be able to achieve a competitive rate of return for its allocation of capital to the PPP project. The underlying driver of this is likely to be greater efficiency in construction and operations, and not just less costly finance. These considerations also apply to the possible risk-sharing benefits of PPPs. Governments (at least at the national level) should be better equipped to bear risk than private actors, unless public finances are constrained by imperfect capital markets or

political markets. Risk-sharing may therefore be a subsidiary reason for using PPPs, with the main driver being relative efficiency.

Returning to the discussion of the allocation of ownership, the private partner may be more efficient based on characteristics or effort, or both. This has often been the case with large infrastructure projects, where government agencies may not have the experience or expertise to design and build such projects. Private firms may also have a relative advantage in operations, because of greater past experience. An important factor in both construction (including design) and operations is the incentive structure faced by each side. The public sector's incentives for efficient effort may be weaker than those of the private partner, whether because of lack of performance-based rewards, or because of distortions created by political economy factors such as lobbying or even corruption. This is not to say that private firms are not subject to similar incentive problems – in fact, this may be another factor in preferring some kind of joint action through a PPP, to provide mutual checks on performance. A PPP may also provide some basis for knowledge transfer, or "capacity building," as can be the case with joint ventures between two private organizations.

A key distinguishing feature of PPPs, as opposed to private-sector joint ventures, is in the fundamentally different nature of the public and private sectors. The government and its component organizations are driven by social welfare objectives, which in turn are shaped by mechanisms such as elections, which aggregate the preferences of citizens. These welfare objectives may be distorted by interest groups, or overridden by the individual preferences of government employees (including politicians and bureaucrats). This can happen in private corporations as well, but for-profit entities have a clearer and simpler objective than do

governments, that of maximizing profits. A PPP, more directly than would be the case with privatization, allows the government to incorporate some social welfare objectives into the operations of the project. For example pricing of a toll road may be designed with some consideration for equity, or aggregate social benefit, which can lead to different outcomes than simple revenue maximization. Such considerations can be built very explicitly into a PPP arrangement (though they have also been part of regulated private sector provision of utilities such as telecommunications and electric power).

Recently, there has been some emphasis on recognizing that private sector objectives may also be broader than profit maximization, and incorporate social welfare concerns as well. This is most obvious in the case of NGOs. In fact, one can think of an NGO as a hybrid of an interest group and a productive organization (Besley and Ghatak, 2001), with preferences for equity, or for the welfare of the poor, built into the organization's objective function. This alternative objective function may or may not make NGOs better partners for governments than for-profit corporations – there is no straightforward ranking. Clearly, for some kinds of projects (e.g., large infrastructure), NGOs do not have the scale or expertise to be involved. However, for smaller scale projects, or those with a strong distributional or equity objective (e.g., primary education for girls), NGOs can play an important roles. Even in broader contexts, NGOs may serve as complementary partners to the government and for-profit corporations, acting as intermediaries or providing monitoring services. NGOs may also have expertise in the design and distribution of services, and are often brought on board for this expertise, through consultations or committee memberships.[3]

[3] I am grateful to Abhijit Visaria for this observation. The role of NGOs is discussed in more detail later in this section.

Another example of private sector objectives that go beyond profit maximization is the idea of corporate social responsibility (CSR), where individual companies set aside some resources for meeting social goals. A recent analysis (McKinsey and Company, 2008) argues that the CSR approach is too limited and narrow, and used PPPs as an alternative conceptual basis for thinking about social goals. Ultimately, the possible benefits are meant to be to the bottom line, through improved image, happier employees, potential new customers, and so on. In this analysis, PPPs are conceived of as including loose collaborations as well as formal contractual arrangements. Four archetypal categories of PPPs are identified by their primary focus, that being one of the following: coordination, funding, product development, or service delivery. Thus, the private partner brings inputs that may not be easily available to, or too costly for, the public sector, but is driven by non-pecuniary short-term rewards, rather than monetary payments through a formal contract. Examples of PPPs in this framework lie in health, education and other areas pertinent to economic development.

Even more broadly, one can argue that there are many other factors that affect the nature and success of PPPs, going beyond those that can be explicitly modeled in the objectives of partners or economic tradeoffs. This is particularly relevant for social sector projects such as those in health or education, versus large infrastructure projects such as highways and airports. These factors include mutual understanding, an enabling environment, and individual and joint organizational capacities. For example, the following list of such broad factors is adapted from ADBI (2000).

- Goals and objectives
    - A clear understanding between the partners about mutual benefits
    - A clear understanding of the responsibilities and obligations between the partners
- Enabling environment
    - Strong community support
    - Need for some catalyst to start the process of partnership (e.g., an individual, a donor, a compelling vision or a political or economic crisis)
    - Stability of the political and legal climate (government and laws)
    - Regulatory framework that is followed and enforced
- Organizational capabilities and incentives
    - Capacity and expertise of the government at different levels in designing and managing contracts (partnership)
    - Appropriate organizational and management systems for partnerships
    - Strong management information system
    - Clarity on incentives and penalties

In the area of health care, the construction of larger urban hospitals is closest in characteristics to the core infrastructure examples where PPPs have been most prominent. The government may provide land or some other form of subsidy, possibly specify some of the features of the hospital, and place conditions on pricing and quality of services, and on the types of patients served. This is quite similar to the model for roads, ports and the like, except that the services provided and populations served may be more heterogeneous. There may therefore be greater challenges of ensuring overall quality or equity in provision. In theory, the government should be more efficient than individuals in overcoming problems of asymmetric information characteristic of health care, since it can marshal greater expertise and take advantage of economies of scale in information gathering. In practice, the government's own capacity may be insufficient. This problem can arise in other infrastructure PPPs, but may be more severe in the case of hospitals.

In this context, NGOs may have an important role to play in the health care sector that is not of consequence for other kinds of infrastructure PPPs. NGOs may substitute for government in providing monitoring services that act as a check on the actions of for-profit partners in a PPP arrangement. In general, NGOs may provide coordination services, innovation services, and even some components of care delivery (e.g., transporting patients to hospitals, or helping them with filling forms). In fact, this array of services may be provided by NGOs even in the absence of an infrastructure PPP, and itself represents a common class of what are termed PPPs in the health care sector. Corporate CSR divisions (or some broader organizational implementation of CSR goals) may also play a similar role, as noted in the McKinsey (2008) analysis.

NGOs also have an even broader possible PPP-type role, with respect to publicly provided health care services. While health care is a credence good, there are components or aspects of health care that are more like a search good, one where the relevant characteristics can be researched in advance. NGOs can therefore provide significant services in patient education, including types of information that might come under the term “social marketing,” or other efforts that are termed “behavior change communication.”

Given that health care in developing countries is often characterized by for-profit private sector provision that is fragmented, of variable and uncertain quality, and inaccessible (due to location or cost) for poorer segments of the population, the government may also choose to partner with NGOs and with these private providers in ways that improve incentives for quality care, affordability and access for the poor, and increase efficiency (e.g., Dimovska, et al., 2009). In such cases, the information transfer is to smaller private providers, rather than from

experienced large private firms. Public inputs can include accreditation mechanisms, help with achieving minimum standards of care, and technological upgrading to reduce costs and/or improve quality. These arrangements do not have to involve NGOs, but governments may lack institutional capacity to manage relationships with large numbers of small providers. The end result of the partnership may also be to change the industrial organization of health care provision, with small, fragmented providers becoming franchisees, or part of a network that can avail of economies of scale for certain aspects of the health care value chain.

Health insurance or other financing programs for poorer segments of the population can also involve a mix of government funding, NGO coordination or implementation services, and private provision of the actual health care services. These are all varied cases that can all be gathered under the umbrella of PPPs, and are somewhat in contrast to the infrastructure PPP model. Rather than discrete projects being implemented through the PPP (perhaps superseding poor public sector provision), in these health sector cases existing private provision is made more efficient, improved in quality, or made more accessible through investments by the government, NGOs, or other actors that are not directly involved in service delivery.

6. Health PPPs in India

India now abounds with a variety of PPPs, and it is a challenge to describe or categorize them adequately. Raman and Björkman (2006) provide a comprehensive discussion up to the time of their analysis, but PPP experiments have already marched forward since then. In any case, we shall attempt a more concise description here. The starting point is the theoretical discussion of PPPs in the previous section. Following the line of reasoning presented there, we

use the property rights approach, and focus on aspects of ownership and control to categorize different health PPPs in India. As with other categorization schemes, the boundaries between different PPP types can be somewhat fuzzy, but this may be unavoidable. Accordingly, we offer four categories of health PPPs:

1. Government contracting for services with private providers, including for-profits and NGOs. The services may include core health care delivery as well as ancillary services or expertise (including marketing, research and construction), but the critical feature is a strong degree of public control.

2. Government provision of inputs to specific private providers. In this case, the balance of control is with the private provider, with the government providing land or financial subsidies. Traditional infrastructure PPPs, such as a hospital that is operated by the private provider, would fall in this category.

3. Government provision of an effective "playing field" to industry segments. The playing field for health care providers is defined by regulations, but also enabling institutions for accreditation and certification, an effective legal environment, and information sharing arrangements.

4. Joint ventures, possibly with multiple partners, and a mix of formal and less formal agreements. Provision of some services may be funded externally, or provided on a voluntary basis. This category covers a range of possible PPPs, but is also an increasingly common approach to health care, with its heterogeneous range of needs and population segments that are served.

It is useful to relate the above categorization to several alternatives that have been used for health PPPs, often in the context of developing countries, or more specifically for India. Annigeri et al. (2004) offer a threefold classification of health PPPs, into contracting, social marketing and social franchising. Contracting includes contracting in, contracting out, subsidies and leasing, and therefore spans our first two categories. Social marketing would fit into the first category. Finally, social franchising could fall into any of categories 2-4, depending on the relative roles of private and public sector entities, in terms of ownership and inputs provided. Thus, we would argue that our classification is more precise from an economic perspective than that of Annigeri et al. (2004).

Dimovska et al. (2009) offer a more comprehensive classification of types of health PPPs. Four criteria are used in their classification:

- The leading implementer (government or non-state)
- The stage of development
- The specific mechanism employed (service delivery, risk pooling, government and provider self-regulation, provider purchasing and contracting, and supply chain development)
- The particular goal each program seeks to achieve (reducing provider fragmentation, improving provider incentives, subsidizing target population segments, educating patients, new technologies for better access and quality).

Our categorization can be viewed as an amalgam of the first and third criteria of Dimovska et al., emphasizing the details of ownership and control, rather than specific mechanisms or objectives. Again, specific mechanisms are very heterogeneous, while multiple goals may be simultaneously desirable, making our classification less ambiguous.

Finally, Government of India (2006), building on the work of Raman and Björkman (2006), lists 18 different mechanisms or models for PPPs. It will be seen that they can be aggregated into our more general categories, and also have parallels with the other two classification schemes. However, this list is much more heterogeneous in combining criteria such as mechanisms, goals and types of partners in the same classification scheme, and therefore lacks conceptual clarity.

- Franchising
- Branded clinics
- Contracting out
- Contracting in
- Social marketing
- Build, operate and transfer
- Joint venture companies
- Voucher systems
- Partnerships with social clubs and groups
- Involvement of corporate sector
- Partnership with professional associations
- Insurance schemes
- Special category campaigns with private sector
- Autonomous institutions
- Donations from individuals
- Mobile health vans

- Partnering with NGOs or community organizations
- Capacity building of private providers, pharmacists, and informal providers

We next consolidate examples from the four sources from which we have presented the alternative classification schemes for health PPPs. This will give a sense of the scope of PPP models and experiments in health care in India. We summarize the nature of these cases as briefly as possible, before providing a more detailed discussion of some salient examples that will be particularly relevant when we turn specifically to Punjab.

As noted earlier, the list is long, and reflects the heterogeneity of health care, the size and diversity of India, and a general climate of experimentation in a situation which is recognized as unsatisfactory for the nation's current and future development. It should also be acknowledged that several of the programs listed in the table are not strictly PPPs, even in the broadest usage of the term. However, even pure NGO or other private-sector efforts require some degree of implicit of explicit government approval or passive support, and it is in that spirit that they are included. In terms of our classification, they fit into the third of our four categories. Examples from Punjab are not included in the list in Table 3, as we discuss them separately in the next section.

Table 3: Public-Private Initiatives in Health Care in India

	Project / Program	Services scope	Geographic scope	Institutions
1.	Urban slum health centers	Primary health care, including RCH	Andhra Pradesh	Commissioner of Family Welfare, NGOs, World Bank (infrastructure funding)
2.	Primary health centers in poor areas	Primary health care, especially RCH, community-based health insurance scheme, telemedicine	Karnataka, Arunachal Pradesh	State DHFW, Karuna Trust, UNDP (insurance)
3.	Urban community health center	Primary health care, including RCH	Bihar (Patna)	State DHFW, Kurji Holy Family Hospital
4.	Janani, including Titli centers and Surya clinics	RCH and other primary health care, contraceptive products	Bihar	National MHFW, DKT International, Acumen Fund (financing)
5.	Social marketing scheme	Contraceptive distribution	Uttar Pradesh	State DHFW, SIFPSA, HLL Lifecare, HLFPPT, PSI, DKT International
6.	GVK Emergency Management Research Institute	Emergency medical response service, training	Andhra Pradesh and 8-10 other states to varying degrees	State governments (regulatory infrastructure, funding, equipment), GVK industries, various professional associations and corporations
7.	Health Management and Research Institute	Integrated digital health network, counseling, information services, telemedicine, mobile medical units	Andhra Pradesh	State government, Aarogyasri Health Care Trust, NRHM, GVK EMRI, various professional associations and corporations
8.	World Health Partners	Leveraging existing private providers into networks through training and support services, telemedicine	Uttar Pradesh (pilot project)	NRHM, Venture Strategies for Health and Development, VisonSpring, Indian technology companies
9.	LifeSpring Hospitals	RCH for lower income urban households	Andhra Pradesh	HLL Lifecare, Acumen Fund (equity partners), possibly JSY (government program)
10.	Byrraju Foundation Health Program	Village primary health centers, referral network, RCH, care of specific diseases	Andhra Pradesh (6 districts)	Loose affiliations with a range of public and private organizations
11.	NICE Foundation	Neonatal intensive care and emergencies, tribal RCH, school health care	Andhra Pradesh, Rajasthan (school health program only)	Naandi (NGO), Dr Reddy's Foundation for Human & Social Development (CSR initiative of Dr Reddy's Labs)
12.	Smile-on-Wheels Program	Maternal and child health care in urban slums through mobile medical units	Delhi + locations in 6 other states	Smile Foundation, state and city governments, local NGOs, corporate sponsors
13.	Rashtriya Swasthya Bima Yojana	Health insurance for the poor	All-India	National and state governments, private insurers

14.	UpLift Health Mutual Fund	Community-based mutual health insurance funds for urban and rural poor	Maharashtra	UpLift India Association, domestic and foreign NGOs, domestic corporations, hospitals
15.	Micro Insurance Academy	Research and training for community-based health insurance	Multiple locations (pilots and research support)	Sarvajan Unnati Bodhini Charitable Trust, European Union, domestic and foreign NGOs, academic institutions
16.	Yeshasvini,	Cooperative farmers health care scheme, based on health insurance	Karnataka	State government, government trust, national regulator (IRDA), private hospitals, private insurers
17.	Arogya Raksha Yojana	Microinsurance for urban and rural poor, health clinics	Karnataka	Biocon Foundation, Narayana Hrudayalaya Hospital, independent rural service providers, ICICI Lombard.
18.	E-Choupal	Primary health care, telemedicine, health education for consumers	10 states	ITC, national and state governments (funding and regulations), private hospitals
19.	Chiranjeevi Yojana	Institutional deliveries for the poor	Gujarat	State government, NRHM, private providers, IIM (A), SEWA-Rural, GTZ
20.	SMS Hospital, Jaipur	Contracting out pharmacy and equipment services	Rajasthan	Government hospital, private contractors
21.	Uttarakhand Mobile Hospital and Research Center	Mobile medical services in hilly terrain	Uttarakhand	State government, TIFAC (national parastatal), Birla Institute of Scientific Research
22.	State Malaria Control Society	Contracting out information, education and communication services	Gujarat	State agency, private providers, pharmaceutical companies (funding)
23.	Hospital maintenance	Contracting in cleaning, maintenance, security, etc.	Many states	Government hospitals, private providers (e.g., Sulabh International)
24.	Mother NGO and Service NGO Schemes	Provision of RCH and family planning services	All-India	MoHFW, state and district health services, PRIs, NGOs (implementation and monitoring)
25.	Rural health centers	Primary health services, public health management	Gujarat (4 centers)	State government, district and local governments, SEWA-Rural
26.	Health center for urban poor	Primary health, especially for women and children	Delhi	Municipal Corporation Delhi, Arpana Trust
27.	Rural maternal health	Safe abortion, delivery services, social marketing	Orissa	State government, Parivar Sewa Sanstha, PSI
28.	Emergency Ambulance Services, Emergency Accident Relief Center	Transportation for maternal deliveries, accident victims	Tamil Nadu (1 district)	State government, World Bank (funding), Seva Nilayam (NGO implementer)
29.	Public health center staffing	Additional ANMs on contract for RCH services	Multiple states	National DoFW, district governments, individuals
30.	Public health center staffing	Doctors, anesthetists, nurses on contract for RCH services	Multiple states	National DoFW, district governments, individuals
31.	Public hospital staffing	Wards or beds contracted to NGOs for management	Multiple states	National DoFW, government hospitals, individuals

32.	Research on Indian medicine systems	Grants for research	All-India	Department of AYUSH (MoHFW), private research organizations
33.	National Malaria Control Programme	Distribution of medicated mosquito nets	All-India	NMCP, NGOs, private practitioners
34.	National Blindness Control Programme	District blindness control societies for package of services	All-India	NBCP, NGOs, private sector
35.	National AIDS Control Programme	Outreach to target populations	All-India	NACP, NGOs, private sector
36.	Revised National TB Control Programme	Community outreach, health education, provision of DOTS and in-hospital care, TB Unit Model, program planning, implementation, training and evaluation	All-India (14 sites)	RNTCP, NGOs, private providers, possibly medical colleges
37.	Rajiv Gandhi Super-specialty Hospital	Super-specialty health care to BPL population	Karnataka (Raichur)	Government of Karnataka: District Commissioner (land, building, infrastructure, start-up funds), Apollo Hospitals, OPEC (funding)
38.	Karnataka Integrated Tele-medicine and Tele-health Project	Telemedicine – coronary care	Karnataka	Government of Karnataka, Narayana Hrudalaya hospital, Indian Space Research Organization
39.	Jai Prakash Government Hospital management	Rogi Kalyan Samiti (patient welfare committee)	Madhya Pradesh (Bhopal)	Local PRIs, NGOs, local elected representatives and government officials
40.	Mahavir Trust Hospital	DOTS program for TB control/treatment	Andhra Pradesh (Hyderabad)	Government, Mahavir Trust Hospital, private nursing homes and providers
41.	Mobile (boat) health services	Health clinics from boats for people on remote islands	West Bengal (Sunderbans)	State DHFW, NGO, World Bank (some funding)
42.	Merry Gold Health Network	Multi-tier health care franchise for poor and lower middle class, focus on maternal and child health	Uttar Pradesh (about half of state's districts)	UP government (SIFPSA), HLFPPT(implementation), USAID (technical assistance, funding), private providers (corporations, hospitals, individuals)
43.	Mental health initiative	24x7 mental health helpline, future upgrading of mental health hospitals	Maharashtra (Mumbai, Pune)	Vandrevala Foundation, Brihanmumbai Municipal Corporation

Sources: Annigeri et al. (2004), Dimovska et al. (2009), Government of India (2006), Raman and Björkman (2009), personal interviews, various web sites

The heterogeneity of the above list (itself not exhaustive) of 43 projects, programs or initiatives reflects the difficulty of simple characterizations within health care overall. It is beyond the scope of this report to provide further detail, even in summary form, on all these

efforts. However, such details can be found in the original sources used to compile the table. We will focus on a few of the programs listed, because they have the greatest potential overall, as well as the greatest potential relevance for Punjab. In particular, this section will examine Chiranjeevi (no. 19 in the list), LifeSpring (no. 9) and Merry Gold (no. 42) in greater detail. In some ways, these three initiatives are paradigmatic of the overall list, and provide a way of cutting through the heterogeneity and complexity of the space of public-private interactions in health care in India. Before turning to the three cases, we discuss some overall features of the list of programs.

The first set of observations we make on the different programs is their variation in terms of geographic scope and scale. Some of this variation is a function of resources, including both financial and human capital. Some of it reflects the piloting nature of the efforts. Another factor is the heterogeneity of India, so that local conditions can vary tremendously. This is closely tied to the availability of human capital, since some knowledge may be location-specific, and not easily transferable to other locations. Yet another factor is the differences between rural and urban geographies and health care needs. In all of this, the overall scale must be kept in mind. A program that covers an entire state in India, such as Andhra Pradesh or Karnataka, is comparable in population coverage to a national scheme in, say Germany or France. A program that serves an entire district or a large Indian city has the same scale as one that completely covers a smaller European nation such as Switzerland or Slovenia. Therefore, an innovation that succeeds in an entire Indian state is a significant achievement.

An important issue with respect to geographic coverage is whether the program is scalable or not. There can be different types or degrees of scalability. Despite the importance of

local variations, there are common characteristics of health care for poor urban populations, for example, or of maternal health (particularly in specific procedures, such as normal deliveries). Principles of control of malaria or TB are also potentially quite uniform across the country, as reflected in the national nature of the programs included in the list above. However, other aspects of health care provision, necessary for successful implementation, may still require local knowledge and locally tailored inputs. For example, social norms, occupational patterns and local government capacity may all differ across locations. In fact, the issue of optimally combining national, state and local inputs has been an ongoing challenge for all kinds of public service delivery in India.

Even more basic inputs into what we can term the health care value chain may be subject to local variation. A hospital that contracts for services such as cleaning and maintenance, running a pharmacy, or providing and maintaining medical equipment has to deal with the set of local providers, which can vary considerably across regions, cities or even neighborhoods. A key issue, however, is identifying general principles that can allow emulation or scaling up of such approaches, without being completely constrained by local specificities. Several of the examples in the list are precisely small-scale, local initiatives, focusing on a single hospital or a small group of health centers. Resource constraints may not permit scaling up of the managing organization, but the scaling can occur across organizational boundaries, through information sharing, training, and basic identification of which elements of an initiative can be replicated in other locations.[4] Multilateral institutions, other aid agencies, and

[4] In Indian policy discourse, a distinction is drawn between scalability, referring to operation across a wider geography, and replicability, which implies some degree of adaptation along with emulation. Here we are using scalability to include replicability, though scaling up can occur without replication if it involves just doing more of the same. Scaling across organizational boundaries assumes replication, with or without adaptation.

sometimes national and state governments and their agencies typically seek to play this supporting role for diffusion and replication of scalable elements of local innovations.

The second set of observations with respect to the overall list of programs and initiatives has to do with organizational arrangements, and the balance of ownership and control, as in our categorization at the beginning of this section. In fact, many of the examples in the table are simply government programs, where the government has defined an objective (or set of objectives) and allocated funds, but does not have the institutional capacity to implement effectively, and therefore seeks out private sector organizations to help with that role. This group of examples fits into the first of our categories. This is a positive development in many ways, since it represents a recognition of the limits of government capacity, without abdicating government responsibility. The NRHM in practice represents this approach, since it has provided health care funding well beyond government's own institutional capacity to use the money effectively, leading to efforts to involve the private sector in government programs in systematic ways.

In practice, there can be severe challenges in managing such public-private relationships, due to the manner in which government functions in India. In essence, the same capacity problems that hinder direct implementation by government can also have a negative impact on the use of private surrogates. How these challenges can be overcome is an important lesson of the Chiranjeevi and Merry Gold cases, especially the first of these, since the latter is less of a government-controlled program.

At least as common as the government-driven initiatives are those where the lead comes from the private not-for-profit sector. Several of these efforts are classic philanthropy, but others are designed to be more commercially sustainable, while often they also receive government funding. Some of these programs, if they do get government funding, might fit under the second of our categories, except that the idea and the control tend to stay with the private entities. More commonly, these sorts of initiatives fit most easily into our third category, where the government's role is more of a background provider of the playing field. The regulatory permission of the government is actually critical for private initiatives to get off the ground. The weakness in practice is that government approvals tend to be given on a case-by-case basis, rather than as part of an overall redefinition or reform of the regulatory environment. Hence, the transactions costs can be quite high for new entrants, and political connections may matter more than the efficiency or comparative advantage in implementation.

The theme of standardizing the terms under which private entities operate within the health care system, and interface with a large but unwieldy and inefficient government health infrastructure, is related to the discussion of scalability earlier in this section, as well as to the new institutional structures that are being created under the NRHM, as discussed in Section 3. In addition to the national and state governments' need to use NRHM funds effectively, a complementary driving force is the corporatization of health care delivery and a shift from philanthropy with limited scalability to more commercially sustainable models.

Continuing with the second set of observations, we note that true partnerships or joint ventures seem to be relatively rare in the list of programs. The issue is not one of having total equality – that would be an impossible requirement. Instead, the point is that it is rare that

each side brings valuable, essential and ongoing inputs to the relationship. In most of the examples, either the government, with all its size and power, deals with NGOs that lack resources and scale, or large corporations pursue philanthropic aims that minimize the interface with government because of the costs of that interaction. In some cases, a large private entity has close ties with the state government, as is the case for some of the initiatives in Andhra Pradesh and Karnataka. In these examples, also, personal visions and particular relationships may be the drivers, rather than models of interaction that can be replicated broadly. The theme of replicable institutional arrangements will be explored in the three cases considered later in this section.

A third set of observations have to do with the particular subsectors of health care where public-private initiatives are focused. One can divide health care according to the various specific health problems or diseases that need to be addressed. Classic public health concerns with endemic and communicable diseases such as malaria, TB and HIV/AIDS are well-represented in the list of examples. The related area of population control, or family planning, also receives attention. Overall primary health care is also a common emphasis, reflecting the broad lack of basic health care for large segments of the population. Care for mothers and children is also an important aspect of initiatives in health care. All of these areas are natural ones for devoting resources and seeking innovation, since India's health outcomes are obviously deficient in these dimensions. In each case, there is an attempt to create new institutions that can address an aspect of health care with high social importance.

Clearly, there are many other specific areas of health care that can also be improved, especially for the poor: chronic diseases such as diabetes and hypertension, cancer, surgical

procedures, eye care, dental care, and so on. There are undoubtedly new programs and innovations in many of these areas as well. One example of a heretofore relatively neglected area is mental health, and the last item on our list is an example of how this is being tackled as well.[5]

A final group of observations focuses on the various components of what we have termed the health care value chain. In the programs listed in Table 3, there is considerable emphasis on the demand side of health care, through patient education, behavior change communication, and social marketing. These are ways of influencing behavior to improve the ways in which people manage their own health, obtain and use health products (especially in the case of contraceptives, but also medicines), and seek care when they need it.

One aspect of prevention that does not seem to be a component of any of the initiatives listed is a combination of supply and demand factors. As noted in the discussion of Section 3, the NRHM includes the creation of integrated district health action plans, which include considerations of sanitation, clean drinking water, and nutrition. Certainly, individuals can be educated about these facets of preventive health, but often the real constraints are in the availability of infrastructure, or, in the case of nutrition, simple poverty. There is no clear indication whether there has been any impact of the NRHM on the provision of rural infrastructure that affects health outcomes, though decentralization, especially where women are able to take leadership roles, seems to help (e.g., Dongre, 2009). NGOs are heavily involved

[5] In addition to categories of health care and public health, sanitation is an area that has important implications for health outcomes. Lack of access to clean or uncontaminated water is a source of multiple health problems. A recent PPP example that addresses access to clean water is the collaboration of WaterHealth International with village governments, mediated by the IFMR Trust (see http://www.ifmrtrust.co.in/fieldreports/water.php). I am grateful to Abhijit Visaria for this example. See also the discussion of sanitation later in this section.

in water and sanitation infrastructure improvement, but the question is whether there has been any beneficial integration of these efforts with health care more narrowly defined – or indeed whether any benefits can be expected.

To some extent, one conjectures that there can be a private sector bias (even in the case of NGOs) toward efforts that have emotional appeal or a high glamour quotient. Providing care to women and children certainly fits the emotional criterion. Certain diseases or health conditions may also have more appeal than others. Sanitation and clean drinking water are less thrilling, especially at small scales in rural areas or urban slums, where there is neither financial nor emotional return. On the other hand, the use of technology captures imaginations, and there are quite a few initiatives in Table 3 that involve telemedicine or mobile medical units. In both cases, the goal is to improve access (lowering access costs, increasing speed of access, or providing care where none was available at all), and this is certainly desirable. Technology is also important for managing data and thereby improving the quality of care or speed of response. In some cases, technological innovation may be justifiably attractive, because it does hold out the promise of breaking out of traditional constraints of action and operation, as well as greater scalability that may accompany technology use. In such cases, finance for innovations may be more available.[6]

Several of the programs in Table 3 involve health insurance for the poor. Effectively, this is about access as well, through overcoming financial constraints. People without health insurance in India either go to private providers and pay market rates for care, or go to

[6] I am grateful to Abhijit Visaria for this point. In a related point, he also noted that innovative approaches typically begin as pilot projects in a limited geography, and are scaled up when success potential is demonstrated. The example in footnote 5 is illustrative of this model.

government providers to receive free or subsidized care. In the latter case, however, there is severe rationing through transaction costs, including travel and waiting times. Health insurance schemes that are subsidized by the government and include private providers in the insurance system therefore relax the rationing constraint by allowing the poor to access a wider set of health care providers. Health insurance for the poor and less well off represents an important innovation for Indian health care, and can clearly be combined with many other kinds of public-private collaborations.

Finally, the component of the health care value chain that seems to be underrepresented in Table 3 relative to its importance is training of medical personnel. The NRHM allocates funds for training of auxiliary workers such as ASHAs and ANMs, but the education of doctors and nurses is a more serious challenge with no easy short run remedy. Some of the issues with respect to medical education are common to all of Indian higher education, and there is an ongoing reform effort which may lead to increased supply, more effective regulation of quality, and a balance of skill production that better meets the country's needs. In this environment, it is not surprising that there is not much innovation in institutional arrangements for medical education – it is not an area that lends itself to experimentation, but requires concerted national and state level reform. One exception to the lack of innovation is that of the new Indian Institutes of Public Health (Section 3), which provide advanced training in public health and health management for medical professionals, and therefore fill an important need, but without disturbing the existing system of education that underpins them.

Next, we turn to more detailed descriptions of three initiatives from Table 3. Chiranjeevi has been extensively studied and written about, but it is still worth summarizing the key

lessons of that effort. LifeSpring Hospitals have also been the subject of business school case studies, but the organization is not as widely known. The Merry Gold health network is in some ways the most important and ambitious of the three initiatives, and has not been analyzed in depth as far as we are aware. It is still evolving, though its genesis also provided the seeds of the LifeSpring hospital chain. All three efforts focus on aspects of maternal health, but with very different organizational approaches. All three have demonstrated some scalability, and therefore provide potential lessons for India as a whole. In the next section, we will focus on the implications for Punjab, in particular.

Chiranjeevi

The Chiranjeevi Yojana operates in Gujarat. Its entire focus is on facilitating institutional childbirth for women from low income households. Increased institutional deliveries have the potential to reduce maternal and infant (especially neonatal) mortality ratios (MMR and IMR/NMR).[7] The scheme has been successful in increasing the rate of institutional deliveries. A senior bureaucrat from the Indian Administrative Service (IAS) was chiefly responsible for envisioning and implementing the scheme.

The problem underlying a high MMR and IMR/NMR was first identified as a lack of doctors providing affordable and accessible childbirth services and related care. The difficulties with hiring or using additional government doctors were lags in training, lags in hiring, and lack of incentives for doctors to work for the government, or to put in adequate effort once hired. On the other hand, private sector doctors were available in sufficient numbers. The core

[7] Chiranjeevi does not itself cover newborn care, but one can expect some reduction in stillbirths or deaths within the first day or two of birth by virtue of having the delivery at a medical facility.

of The Chirnajeevi Yojana was therefore to devise an incentive mechanism that would bring private doctors into a network providing institutional deliveries for poor women. Clearly, this required a subsidy mechanism, but there were numerous nuances that needed to be understood and dealt with for the plan to work.

An important first step was to involve multiple institutions as advisors, to provide guidance, credibility and ongoing support. In effect, these institutions become stakeholders in the project. The outside institutions involved included the Indian Institute of Management (Ahmedabad), SEWA-Rural (an NGO), and the Federation of Obstetric and Gynecological Societies of India (FOGSI). The state health department, with thousands of employees, and 100 senior personnel, also had to have buy-in into the effort. Finally, private doctors had to be identified and consulted. Inputs from medical personnel were obviously critical for designing the scheme. A second, related step was the creation and articulation of a vision that emphasized social goals and not just monetary rewards: this was an important part of the motivation for private doctors to consider joining the scheme. Public recognition of contributions and achievements had to be built into the scheme.

The process of design and consultation led to several important features of the scheme as implemented. While the reimbursements for deliveries were not set very high, the plan was designed to generate high volumes of deliveries for participating doctors. This created another benefit, of rapid accumulation of experience and reputation-building for younger doctors. The volume reimbursement mechanism also reduced transactions costs of dealing with often slow and inefficient government departments that handled payments. In fact, non-timely payment has been one of the biggest problems for private providers contracting with government. Even

so, the payment process required constant monitoring by the senior bureaucrat in charge. Doctors were also given advance payments when they entered the program.

One important issue was how to handle cases outside normal deliveries. In particular, caesarian births, requiring a surgical procedure, have to be reimbursed at higher rates, but this creates an incentive to overdo such procedures. This was handled partly through the aggregation of reimbursements, combined with a cap of 7% for caesarian deliveries. Still, there were problems with some doctors, but these were a small minority of the hundreds who were signed up for the program. Another issue was the treatment of anemia in some mothers, and initially there was some evidence that cases with complications were being shifted to government hospitals, but this was later rectified to a large extent, though probably not completely.[8]

Other aspects of the program that needed construction were the selection of doctors, the involvement of the district health authorities, the creation of backup and referral networks for complications, the engagement of ancillary workers to make sure that eligible women were aware of the program and availed of it, and an insurance scheme to protect doctors against possible claims in consumer courts. Overall, many of these design elements require local adaptation, and one lesson of this effort is that a cookie-cutter approach does not work. Several other states have studied the Chiranjeevi scheme, without being able to replicate it successfully,

[8] While there is no ongoing or real-time monitoring mechanism, the state government or collaborating organizations do respond when they receive information that suggests frequent case-shifting by any individual doctor in the program.

and one argument is that successful implementation requires time-consuming study, careful design, and consensus building across multiple stakeholder groups.[9]

LifeSpring

LifeSpring is a small chain of maternity hospitals in Hyderabad and nearby locations. There are currently (as of early 2011) nine hospitals in the chain (six in Hyderabad), and the focus is on lower income working families in densely populated urban areas. The goal is to provide standardized, reliable, no-frills care for a population that is willing and able to pay a little to avoid the waiting, crowding and other problems associated with government health facilities, but cannot afford typical private facilities.

The chain was initially wholly funded by HLFPPT, which is a CSR spin-off of HLL Lifecare, itself a public sector enterprise making contraceptives and other health products for the Indian mass market. Later, additional equity was obtained from Acumen Fund, a social venture fund based in New York, but with a branch office in Hyderabad. After this initial investment from Acumen, the chain has been run as a for-profit venture. LifeSpring also receives guidance from the Institute for Healthcare Improvement (IHI) in Boston, which is dedicated to fostering clinical best practices.

Several features of LifeSpring make it a distinctive model. The emphasis is on a very specific target market, both in terms of the services provided and of who is served. There is

[9] The issue of reimbursement rates illustrates several of the points made in this paragraph. Chiranjeevi reimbursement rates were initially kept constant for several years, but were subsequently being reviewed. The rates were based on an initial consensus among service providers, the government and advisory groups. One possible cause of failure of a subsequent Chiranjeevi-type scheme in West Bengal was that doctors felt that the reimbursement rates were set too low.

little provided beyond basic maternity care, both antenatal and deliveries. There is not much pediatric care. Complex or high-risk cases are referred to specialty hospitals with which there are pre-existing links. A narrow focus allows for extreme standardization and process efficiency. Each hospital has 20-25 beds for minimum efficient scale, two doctors and eight nurses. The hospitals have a complete quality control department, and use IT-enabled billing and 24x7 customer-feedback systems. Clinical data is also collected and analyzed, to create India-specific benchmarks. There are virtual classrooms for doctors and nurses. Doctors serve as medical directors, rather than there being full-time administrators.

Pricing is also simplified, through an all-inclusive package price for a normal delivery with antenatal and some post-delivery care. Prices are determined based on the income characteristics and costs of operation for the particular neighborhood, but are typically lower than other private providers. There are a few higher-cost private rooms, but 90% of revenue is from general ward patients, and there is little cross-subsidization. There is not price discrimination among patients otherwise. Doctors do not make more for caesarian sections, but are rewarded for achieving quality metrics based on a large number of parameters.

Marketing is low profile, using some health camps and targeted campaigns (e.g., for particular occupations, such as auto rickshaw drivers), but avoids doctor referrals or explicit comparisons with other private providers. The focus on a very specific customer segment makes it easier to align marketing, as well as meet patients' expectations in the design of facilities. Relatively young doctors are recruited for the hospitals. The emphasis on careful recruiting, precise selection of locations, and strict monitoring of quality means that expansion is proceeding in a measured manner, although longer run plans are for as many as 100

hospitals, with 30 planned in the medium term. LifeSpring's model is more focused, and aims for a different market segment, then other new private chains such as Vaatsalya hospitals (in coastal Karnataka) or Apollo clinics, which use a franchise model.

Merry Gold

The Merry Gold health network is a multi-tiered model for providing access to quality, affordable maternity care. It operates in Uttar Pradesh, and has support from USAID and the UP government (through the State Innovations in Family Planning Services Agency, or SIFPSA), and involves a range of private providers and individuals. The genesis of the network was in LifeSpring-type hospitals in Agra and Kanpur, which were set up by the CEO of the current LifeSpring chain. These hospitals now serve as benchmark hospitals for the Merry Gold network, which is run by HLFPPT (the initial investor in LifeSpring), and has no other connection to the LifeSpring chain in Andhra Pradesh.

While the Agra and Kanpur hospitals are run directly by HLFPPT, there are about 30 other similar-size (20-25 bed) hospitals run by franchisees. These are spread over about half the districts of Uttar Pradesh. These "Level-1" franchisees typically have existing hospitals which are upgraded to meet the standards of facilities required for the Merry Gold branding. HLFPPT uses its two hospitals as benchmarks, and provides training and support services for the franchisees, including IT-enabled centralized patient tracking and billing, manuals for clinical best practices, and online help. HLFPPT also monitors and reviews the franchisees. The franchisees also receive loans for investments in upgrading, help with marketing campaigns, and operation under a government-approved umbrella. They accept prices fixed by Merry Gold, which are lower than typical "market" prices charged by private providers, but (as in the

case of Chiranjeevi and LifeSpring), have increase patient loads and capacity utilization as a result of the quality assurance they now provide potential patients.

The role of the government is quite different from that of a private chain like LifeSpring. Here, SIFPSA has been an active partner, and has provided funding for investment in marketing, training materials, upgrading of facilities and so on. Some of this funding comes from USAID, so the government acts as a channel for the aid flow. In other cases, NRHM funds are sought to be used for similar efforts. In practice, timely release of government funds has sometimes been a problem. In the case of Chiranjeevi, the senior bureaucrat in charge was able to monitor and effect timely funds release personally, but in this case the bureaucrat in charge of funding is not necessarily personally invested in the success of the project.

The Merry Gold health network is much more elaborate than either Chiranjeevi or LifeSpring, since it involves two more levels. Level 2 franchisees, termed Merry Silver, are smaller, 5-10 bed hospitals in more rural areas (as opposed to the towns such as district headquarters, in which Merry Gold hospitals are located). There are about 230 Merry Silver operators, or about seven or eight per Merry Gold hospital. Level 2 units provide outpatient care and normal deliveries, but caesarians and complications are referred to Level 1, where there is also a complete newborn care setup.

Level 3 of the network is less formal, and includes community workers, volunteers, health care workers (Anganwadi workers, ANMs, ASHAs), and local government officials. This level is called Merry Tarang (i.e., bronze) and provides referrals, information, help in access and community follow-up, including help with health camps. Affiliates at this level also serve

as a distribution network for contraceptives, vitamins and other health products. There are about 6000 Merry Tarang affiliates, or an average of about 25 per Merry Silver facility. The reward system for Merry Tarang members is not clear, and may vary depending on the main position held by an individual – it appears that the incentives may come from social recognition, or increasing effectiveness in other roles performed by the affiliates.

The ultimate goal is to cover most of UP's districts, with about 70 Merry Gold hospitals. The state government and SIFPSA are eager to achieve this target, but HLFPPT is conscious of the need to maintain quality standards, as well as having to push for timely disbursement of government-channeled funds. Ways of integrating health insurance and government schemes such as JSY more fully into the process are also being worked on. There are also challenges of management bandwidth as the network expands, and the time and transportation costs associated with monitoring several hundred facilities are already substantial. Several states are interested in implementing a model like Merry Gold, which is more ambitious in scope than either Chiranjeevi or LifeSpring, and more of a hybrid or joint venture than either of those other two efforts. Even in a state like Punjab, which is much smaller than Andhra Pradesh and Uttar Pradesh, but richer and more uniform in its socio-economic characteristics, all three models have potential lessons for future innovations in health care in the state. These implications will be discussed after current PPP initiatives are examined, in the next section.

7. Health PPPs in Punjab

Aside from recent government efforts to engage with NGOs under the NRHM, local efforts such as those of the Nabha Foundation (see Section 4), and some basic contracting out of services by government hospitals, the Punjab government's approach to PPPs in healthcare

falls very much into the standard model of infrastructure PPPs. These cases come under the second of our four categories outlined in Section 6. In some ways, Punjab's efforts are ahead of other states, and may be of value as models that can be applied in other parts of India. We will focus on these PPP efforts, but also discuss the broader public-private engagements that are occurring, and the potential for introducing models similar to the three cases highlighted at the end of Section 6. As is the case with many other aspects of Punjab's political economy, in health care, the state displays a paradoxical mix of advanced and backward institutional features.

High incomes and the geography of the state together have tended to focus government health care efforts (especially before the NRHM) in larger towns and cities. Secondary and tertiary hospitals have been perceived as greatly in need of upgrading. This issue goes back at least to the 1990s, and was the reason for the creation of the PHSC in 1996 (see Section 4). The PHSC itself went from being an autonomous corporation to a government entity under the state Department of Health and Family Welfare (DHFW).

The political economy of Punjab has played a role in the evolution of efforts to improve secondary and tertiary hospitals in the state. It has resulted in the state's public finances being in exceptionally poor shape, and has contributed to a pattern of beginning hospital construction projects and not completing them, or running the hospitals poorly if they are completed. The PGI, the region's premier hospital, lies in the Union Territory of Chandigarh, and receives substantial funding from the central government. However, it is increasingly overburdened, and severely impacted by the lack of good government hospitals in the state. There is also evidence that patients travel from Punjab to Rajasthan and Delhi for treatment

not easily available in Punjab. Private corporate hospitals have been moving in to fill some of these gaps, but do not serve a broad cross-section of the population.

There are therefore good positive reasons for a focus on developing hospitals through public-private partnerships, to combine operational efficiency, physical and human capital, and service to lower as well as upper income segments of the state's people. It is also the case that large scale construction projects are attractive from a political perspective, providing photo opportunities, concrete evidence of government activity, and possibly lucrative contracts to be awarded. It is impossible to quantify or document such factors, but they are certainly not specific to the health care sector, to Punjab, or even to India.

Process for PPPs

Having noted a set of shortcomings in Punjab's secondary health care system, one can begin a discussion of the progress of health PPPs in the state by acknowledging that the procedures for implementing PPPs are well defined and quite efficient. While there is no strategic plan or explicit priorities for PPPs, there is a set of possible projects that are commonly understood to need urgent attention. Initial ideas may come from senior levels of the DHFW, or from the PHSC. In either case, the PHSC formulates specific initial proposals. However, the process then moves to the Punjab Infrastructure Development Board (PIDB), which is responsible for all infrastructure projects in the state, not just those relating to health care. It works with all state government departments as needed, on a project-by-project basis. The PIDB was set up in 2002, and is funded by earmarked receipts from a cess on agriculture and petrol (gasoline). Andhra Pradesh and Gujarat have similar organizations, but Punjab's example here is relatively ahead of the rest of the country.

The PIDB is in charge of structuring each potential project and managing the bidding process. However, it brings in technical consultants for the project design. These consultants examine and make recommendations on all aspects of the projects, especially the financial structure, but also how it relates to other goals of the government. The consultants bring in general expertise with respect to capital projects, as well as domain knowledge specific to the health care sector. After the consultants make their recommendations, the PIDB pays great attention to audit requirements – it aims for a transparent tendering and bidding process. Obviously, the consultant reports are important in making sure that there are no ambiguities or loopholes in the project documents that are put out for bids. The consultants are also involved in advising on the bidding process and final selection of the private partner, since there may be issues that need clarification, or even lead to some restructuring of the proposal.

For health sector projects, the PIDB works with two consultants, Infrastructure Leasing and Financial Services (IL&FS) and Feedback Ventures (FV). There does not seem to be a clear process for determining which of these organizations is given responsibility for a specific project, but overall there seems to be a roughly equal division of labor. It is possible that avoidance of conflict of interest has some role in determining which firm is assigned which project, since FV has ties to some health care providers. Both companies are national players, and have broad portfolios of expertise, covering multiple sectors and types of projects. Each has a regional office in Chandigarh, which handles Punjab projects autonomously. IL&FS is headquartered in Mumbai, whereas FV's main corporate office is in Gurgaon (though its registered office is in New Delhi). FV's background is mainly in engineering services, though it has branched out considerably: for example, it provides business strategy consulting to three of India's four largest corporate health care chains, Max, Fortis, and Wockhardt. IL&FS, as its

name and headquarters location indicate, has its origins in the financial sector, essentially as an investment bank. However, the services that they specifically provide the PIDB are broadly the same.

Amritsar Hospital

The present state of PPP efforts in health care in Punjab reflects a process of evolution and learning. An early project involved the Amritsar district civil hospital, which had only a fraction of its capacity of 150 beds in operation. It had been constructed by the government, and there was an attempt to bid it out to a private operator, with a social obligation (serving a minimum percentage of poor patients) built into the PPP agreement. Such conditions have been routinely built into concession agreements with corporate hospitals, but have been difficult, if not impossible, to monitor effectively, and therefore to enforce. Given the nature of the existing hospital, and the lack of a "super-specialty" focus, there was limited interest from private players. Apollo, Fortis and Christian Medical College, Ludhiana all responded initially, but withdrew one by one. There were also apparently issues of internal resistance from the PHSC, within the government, since it would have lost control of the hospital and staff would have had to be relocated. The end result has been that no progress has been made in this case (although the state government has apparently directly spent large sums on upgrading the hospital), but the experience did provide several lessons for subsequent projects.

Mohali and Bathinda Hospitals

The state's most potentially successful PPP project in healthcare has been the agreement with Max Healthcare to construct and operate two new super-specialty hospitals in Mohali and Bathinda. Both will have cancer treatment as a focus, with Bathinda also addressing cardiac

care (a gap in the region), and Mohali having a trauma center (being near an accident-prone national highway location). The need for these hospitals was identified based on evidence that Punjab cancer patients travel as far Bikaner in Rajasthan and Delhi for treatment. Bathinda has a high incidence of cancer, possibly associated with high pesticide use and groundwater contamination.

The possibility of constructing new, state-of-the-art customized hospitals with specializations made this project more attractive than the Amritsar case. The consultant in this case was IL&FS. There was more initial interest than for Amritsar, with six firms attending the pre-bidding meeting, but the global financial crisis took its toll, and several potential bidders dropped out. Fortis exited the process at the last minute, leaving Max as the only interested party. Some potential bidders were concerned about the new financial model for the agreement, involving revenue sharing of 5% of gross revenue. From the point of view of social objectives, the revenue sharing model makes much more sense for the government, since it can be monitored through a listed company's accounts. The government's revenue share is to be used to set up a health fund, which will in turn subsidize poor patients who use the hospital. This also avoids any need to monitor or set prices, leaving those up to the market. It is possible that the pricing and subsidy scheme will leave out those with middle or low incomes who are above the poverty line, but that is also an issue with schemes based on specifying the mix of poor and non-poor patients.

The government has provided land on 50 year leases for the two hospitals, at nominal upfront payments of approximately Rs. 50 million for Mohali and Rs. 15 million for Bathinda. This land was available in the local district civil hospitals in each location. At a market value of

Rs. 1 billion (mostly skewed toward Mohali), the project would have to generate gross revenue equal to that amount annually to provide a rate of return of 5% on the land.[10] The construction and provisioning cost of the two hospitals, each to have about 200 beds, is about Rs. 2.5 billion. About half this cost is being financed by the International Finance Corporation (IFC), which has been a prior investor in Max Healthcare. For each hospital, Max has set up subsidiaries to run the hospitals and manage the construction projects. They were awarded the bid in February 2009, ceremonial groundbreaking took place toward the end of that year, and construction began in 2010, with estimates of being completed in late 2011 or early 2012. Interestingly, Feedback Ventures has been awarded the job of providing construction services for the Bathinda hospital – this is related to the earlier point about avoiding conflict of interest, at least on specific projects, though it might raise concerns in an environment where there are very few potential providers of services and very small networks of individuals in charge.

Jalandhar Hospital and Medical College

Another PPP project, a hospital-cum-medical college in Jalandhar, has actually begun operations, but illustrates some of the difficulties that can arise in these ventures. The original impetus for a medical college came from Non-Resident Indians (NRIs) in the 1990s. The region around Jalandhar has a very high rate of emigration, and the emigrants maintain close ties to their birthplaces. At the time, the rationale for a medical college in this location was not apparent, since there were already two colleges in nearby Ludhiana. With time, however, the general shortfall of good medical graduates in the state has increased. There were some issues arising from the separation of medical education from health care within the state government

[10] One reported figure for the estimated total revenue that would be earned by the government over the 50 year lease period is Rs. 12.25 billion (possibly just for the Mohali hospital), or about Rs. 0.25 billion per year. This figure, neglecting discounting, would represent a much higher rate of return.

bureaucratic structure, and for this and various other reasons, the project took six or seven years to bid out (Feedback Ventures was the consultant in this case). The investment required was also underestimated, and the final investment by the government approached Rs. 2 billion. Finally, an NRI group was awarded the project, called the Punjab Institute of Medical Sciences (PIMS). The private partner was to provide all equipment and staff. The governing body of PIMS is headed by someone with ties to the ruling party in the state government.

The parameters of the agreement for PIMS followed conventional PPP lines, requiring that BPL patients be treated free of charge. The rates charged other patients were also controlled, being set equal to those charged by the PGI in Chandigarh. The PIMS hospital began operating in mid-2010, and immediately the governing body sought to renegotiate these key provisions, backing off from providing free treatment for the poor, and arguing that rates had to be set higher than PGI because of the latter's subsidy from the central government. The provision regarding BPL patients is meant to be monitored by an onsite government committee, but they have not been allocated office space. Meanwhile, the Medical Council of India, in their inspection to determine whether PIMS could grant medical degrees, found some deficiencies that will need to be corrected, and declined their approval for now. Ultimately, all these issues may be smoothed out, but they illustrate some of the complexities of PPPs with multiple objectives and masters, and the problems of political economy that can arise in their design and functioning.

Fatehgarh Sahib Mother and Child Hospital

Fatehgarh Sahib is the headquarters of the district of the same name, but is a much smaller town than cities such as Amritsar, Ludhiana and Jalandhar. Several years, ago, it was

proposed that a maternal and child care specialty hospital be built there, with 60 beds. IL&FS was consulted, and a PPP model was proposed, based on a careful analysis of the local market. However, the PHSC decided to go ahead with a purely government hospital. About Rs. 25 million were spent on construction, but then the money ran out, no more was forthcoming from the government budget, and the project lay incomplete. IL&FS was once again asked to consider a PPP model for the incomplete project. In early 2011, the PIDB tried an e-tendering and e-procurement process for the proposed mother and child Hospital. However, the process was unsuccessful and PIDB will re-initiate the process following standard paper procedures. Apparently, this was the first time that PIDB was trying a fully-online process for health PPPs. However, private players in healthcare, especially the smaller ones attracted by this opportunity, have little or no experience with such online systems, and there were issues such as not being able to pay the tender fee online.

In a case like this, the project is too small for revenue sharing, and a fixed fee is the likely model that will be used. Corporate chains will not be interested in small scale hospitals, and smaller private do not have disclosure requirements, implying that revenue sharing cannot be implemented. Apparently, there may also have been design flaws in the project. It is not clear that the location can support a 60 bed hospital specializing only in maternal and child health, especially given the presence of many small private maternity clinics or nursing homes. A smaller facility, initially with as few as 30 beds, and with general medicine and general surgery as additional specialties might be more commercially feasible. In response to these concerns, the project as now proposed extends permission to the successful bidder to expand the range of services beyond maternal and child health, as well as increasing the number of beds once the incomplete building has been completed. Note that a private operator, if

recruited earlier, might have been able to complete construction for not much more than the government spent on just the foundation, beams and columns of the incomplete hospital. Overspending on construction appears to be a generic problem with government hospitals. In general, giving the private partner more control over design, construction, operations and pricing is more likely to lead to active private sector interest in bidding and investment in such locations.

Nangal General Hospital

The Nangal project has had a history somewhat similar to that of Fatehgarh Sahib. In this case, a general subdivisional hospital was proposed to be constructed, rather than a specialty hospital. Land was obtained and cleared, but again, state budgetary difficulties brought construction plans to a halt. A PPP model is now being considered, with analysis done by Feedback Ventures. The nature of the market here is quite different, with positives and negatives for a private operator. On the one hand, the Nangal area has several public sector enterprises, such as a fertilizer plant, and they could form a source of patients if there is coordination with these enterprises. On the other hand, Nangal is a relatively small town, and serves a rural population that includes people from the neighboring state of Himachal Pradesh. Hence, the market the hospital would serve is heterogeneous, and might be difficult to provide with focused services at uniform prices.

Nabha Civil Hospital

Nabha is an ex-princely state, and is at a crossroads of several highways. Its hospital is quite large, and has sprawling grounds. The initial proposal from the PHSC was to sell a

portion of the land to private entities (not necessarily for health care services) and use the revenue to build a new government hospital. IL&FS recommended against this plan, as it has no synergies between the different uses of the land, and does not maximize the social value of the land. Instead, IL&FS is exploring options such as a medical college for training "rural doctors," who now need only a 3-year degree to engage in basic practice. Nabha has a tradition of providing educational services, and is home to a prestigious school and college set up under the former ruler of Nabha. Patiala, which is very near and is the district headquarters, is also an educational hub. At this stage, options for Nabha are still being considered by the state government.

Lessons

Despite the existence of a well defined process for developing PPP agreements, and a clear process of learning by doing, the cases above illustrate several issues with the approach taken so far. First, there is a significant degree of local variation that makes it difficult to develop a cookie cutter approach. The current approach is slow and will take a long time to have significant impacts. Second, there are significant differences in the economics of large urban super-specialty hospitals and the smaller hospitals required where there is possibly the greatest need. There is still a great deal of learning required for serving small town health care markets. Third, the approach being taken focuses on creating new physical infrastructure, without addressing the possibility of improving the efficiency of use of existing private sector infrastructure. In general, there is a tension between the government's desire to appear that it is providing public services (whether they are suitable for government to provide or not) and what might be the optimal approach – the latter providing more flexibility to the private sector. On the other hand, the problem is not one of lack of clarity in contracts. There are problems of

monitoring and enforcement, and the contracts may not always be the best that could be designed, but the Punjab approach has been quite systematic and transparent at the design and bidding phases.

In some respects, several of the PPP projects under consideration can be seen as driven by, or constrained by, history. They revolve around land belonging to existing hospitals, or government hospitals that have not got off the ground, and are being offered to the private sector to rescue. The result is a fragmented or piecemeal approach. It also seems that the government desires that projects have some showcase element, or otherwise politically attractive story that can be told. A super-specialty cancer hospital in a marquee location that serves rich and poor, but probably not those in the middle, epitomizes that characterization. On the other hand, it is in the broad middle of the income spectrum that health care provision may be the least satisfactory, where people have the capacity to pay reasonable amounts, but cannot reliably get affordable, no-frills care from a trustworthy provider. The PPP initiatives do not seem to take a systemic view, and do not exhibit scalability. The poorly functioning and inadequate training pipeline is also not well addressed by the existing approach to health care PPPs in Punjab. However, it may be that a scalable, systemic approach is in the works for some components of health care. In particular, the PIDB has asked Feedback Ventures to assess the feasibility of PPPs for diagnostic centers throughout the state.

At the other end of the spectrum from high-end hospitals,[11] NRHM efforts are certainly bringing in money and institutional innovation, but they share a philosophy of government

[11] Government hospitals in Punjab are successfully outsourcing maintenance tasks, and even some medical functions. These are relatively well-established efforts that improve efficiency and reduce costs, but they do not fundamentally change the overall effectiveness of the health care system. If

primacy in any partnerships with the private sector. Unlike some other states, Punjab has no significant attempts to contract out rural health care facilities to NGOs. The emphasis is very much on trying to restore some degree of public sector effectiveness, and indeed, that is crucial for public health tasks and for serving the poor – which is the focus of the NRHM. Again, however, in a rich state like Punjab, there is a substantial middle that would probably benefit from a different type of approach.

Let us now briefly consider the three cases discussed in the previous section. LifeSpring Hospitals, which is primarily a private venture, but with some public funding and regulatory accommodation, suggests a model that could be very successful in Punjab, whether for maternity care or other focused segments. The LifeSpring model provides good minimum quality through standardization and process efficiencies. The constraints on such a model are start-up capital and management bandwidth. The latter means that it is unlikely that existing chains from the south or west of the country would consider expanding in Punjab or elsewhere in the north. On the other hand, there is scope for existing northern-region players to create such new ventures, if given the right encouragement by the state government. Such an effort could be handled by the PIDB-consultant combination, using accumulated expertise, to design a model that allocates land in multiple sites with an appropriate contract. There can be considerable efficiencies in jointly analyzing the feasibility of setting up a small number of hospitals in a group of towns that have similar demographic and socioeconomic characteristics. It has been suggested that existing chains such as Fortis and Max might not welcome new entrants, even if in a market segment that is not their current focus. However, this is a

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the PPP model is successful at a statewide level for diagnostic centers, it may mark the beginning of a more basic improvement in effectiveness.

proposition that can be tested, and existing corporate chains may also find some attraction in achieving instant scale, through setting up multiple hospitals at once. Other potential entrants include NRIs and pharmaceutical companies looking for new markets through vertical diversification.

The Merry Gold example suggests some important additional lessons. One key idea in the Merry Gold case is the creation of a multi-tiered network of providers, with referrals across tiers. A second feature is the incorporation of existing private providers (rather than trying to create everything from scratch), but with clear minimum quality standards, backed by effective training and support services. While Punjab is a much richer state than Uttar Pradesh, one of its weaknesses is a lack of coordination among different levels and components of the health care system. Another is the great variation in quality among private providers. While the NRHM is also seeking to improve coordination among different levels of the government health care system, there is no reason why the NRHM cannot also incorporate private providers into this system. As in the UP case, where Merry Gold and Merry Silver private providers fill gaps where there is no government provision, the Punjab model might focus on particular specialties for turning to private clinics and nursing homes. Maternal and child health (together or separately) are obvious candidates in Punjab, given its MMR and IMR that are worse than its income levels would warrant.

In this context, it is worth noting that there is considerable variation within Punjab in the availability of health care, especially through the government system. Many of the cases we have been considering are in locations in Punjab that are already relatively well served. Private providers with some kind of government encouragement (monetary or simply regulatory

support) may well be able to play a positive role in areas such as Ferozpur, Mansa, Gurdaspur and Faridkot. In these areas, there are often acute shortages of government provided health care, with many facilities not being staffed at all. Increasing the capacity of the private sector may be more efficient than trying to build up the public sector in the face of multiple inefficiencies.

A Merry Gold type model may be more appealing to the Punjab government than the LifeSpring approach (though the latter is close in essentials to the Max PPP for Mohali-Bathinda), since it scales up better, covers more levels, creates a network, and, most important of all, gives government a more prominent role. On the other hand, LifeSpring-type chains would be easier to get off the ground. In either case, the benefits of standardization and process efficiency are important ones that are missing from the Chiranjeevi model. Chiranjeevi achieved scale, but its economics and institutional features may not work as well in Punjab. It certainly allows tapping into the expertise of (possibly underutilized) private providers, but does not improve quality, at least directly. Lifting private health providers to "international" standards of clinical care, while avoiding luxury approaches, might appeal better to residents of Punjab than the more barebones Chiranjeevi approach.

It is important to realize that, while the three case studies in the previous section all related to maternal health and childbirth services – and these are areas where Punjab has deficiencies – the principles of standardization, process efficiencies and scaling can be applied to other focused areas. Some specialties require more equipment and therefore greater capital investments, but there is no reason for PPPs to be restricted to maternal health. With greater efficiency, an appropriate combination of basic health care services (such as in the case of

Vaatsalya) may be commercially viable at lower price points than have been heretofore achievable or sustainable, and therefore scalable.

One significant area not addressed by the case studies from other states is the question of medical training. This includes not just doctors, but also nurses, and the new category of "rural doctors." In keeping with the national effort to reform higher education, there may be scope to introduce more private partners into the provision of medical education. This will require greater coordination between the different government departments responsible for health care and for education, since medical colleges need to be associated with hospitals. There could also be better coordination between existing private institutes such as nursing schools, and government hospitals. At least in Punjab there is strong recognition of the inadequacy of supply of doctors in the state, and the need to train more of them. This has yet to be translated into a systematic policy that includes private sector involvement and partnerships. One new educational development that is separate from the primary problem of medical training, but has some bearing on the issue of lack of managerial talent for health care institutions, is the plan for a new Mohali campus of the Indian School of Business, which will include an institute for health care management, funded by Max Healthcare.

Medical education may be the most challenging aspect of the health care value chain, but there are other areas for exploring PPPs that have the character of low hanging fruit, if the political economy barriers – the tendency for government to want to project itself beyond its capacity to follow through effectively – can be overcome. Several components of the health care system that are being affected by NRHM funds and reorganization efforts might better be tackled through greater involvement of the private sector. Essentially, the NRHM seeks to

upgrade physical infrastructure and replenish the depleted human capital of the government health system. The former is being achieved through equipment purchases, refurbishing of buildings and investment in new technologies. However, the human capital improvement is only piecemeal, and does not get to grips with the heart of the organizational incentive problems. Hiring doctors on contract does not by itself ensure attendance, and the system of allocation of human resources being tried through the NRHM is somewhat better, but still highly inefficient.

The solution lies in assigning larger bundles of control to private operators. Essentially, this is what the Mohali and Bathinda hospitals achieve, as does PIMS Jalandhar. In the context of the ambit of the NRHM, this approach could include giving out clusters of government health centers on contract to private operators, or doing the same with fleets of medical vans that have been purchased with NRHM funds but lie idle. It has been suggested that the human resource allocation model across village health centers is fundamentally problematic, because doctors do not wish to live in villages, and because the timings of these centers do not fit daily rural work rhythms. Rather than trying to alter a rigid government system, or tinker with it around the edges (which is what the NRHM appears to do), private lessees might be allowed to assign doctors differently across locations, using mobile phones and vehicles to coordinate visits and use doctors' time more effectively. A private operator might choose to base a squad of doctors in a hub location, sending them out daily for visits to villages along spokes of the hub.[12] The point is that private operators can be given the chance to experiment and innovate in

[12] These ideas are based on the suggestions of a former government doctor who runs a successful hospital in Patiala. He pointed out the inefficiency of the allocation of doctors, as well as the demoralization that is associated with isolation in village locations.

creating small local systems of health care for specific population clusters. This can lead to larger scale innovation through diffusion of successful experiments.

The crucial issue in implementing such possibilities is that of setting, monitoring and enforcing public goals for private operators. Without such public goals, the effect is privatization. A common problem with PPPs is the difficulty of monitoring and enforcement. In many cases, such as the initial agreements between state governments and Apollo Hospitals, the corporate organization seems not to have fulfilled quotas of poor patients served. In the Jalandhar PIMS example, there appears to be an upfront attempt to renege on a similar sort of agreement. The Mohali-Bathinda example has the virtue of simplicity of monitoring and enforcement, not even requiring price controls, since poor patients are to be indirectly subsidized through the revenue-share fund, but this can only work for publicly listed firms. The answer probably lies in establishing performance benchmarks for private concessionaires, using the kinds of methods being developed in cases like LifeSpring and Merry Gold to raise minimum quality of clinical care, together with a more general insurance scheme that is funded by pooled revenue from different PPPs. The government therefore shifts from managing most individual health facilities, to providing an organizational infrastructure that increases the efficiency of private providers through regulation of standards, provision of services to raise standards, and insurance mechanisms to make health care affordable for the less well off.

8. Conclusions

By examining health care sector PPPs in Punjab in the context of the overall status and evolution of health care services in India and the state, the conceptual underpinnings of PPPs, and the range of health care PPPs and related initiatives throughout India, we have been able

to suggest some possible innovations with respect to the engagement of the private sector in health care in Punjab. It is clear that the private sector alone cannot effectively fulfill certain roles in health care services. In particular, large scale public health issues, or any aspects of health care that involve significant externalities or ethical concerns (e.g., sex-selective abortions) may require public intervention in service delivery. However, the evidence suggests that access and quality concerns can be met by effective public sector regulation and incentive provision, with private sector delivery, rather than trying to suddenly and drastically overhaul the public sector, or by creating parallel new public sector institutions alongside those that already exist.

Punjab is a high income state by Indian standards, and it has a large number of private health care providers, albeit of extremely variable quality. There is an argument for improving the quality of the private sector by making the public sector more effective and more competitive. This is one aspect of the NRHM philosophy. However, to the extent that public sector health care delivery requires more fundamental institutional reform and evolution than is possible in a short period of time, the harnessing of private sector incentives may be a good alternative. Even though Punjab is a well-off state, its governance capacity and quality are relatively low, by some judgments. On the other hand, the institutional processes that the state government has developed for PPPs in infrastructure have been applied with some success to health care infrastructure, i.e., hospitals, and can potentially be extended to more scalable solutions to the problem of variable or inadequate quality health care.

The issue of access is sometimes conflated with affordability, and from there used to justify public sector provision of health care services. On the other hand, experiments in poorer

states are showing that no-frills private sector provision can work for the lower middle class, even without subsidization, and for the poor through voucher or insurance schemes. In other words, it is possible to decouple distributional equity and access constraints due to affordability from public sector provision, even in relatively poor states. Hence, this represents a potentially feasible but relatively unexplored model for Punjab. Even in the broad middle range of income levels, there is potential for more efficient, and therefore better priced, health care, based on models being implemented in other states.

Making progress in the directions suggested in this study will require considerable detailed analysis, but before that, a fundamental strategic rethinking of public-private roles in health care will be needed. There may also be difficult political economy problems that have to be faced, since the current system, even with NRHM-induced reforms, does have certain vested interests. However, the first step in innovation or reform is always to offer new ideas for discussion and debate. This study attempts to add to the set of possible policies that might be considered for improving health care services and outcomes in Punjab.

9. References

ADBI. (2000). *Public Private Partnerships in Health.* Executive Summary Series No. S34/01. Executive Summary of Proceedings (30 October-3 November), Ayutthaya, Thailand. Tokyo: Asian Development Bank Institute.

Annigeri V.B., Prosser L, Reynolds J, Roy R (2004), An assessment of public-private partnership opportunities in India. Washington, D.C., LTG Associates, Population Technical Assistance Project [POPTECH], 2004 Nov. [71] p. (USAID Contract No. HRN-C-00-00-00007-00)

J. Bennett and E. Iossa (2006), "Building and Managing Facilities for Public Services," *Journal of Public Economics*, **90**, 2143–60

T. Besley and M. Ghatak (2001), "Government Versus Private Ownership of Public Goods," *Quarterly Journal of Economics*, **116**, 4, 1343–72

Dewatripont, Mathias and P. Legros (2005), "Public-Private Partnerships: Contract Design and Risk Transfer," *EIB Papers*, **10**, 120–145

Dimovska, Donika, Stephanie Sealy, Sofi Bergkvist, Hanna Pernefeldt (2009), *Innovative Pro-Poor Healthcare Financing and Delivery Models*, Washington, DC: Results for Development Institute, Rockefeller Foundation

Dongre, Ambrish (2009), ""Female Political Leadership and the Prevalence of Water Borne Diseases: Evidence from a Natural Experiment in India," UCSC working paper

Engel, Eduardo, Ronald Fischer and Alexander Galetovic (2008), "The Basic Public Finance of Public-Private Partnerships," Cowles Foundation Working Paper, Yale University

Government of India (2006), *Draft Report on Recommendation of Task Force on Public Private Partnership for the 11th Plan*, New Delhi: Planning Commission

Hart, Oliver (2003), "Incomplete Contracts and Public Ownership: Remarks and an Application to Public-Private Partnerships," *Economic Journal*, **113**, C69–C76

McKinsey and Company (2008), *Public Private Partnerships: Harnessing the Private Sector's Unique Ability to Enhance Social Impact*, Social Sector Office, September 15

Raman, A Venkat and James Warner Björkman (2009), *Public/Private Partnership in Health Care Services in India*, New York: Routledge

Singh, Nirvikar (2008), Decentralization and Public Delivery of Health Care Services in India, *Health Affairs*, 27, no. 4: 991-1001, doi: 10.1377/hlthaff.27.4.991

10. Appendix

List of persons interviewed

By Nirvikar Singh

1. Anurag Agarwal, GoP, NRHM
2. Isher Ahluwalia, ICRIER
3. Montek Singh Ahluwalia, GoI, PC
4. Tomas Nordheim Alme, UN-NIPI
5. Sofi Bergkvist, ACCESS Health Intl.
6. C.L. Bhatia, GoP, NRHM
7. Gautam Chakraborty, NHSRC
8. Satish Chandra, GoP, DoHFW
9. Gen. Satish Chopra, Nabha Fdn.
10. Shivdular Singh Dhillon, GoP, PIDB
11. Anant Kumar, LifeSpring Hospitals
12. Dr. Neelam Kler, Sir Ganga Ram Hospital, Delhi
13. Maj. T.S. Manko, Nabha Fdn.
14. Don Mohanlal, Khemka Fdn.
15. Monique Mosolf, USAID
16. Megha Pawar, IL&FS
17. Dr. Shubhra Phillips, HLFPPT
18. Vikram Rajan, World Bank
19. Venkat Raman, U of Delhi
20. Dr. Siddharth Ramji, Maulana Azad Medical Coll., Delhi
21. M. Govinda Rao, NIPFP
22. Krishna Rao, PHFI
23. Sukhbir Singh Sandhu, GoP, PIDB
24. Vipin Sharma, GoP, PHSC
25. Amarjit Singh, GoI, NPSF
26. Dr. Gurinderbir Singh, Mohali, NRHM
27. Sukhbir Singh, GoP
28. Amarjeet Sinha, GoI, MoHFW
29. Dr. Sudhir Verma, Sadbhavana Hospital, Patiala
30. Dr. Purshottam, GoP, PHSC

By Abhijit Visaria (Mr. Visaria interviewed several of the above individuals separately as well)

1. Rama Baru, JNU
2. Jai Singh Gill, GoP, PERC
3. Dr. Harish Malhotra, GoP
4. Arun Nair, NHSRC
5. T. Sunderaraman, NHSRC